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ABSTRACT BOOK



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The 26th
Congress of the
Asian Pacific Society
of Respiriology



Young Investigator Awards

YIA -1-1

Distinct impacts of centrilobular vs. paraseptal emphysema on annual decline in pulmonary function in COPD.

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Background and Aim

Sarcoidosis are poorly understood which hinders biomarker development; diagnosis is often delayed and based on invasive biopsies. Airway epithelia are the first point of contact between inhaled antigens and the host lungs and orchestrate host immune responses to exposures. Our central hypothesis is that airway epithelial cells from people with sarcoidosis will have abnormal responses to inflammatory triggers.

Methods

We collected and cryo-preserved nasal airway epithelial cells from 60 people with biopsy-confirmed sarcoidosis and healthy controls. In a pilot study, samples from four people with sarcoidosis and four healthy controls were utilized;

matching basal cells and fully differentiated airway epithelia at the air-liquid interface were exposed to a panel of candidate sarcoidosis triggers. We measured secreted cytokines in culture media and performed RNA sequencing of all samples.

Results

We found that airway epithelial cells from people with sarcoidosis have increased responses to various proposed sarcoidosis triggers, including bacterial and fungal extracts.

Conclusion

Airway epithelia from people with sarcoidosis have abnormally increased responses to bacterial and fungal extracts which suggest hyperresponsive epithelia in sarcoidosis may promote immune cell recruitment and activation, with subsequent long-term sensitization and granuloma formation.

YIA -1-2

Loss of Endothelial Sphingosine-1-Phosphate Receptor 1 (S1PR1) Exacerbates Injury-Induced Pulmonary Fibrosis.

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Background and Aim

Pulmonary fibrosis is a debilitating lung disease characterized by the progressive loss of lung function, believed to result from dysregulated wound repair following lung injury. Bioactive phospholipids such as sphingosine 1-phosphate (S1P) have been implicated in the pathogenesis of pulmonary fibrosis. We recently published that loss of endothelial S1P receptor, S1PR1, exacerbates bleomycin induced pulmonary fibrosis in mice with increased vascular permeability and extravascular coagulation¹. Here we extend our mechanistic studies in bleomycin to clinically relevant influenza A virus (IAV) infection, which has been associated with long-term lung dysfunction due to lung fibrosis.

Methods

Mice with the S1PR1 gene floxed (S1PR1 f/f) were bred to mice expressing tamoxifen-inducible endothelial specific Cre recombinase (CDH5-CreERT2). After deletion, mice were challenged with intratracheal (IT) bleomycin or intranasal IAV. Lung vascular permeability was measured by performing Evans blue dye extravasation assays. Pulmonary fibrosis was quantified by measurement of total lung hydroxyproline (OHP) content.

Results

In bleomycin and IAV induced lung injury we observe a loss of pulmonary S1PR1 that correlates to the development of fibrosis. Causatively, endothelial-specific deletion of S1PR1 resulted in increased pulmonary vascular leak by day 7 after injury with increased lung fibrosis by day 14 in both injury models.

Conclusion

Endothelial dysfunction, such as deletion of S1PR1, in the context of lung injury exacerbates pulmonary fibrosis. The conserved importance of S1PR1 after lung injury suggests a critical role of the endothelium in regulating productive repair processes. Promoting repair through endothelial S1PR1 agonism could provide a novel and effective anti-fibrotic strategy.

Acknowledgements

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References

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YIA -1-3

Correlation between hand grip strength and peak inspiratory flow rate in patients with stable chronic obstructive pulmonary disease

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Background and Aim

Optimal peak inspiratory flow rate (PIFR) is thought to be required for effective drug delivery to distal airways when using dry powder inhalers (DPIs). PIFR is associated with hand grip strength (HGS) among hospitalized patients with chronic obstructive pulmonary disease (COPD) with exacerbation and among male patients with mild COPD. The relationship between PIFR and HGS in clinically stable COPD patients has not been explored. This study aimed to examine the association between PIFR and HGS in stable COPD patients.

Methods

A cross-sectional study was conducted. PIFR was measured using the In-check DIAL to simulate resistance of Accuhaler and Turbuhaler DPIs. A PIFR of < 60 L/min was considered suboptimal PIFR. HGS was measured using a handheld dynamometer. Demographics, clinical data and spirometric data were collected and compared.

Results

Eighty-one patients (86%men) were included. Mean age was 73.3±8.9 years. FEV1 was 65.3±23.7%. The prevalence of suboptimal PIFR was 38% and 59% for Accuhaler and Turbuhaler, respectively. HGS in the suboptimal PIFR group was lower than in the optimal PIFR group for Accuhaler (22.8±4.7 vs 33.2±6.9 kg, P

Conclusion

HGS correlated with PIFR in patients with clinically stable COPD and threshold values associated with suboptimal PIFR were identified. HGS may be used as an alternative tool to assess an optimal inspiratory force for DPIs.

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YIA -1-4

Prevalence, Characteristics, and Risk of Exacerbation in Young patients with Chronic Obstructive Pulmonary Disease

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Background and Aim

Early identification of chronic obstructive pulmonary disease (COPD) in young individuals could be beneficial to attempt preventive interventions. The objective of this study was to investigate clinical features and outcomes of young individuals with COPD from the general population cohort.

Methods

We included individuals from the Korean National Health and Nutrition Examination Survey (KNHANES) with spirometry and identifiable smoking status. Young subjects with COPD were defined as aged between 40 and 50 years and had baseline forced expiratory volume in 1 s [FEV1]/forced vital capacity [FVC] ratio less than 0.7. Outcomes include the risk of exacerbation and medical expenses during three years of follow-up.

Results

Among 2,236 individuals aged between 40 and 50 years, 95 (4.2%) had COPD, including 47 who were non-smokers (smoking pack-year <10) and 48 who were ever-smokers (smoking pack-year ≥ 10). Approximately 98% of COPD subjects had mild to moderate airflow limitation. Inhaler treatment was given to only 6.3% patients in the COPD group. Hazards ratio for exacerbation was 1.50 (95% confidence interval [CI]: 0.147-13.39) in the non-smoker COPD group and 1.83 (95% CI: 0.18-18.11) in the ever-smoker COPD group of young subjects. COPD related medical costs were not significantly different between non-COPD and COPD groups of young individuals.

Conclusion

The risk of exacerbation showed an increasing trend in COPD patients regardless of smoking status compared to non-COPD. More attention to early identification and provision of preventive measures are needed to reduce disease progression and improve outcome.

YIA -1-5

A relationship between female sex hormones, cellular metabolism, and asthma

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Background and Aim

Women are more affected by asthma than men. Up to 40% of pre-menopausal asthmatic women experience a worsening of asthma symptoms during the late luteal and early follicular phases of their menstrual cycle, highlighting a potential role for female sex hormones in the pathogenesis of asthma. Asthmatic women on the oral contraceptive pill (OCP), which eliminates monthly fluctuations in hormone levels, have improved asthma symptoms and reduced asthma risk. An improved understanding of how female sex hormones and the OCP influence asthma-associated immunological responses and consequent disease outcomes may highlight new treatments for asthma.

Methods

The effects of fluctuating hormone levels on metabolic responses were assessed in peripheral blood mononuclear cells (PBMCs). The effects of 17 β -estradiol, depot-medroxyprogesterone (DMPA) and the OCP as well as inhibition of glucose-transporter 1 (GLUT-1) (via BAY876), on key features of disease and metabolism-associated gene expression were assessed in murine models of experimental asthma.

Results

Fluctuating sex hormone levels have differential effects on metabolism and TNF- α production in PBMCs. 17 β -estradiol promotes features of severe experimental asthma (increased airways resistance, neutrophil-dominant inflammation, NLRP3 expression) and GLUT-1 expression, whilst DMPA and the OCP reduce disease and GLUT-1 expression in the lungs in experimental asthma. Inhibiting glucose metabolism, using BAY876, achieved the same protective outcomes as DMPA and OCP treatment.

Conclusion

This data demonstrates that female sex hormones alter asthma outcomes through the modulation of cellular metabolic pathways, highlighting the potential for harnessing these sex hormone mediated, immune-modulating effects, for the improved control of asthma in women.

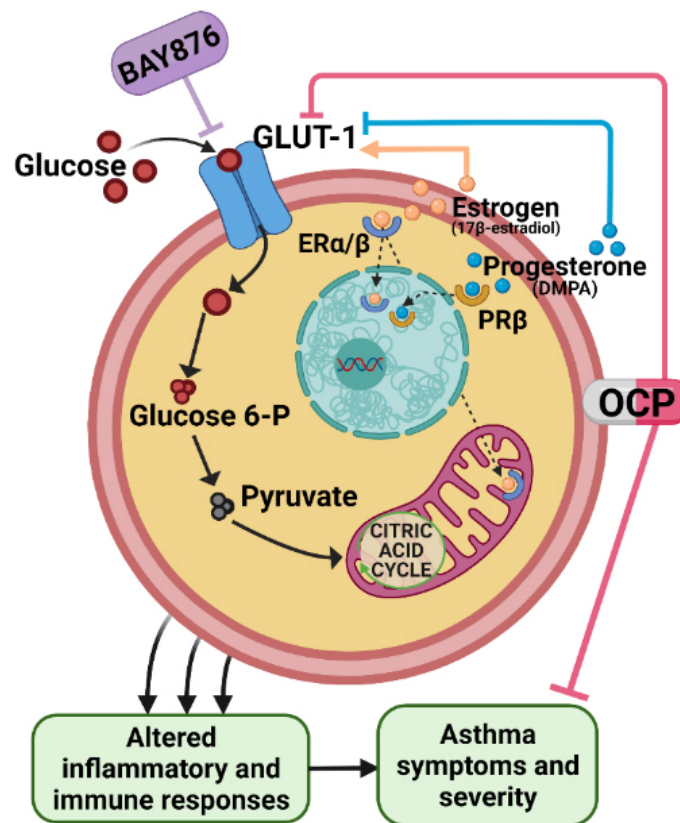


Figure 1. Female sex hormones modify cellular metabolism and consequent inflammatory responses in asthma. Era = estrogen receptor alpha; PRβ = progesterone receptor beta; glucose-6-P=glucose-6-phosphate.
Figure generated using BioRender.com

This abstract was previously presented at the Thoracic Society of Australia and New Zealand (TSANZ) 2022 Annual Scientific Meeting (<https://onlinelibrary.wiley.com/doi/full/10.1111/resp.14216>) and has been selected by the TSANZ ASM committee for the 2022 TSANZ Ann Woolcock New Investigator Award.

YIA -1-6

Distinct impacts of centrilobular vs. paraseptal emphysema on annual decline in pulmonary function in COPD.

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Background and Aim

The rate of disease progression seems different among Global Initiative Obstructive Lung Disease (GOLD) spirometry stages in chronic obstructive pulmonary disease (COPD). Based on distinct pathophysiological features of centrilobular emphysema (CLE) and paraseptal emphysema (PSE), this study examined whether CLE and PSE differently affected pulmonary function trajectory and mortality for each GOLD stage in patients with COPD.

Methods

This study used combined data from two Japanese COPD cohorts to evaluate annual changes of forced expiratory volume in 1 second (FEV1) and carbon monoxide transfer coefficient (KCO) over 5 years and 10-year mortality. CLE and PSE were considered present when identifying moderate/confluent/advanced-destructive CLE and mild/substantial PSE based on the Fleischner Society classification system.

Results

Total 399 patients were classified into three severity groups: GOLD1 (n=87), GOLD2 (n=187), and GOLD \geq 3 (n=129). Annual changes of FEV1 and KCO for these groups were -38.4/-28.2/-28.5 ml/year and -0.36/-0.39/-0.46 ml/min/mmHg/L/year, respectively. In multivariable models including CLE, PSE, and clinical variables, CLE was associated with greater FEV1 decline in GOLD \geq 3, but not in GOLD 1 and 2. CLE was also associated with greater KCO decline in all the groups independent of PSE, which showed no association with FEV1 or KCO decline. Furthermore, CLE, but not PSE, was associated with higher mortality in GOLD \geq 3.

Conclusion

CLE was associated with rapid FEV1 decline and higher mortality in severe GOLD stage, while associated with KCO decline in all the GOLD stages independent of coexisting PSE.

YIA-1-7

Genome-wide association study in patients with pulmonary *Mycobacterium avium* complex disease

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Background and Aim

Nontuberculous mycobacteria (NTM) are environmental mycobacteria that can cause a chronic progressive lung disease. Although epidemiological data indicate potential genetic predisposition, its nature remains unclear. Objectives: We aimed to identify host susceptibility loci for *Mycobacterium avium* complex (MAC), the most common NTM pathogen.

Methods

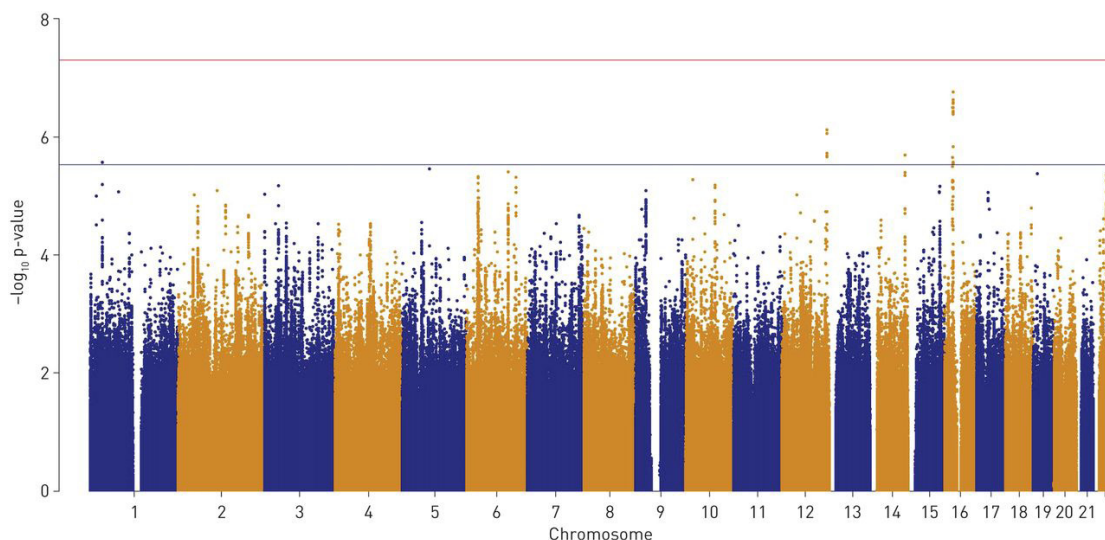
This genome-wide association study (GWAS) was conducted in Japanese patients with pulmonary MAC and healthy controls, followed by genotyping of candidate single-nucleotide polymorphisms (SNPs) in another Japanese cohort. For verification by Korean and European ancestry, we performed SNP genotyping.

Results

The GWAS discovery set included 475 pulmonary MAC cases and 417 controls. Both GWAS and replication analysis of 591 pulmonary MAC cases and 718 controls revealed the strongest association with chromosome 16p21, particularly with rs109592 ($p=1.64 \times 10^{-13}$, OR 0.54), which is in an intronic region of the calcineurin-like EF-hand protein 2 (CHP2). Expression quantitative trait loci analysis demonstrated an association with lung CHP2 expression. CHP2 was expressed in the lung tissue in pulmonary MAC disease. This SNP was associated with the nodular bronchiectasis subtype. Additionally, this SNP was significantly associated with the disease in patients of Korean ($p=2.18 \times 10^{-12}$, OR 0.54) and European ($p=5.12 \times 10^{-03}$, OR 0.63) ancestry.

Conclusion

We identified rs109592 in the CHP2 locus as a susceptibility marker for pulmonary MAC disease.



YIA -1-8

Non-cystic Fibrosis Bronchiectasis (NCFB) is a Bronchiolectatic Disease Characterized by MUC5B-dominated Mucus Hyperproduction

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Background and Aim

There persists in the field a notion that NCFB is a bronchial, not bronchiolar, disease, and modern molecular pathology studies in NCFB are lacking.

Methods

Lungs from normal (N=5) and NCFB (N=11, affected and non-affected regions) subjects were obtained. Single-cell RNAseq studies-defined region-specific biomarkers (UD2A1 [large airway marker], and SFTPb and SCGB3A2 [small airway markers]), with mucin-related genes, classical myeloid cell markers, and IL1 β , were investigated by RNA in situ hybridization and/or immunohistochemistry. CRISPR-Cas9 mediated IL1R1 knockout (KO) human bronchial epithelial (HBE) cultures were challenged with supernatants derived from sputum from idiopathic NCFB subjects.

Results

Morphometrical analysis revealed total lumen area was significantly increased in the lungs of NCFB subjects. The number of SFTPb+/SCGB3A2+ small airways was increased in NCFB airways compared to normal subjects and non-affected regions of NCFB. While a large airway marker, UD2A1, was absent in bronchioles, it was detected in bronchi in both control and NCFB subjects. MUC5B and mucin-related synthetic genes were robustly upregulated in NCFB bronchioles compared to normal bronchioles. IL1 β was upregulated in CD68+ macrophages with mucus plugs of NCFB bronchioles. Administration of supernatants from NCFB sputum to HBE cells induced MUC5B and MUC5AC protein/gene expression, consistent with the findings in NCFB lungs. IL1R1KO blocked supernatant-induced mucin and proinflammatory cytokine expression in HBE cells.

Conclusion

NCFB exhibits bronchiolar disease, particularly in distal bronchioles, suggesting bronchiolectasis with MUC5B-dominated mucus hyperproduction as a major component of NCFB. Therapeutics against the IL1 pathway may ameliorate mucus obstruction and lung damage in NCFB.

Acknowledgments

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YIA -1-9

The lung microbiota in nontuberculous mycobacterial pulmonary disease

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Background and Aims

The role of bacterial microbiota in the pathogenesis of nontuberculous mycobacterial pulmonary disease (NTMPD) is unclear. We aimed to compare the bacterial microbiome of disease-invaded lesions and non-invaded lung tissue from NTM-PD patients.

Methods

We analyzed lung tissues from 23 NTM-PD patients who underwent surgical lung resection between July 2012 and February 2019. The lung tissue was collected in pairs from each patient; one sample from a disease-involved site and the other from a non-involved site. A microbiome library of the lung tissues was constructed using 16S rRNA (V3–V4 regions).

Results

Sixteen 16 (70%) patients had *Mycobacterium avium* complex (MAC)-PD and the remaining 7 (30%) had *Mycobacterium abscessus*-PD. Compared to the non-involved site, the involved sites showed greater richness for ACE, Chao 1, and Jackknife analyses (all $p=0.001$), and greater levels of diversity on the Shannon index ($p=0.007$). There was genus-level difference between the involved and non-involved sites (Jensen-Shannon, PERMANOVA $p=0.001$). The analysis of taxonomic biomarkers using linear discriminant analysis (LDA) effect sizes (LEfSe) demonstrated that several genera, including *Limnochabitans*, *Rahnella*, *Lachnospira*, *Flavobacterium*, *Megamonas*, *Gaiella*, *Subdoligranulum*, *Rheinheimera*, *Dorea*, *Collinsella*, and *Phascolarctobacterium*, had significantly greater abundance in the involved sites than in the non-involved sites (LDA >3.00 , p

Conclusion

We identified differential microbial distributions between disease-involved and non-involved lung tissues from NTM-PD patients. The microbial diversity was significantly higher in disease-invaded tissues.

YIA-1-10

Diagnostic Utility of Adenosine Deaminase in Differentiating Tuberculous and Non-Tuberculous Exudative Pleural Effusions

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Background and Aims

The diagnosis of tuberculous pleural effusion (TPE) remains a clinical challenge. This study aims to determine the role of adenosine deaminase (ADA) estimation in differentiating tuberculous and non-tuberculous exudative pleural effusions.

Methods

We conducted a single-center, observational, retrospective study of patients with exudative pleural effusion and pleural fluid ADA (pfADA) measured at a tertiary teaching hospital from 1 January 2019 to 31 December 2021. Of 154 pleural fluid samples, 115 were found to be exudates and were included in the study. The pleural fluid samples were divided into two groups: TPE (n = 48) and non-TPE (n = 67). pfADA ≥ 40 U/L was taken as a diagnostic cut-off for TPE.

Results

The median age of the study subjects was 60 (interquartile range: 43-73). There were 48 (41.74%), 29 (25.22%) and 38 (33.04%) cases of TPE, malignant pleural effusion (MPE) and parapneumonic effusion (PPE) respectively. Median (SD) ADA values for TPE, MPE and PPE were 65.6 (44.5) U/L, 17.8 (9.2) U/L and 20.4 (15.7) U/L respectively. pfADA > 40 U/L yielded 89.13% sensitivity, 89.86% specificity, 85.42% positive predictive value and 92.54% negative predictive value. TPE were found to have the higher median (SD) ADA value 65.6 (44.5) U/L than non-TPE 38.7 (60.5) U/L ($p < 0.001$).

Conclusion

The pfADA level was significantly higher in TPE than in non-TPE cases. ADA levels in pleural fluid show good diagnostic accuracy in TPE diagnosis.

YIA-1-11

Risk factors associated with treatment response in patients with idiopathic nonspecific interstitial pneumonia

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Background and Aims

Steroid treatment is cornerstone in managing patients with Idiopathic nonspecific interstitial pneumonia (NSIP). However, there is insufficient evidence in predicting treatment response with steroid in patients with idiopathic NSIP. We aimed to investigate risk factors associated with treatment response with steroid in patients with idiopathic NSIP.

Methods

Biopsy-proven idiopathic NSIP patient with more than 3-month follow-up data including pulmonary function test were included and retrospectively analyzed. The patients with more than 10% increased in forced vital capacity during follow-up period were classified as steroid responder. Risk factor associated with treatment response was analyzed through multivariable logistic regression model.

Results

From March 1995 to March 2022, a total of 201 patients with NSIP were screened and 66 biopsy-proven idiopathic NSIP patients were enrolled. During median 4.5-year follow-up, steroid treatment was performed in 60 patients. Steroid responder (n = 34) had higher hemoglobin level and higher monocyte count compared with steroid non-responder (n = 26) (p = 0.039 and p = 0.009, respectively). A higher level of hemoglobin was associated with successful treatment response with steroid (adjusted odd ratio 3.29, confidence interval 1.27;14.15, p = 0.043). Sero-positive anti-nuclear antibody (ANA) and fibrotic NSIP in histology was associated with poor treatment response with steroid (p = 0.036 and p = 0.021, respectively).

Conclusion

Higher hemoglobin, sero-negative ANA and histology of cellular NSIP were associated with successful treatment response with steroid in patient with idiopathic NSIP. Further study is needed to validate these predicting factors in treatment of idiopathic NSIP.

YIA -2-1

Determination of Ability of Individual Inflammatory Markers in Predicting Critical COVID and Mortality: a Retrospective Cohort Study

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Background and Aims

About 5% of COVID-19 cases develop critical illness with fatality rate as high as 50%. Some literatures report of direct association between inflammatory markers and disease severity, while others have equivocal, if not contradicting conclusions. Hence, we investigated the ability of inflammatory markers in predicting disease progression and mortality among COVID-19 patients in a tertiary institution since early recognition of at risk can improve outcomes and reduce mortality.

Methods

This is a retrospective cohort study. Predictive ability of inflammatory markers in progression to critical COVID and mortality was analyzed using Simple Logistic Regression. Cut-off value with highest possible sensitivity and specificity for each marker was analyzed using Receiver Operating Characteristic curve. Discriminative ability, accuracy, sensitivity, specificity, predictive values and likelihood ratios of individual markers were computed.

Results

Among 549 patients in this study, 290 were classified as Severe, while 207 and 52 were Moderate and Mild, respectively. 52.09% progressed to critical, with lower proportion among severe patients. Median age was higher among those who progressed, with hypertension, CKD and malignancy as common co-morbidities. Ferritin and LDH increased while CRP declined significantly (Table 4). 20.58% of patients died, with higher proportion observed among those who developed critical COVID. Only PCT and LDH were significantly associated with mortality.

Conclusion

Individual inflammatory markers are not good predictors of progression to critical illness and mortality among severe COVID-19 patients. IL-6 as predictor for progression warrants further investigation. In practice, inflammatory markers can be correlated with risk prediction model rather than interpreted independently for better prediction of outcomes.

I have nothing to disclose for this study.

Table 4. Characteristics, laboratory parameters: baseline versus at the time of progression

	Baseline Median [IQR]	Follow-up Median [IQR]	P value^a	Change in levels Median [IQR]
ESR (in mm/hr) [n=231]	49 [IQR: 32-69]	46 [IQR: 30-72]	0.1297	0 [IQR: 0-5]
CRP (in mg/dl) [n=264]	33.3 [IQR: 12-86.8]	21.6 [IQR: 6-48]	<0.00001*	0 [IQR: 0-33.75]
PCT (in ng/ml) [n=276]	0.2 [IQR: 0.1-0.6]	0.2 [IQR: 0.1-0.5]	0.5570	0 [IQR: -0.13 – 0.21]
Ferritin (in ng/ml) [n=284]	1366.5 [IQR: 631.3- 2867.5]	2268 [IQR: 1091.5- 3597]	<0.00001*	-388.5 [IQR: -1210.55 - 0]
LDH (in U/L) [n=265]	360 [IQR: 268-477]	481 [IQR: 380- 628]	<0.00001*	-99 [IQR: -238 - 0]

^a*Wilcoxon signed rank test*

YIA -2-2

Comparison of electromagnetic navigation bronchoscopy and transthoracic needle biopsy for diagnosing bronchus sign positive pulmonary lesions

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Background and Aims

Electromagnetic navigation bronchoscopy (ENB) is an advanced technique particularly useful for diagnosing pulmonary lesions with a bronchus sign. However, ENB is a newer technology compared to transthoracic needle biopsy (TTNB), and data on the comparison of the two techniques for diagnosing bronchus sign positive lesions are limited. Therefore, we aimed to compare the diagnostic yield and complication rates of ENB and TTNB for diagnosing lung cancer in bronchus sign positive pulmonary lesions.

Methods

We investigated 2,258 individuals who underwent ENB or TTNB as initial technique for pulmonary lesion biopsy between September 2016 and May 2022 at a tertiary center in South Korea. A total of 1,248 participants (153 ENB and 1,095 TTNB cases) with a positive bronchus sign were included in the final analysis. Multivariable logistic regression analyses were performed to evaluate factors associated with the diagnostic yield and procedure-related complication rates. In addition, the outcomes were compared between the two techniques after a 1:2 propensity score-matching to control for pre-procedural factors.

Results

After adjustments for clinical/radiological factors, using TTNB over ENB was not significantly associated with a higher diagnostic yield, but was significantly associated with a higher risk of pneumothorax (OR=9.69, 95% CI=4.15-22.59). Propensity score-matching resulted in 459 participants (153 ENB and 306 TTNB cases) with balanced pre-procedural characteristics. The overall diagnostic yield did not significantly differ between ENB and TTNB (85.0% vs. 90.2%, p=0.98). In particular, for those with a class 2 bronchus sign, the diagnostic yield (86.7% vs. 90.9%, p=0.203) and sensitivity for malignancy (86.8% vs. 89.8%, p=0.329) were comparable. However, TTNB demonstrated a significantly higher complication rate of pneumothorax (26.1% vs. 3.9%, p

Conclusion

For diagnosing pulmonary lesions with a positive bronchus sign, ENB provided similar diagnostic yield with TTNB with a significantly lower rate of complications. Therefore, ENB could be considered the preferred modality for diagnosing bronchus sign-positive pulmonary lesions suspicious for lung cancer.

Table. Matched comparison of the diagnostic yield and complication rates of ENB and TTNB for bronchus sign positive pulmonary lesions

	ENB (n = 153)	TTNB (n = 306)	P value
Overall diagnostic yield	85.0% (130/153)	90.2% (276/306)	0.098
Yield by lesion size			
≤ 20 mm	82.6% (23/19)	77.5% (31/40)	0.630
> 20 mm and ≤40 mm	77.9% (60/77)	89.0% (161/181)	0.021
> 40 mm	51/53 (96.2%)	85/54 (98.8%)	0.558
Yield by distance from the pleura			
≤ 20 mm	83.9% (73/87)	87.4% (160/183)	0.431
> 20 mm and ≤40 mm	87.0% (47/54)	95.7% (89/93)	0.054
>40 mm	83.3% (10/12)	90.0% (27/30)	0.547
Yield by lesion type			
Solid	86.3% (126/146)	90.5% (268/296)	0.178
Subsolid	57.1% (4/7)	80.0% (8/10)	0.593
Yield by lobe location			
Right upper	79.6% (39/49)	91.7% (100/109)	0.030
Right middle	100% (7/7)	93.8% (15/16)	1.000
Right lower	84.4% (27/32)	88.3% (53/60)	0.591
Left upper	89.3% (25/28)	94.6% (53/56)	0.395
Left lower	86.5% (32/37)	84.6% (55/65)	0.798
Yield by bronchus sign			
Class 1	76.0% (19/25)	86.5% (45/52)	0.248
Class 2	86.7% (111/128)	90.9% (231/254)	0.203
Yield for malignancy			
Sensitivity	84.2% (112/133)	88.4% (213/241)	0.252
Specificity	100% (20/20)	100% (65/65)	-
Complication rates			
Any pneumothorax	3.9% (6/153)	26.1% (80/306)	<0.001
Pneumothorax requiring tube drainage	2.0% (3/153)	6.2% (19/306)	0.045
Hemorrhage (CTCAE ≥ 2)	0.7% (1/153)	0.7% (2/306)	1.000
Respiratory failure	0% (0/153)	0% (0/306)	-

ENB, electromagnetic navigation bronchoscopy; TTNB, transthoracic needle biopsy; CTCAE, Common Terminology Criteria for Adverse Events

Analysis of brain functional connectivity in COPD patients with functional brain MRI

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Background and Aims

Cognitive dysfunction and mood disorder are well-known comorbidities in COPD. However, the mechanism is not well understood including change of brain function or connectivity in COPD. We compared the hippocampal function connectivity (FC) of COPD patients to normal controls.

Methods

A total of 50 patients with COPD and 30 matched healthy controls were participated. We obtained clinical data including demographics, pulmonary functions, cognitive function and mood status. Both groups of patients underwent brain magnetic resonance imaging (MRI) procedures for acquisition of T1 anatomy and resting-status (rs) functional MRI (rfMRI) data at 3T. All data were processed by FreeSurfer and AFNI packages. The FC maps of hippocampus (HP) were obtained for each individual subject, and a Welch's test were applied to get group differences. And, to figure out the relationship, Pearson correlation coefficients (r) were calculated.

Results

Compared to normal control, COPD patients had lower BMI, more comorbidities and more cognitive dysfunction without significant difference in risk factors for stroke. In addition, COPD patients showed significantly decreased FC between HP and middle cingulate cortex (MCC) (pFWE-corrected < 0.05) compared to normal control. And, the degree of HP-MCC FC were correlated with decreased forced expiratory volume in one second (FEV1) and higher Charlson Comorbidity Index at the significance level of $p < 0.05$.

Conclusion

The mechanism of decreased cognitive function or changed mood status in COPD patients is not fully discovered. However, our study showed that alterations in FC of hippocampal lesions might be related with the clinical course of COPD.

YIA -2-4

Stereotactic Body Radiation Therapy for early-stage non-small cell lung cancer with peripheral tumor: the results from a prospective cohort study in Vietnam

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Background and Aims

Stereotactic Body Radiation Therapy (SBRT) was indicated for early-stage non-small cell lung cancer (NSCLC) patients inoperable. The purpose of the study was evaluating the result of SBRT for early-stage NSCLC patients (T1-2aN0M0) inoperable with peripheral tumors.

Methods

Prospective, follow-up 32 patients with stage T1-2aN0M0 NSCLC with peripheral tumor, who were received SBRT, follow-up and evaluated from January 2015 to November 2021. The primary endpoint was Progression-Free Survival (PFS), the second endpoints were Overall Survival (OS), the OS rate in 1, 2, 3, 4 and 5 years, and toxicity.

Results

The median age was 67 years-old, the median of diameter was 2.65cm, the tumor was mostly T2a (43.7%). The median PFS was 29 months, PFS in 2 years and 3 years were 59.8% and 42.3%, respectively. The median OS was 59 months, the ratio of OS in 1 year, 2 years, 3 years, 4 years and 5 years were 96.8%, 88.6%, 84.2%, 63.1% and 42.1%, respectively. Patients who achieved disease control according to PERCIST 1.0 criteria reduced the risk of death with HR = 0.053 (95% CI: 0.003 - 0.86), p = 0.039. The median PFS in the SUVmax < 5 group was longer than that in the SUVmax ≥ 5 group, p = 0.032. Cyfra 21-1 before and after SBRT, tumor size were prognostic factors for survival. The common of adverse events was pneumonitis at 10 patients, but mainly was grade 1 and grade 2, there are no patients with grade 4 and grade 5 pneumonitis. No clinically significant changes in pulmonary function following SBRT.

Conclusion

SBRT was a good option for patients with early-stage NSCLC inoperable with peripheral tumor. The SUVmax value before treatment, the disease control rate at 3 months after SBRT according to PERCIST 1.0 and Cyfra 21-1 criteria before and after treatment were the predictors of the patient's survival. And SBRT was a safe method.

Key word

early-stage non-small cell lung cancer, stereotactic body radiation therapy.

YIA -2-5

Children respiratory health during Covid-19 lockdown and after 6-month re-exposure to poor air quality.

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Background and Aims

Lockdowns were used in the world to curb increasing COVID-19 outbreaks, with the unintended consequence of improving air quality in many cities due to reduction in traffic and industrial activity. In Ho Chi Minh City, a lockdown was imposed for nearly 6 months during 2021. We took advantage of this situation to test health, respiratory function (Spirometry, Oscillometry, FENO), and urinary biomarkers among children towards the end of the lockdown and again after 6 months with exposure to usual air quality.

Method

We recruited 55 children who were living in urban districts with usually heavy air pollution. Children were asked to answer the self-reported questionnaire, provide a urine sample, check health using a checklist, and measure respiratory function.

Results

During the 5-month lockdown in Ho Chi Minh City, the 24-hour PM_{2.5} median was 46 µg/m³, and the level doubled after the city has returned to normal activity. The initial data, after the lockdown ended, showed that eight children (15%) of study participants had an initial asthma diagnosis. The mean and standard deviation of FEV₁ was 2.48±0.51. The mean and standard deviation of FVC was 2.73±0.50. The median level of FENO at a flow rate of 50ml/s was 8 ppb (2-66 ppb). The median concentration of MDA and 1-OHP was 171.57 µg/L and 1.16 µg/L, respectively. The next measurement will be repeated in June-2022 to compare changes after 6 months with usual air quality exposure.

Conclusion

Children daily exposing to air pollutants will be at greater health risks.

YIA -2-6

Clinical Significance of Normalized FEV1/FVC in the Patients Diagnosed with Chronic Obstructive Pulmonary Disease (COPD).

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Background

Although COPD is characterized by irreversible airway obstruction, some patients improve their lung function in follow-up period. In this study, we aimed to investigate the clinical significance of patients with normalized lung function after initial diagnosis of COPD.

Method

We used database of KOCOSS cohort which is a prospective nationwide observational COPD study participated by 54 medical centers. Those whose lung function test results showed FEV1/FVC \geq 0.7 in 2-year of follow-up were defined as FEV1/FVC normalized (FFN) group. The clinical differences between the FFN and non-FFN groups, 1-year exacerbation risk and the difference in FEV1 decline over 2 years were analyzed.

Result

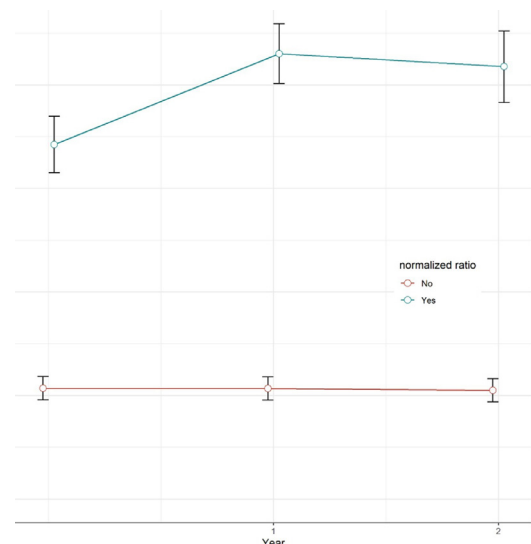
Of total of 635 COPD patients, FFN patients consists 14.2% of the study population. FFN patients were younger, less likely to be current smoker with lower SGRQ score compared to non-FFN group. On CT scans, emphysema was more common in the non-FFN group, whereas bronchiectasis was more frequently shown in the FFN group. In the pulmonary function test, FEV1 was higher in FFN group. The use of triple therapy was more frequent in the FFN group. Analysis of future exacerbation risk for 1-year showed no statistical differences. The 2-year FEV1 change analyzed with a linear mixed model, showed significant difference between two groups (-1.5 ml/yr vs +96.2 ml/yr, respectively(p<0.01)).

Conclusion

FFN group had a better quality of life and lung function. Improvement of lung function in FFN group were maintained in 2-year follow-up. Further researches are needed to understand and manage these patients.

Acknowledgment

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YIA -2-7

Late diagnosis of Congenital Pulmonary Airway Malformation (CPAM) in a child with recurrent respiratory symptoms

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Introduction

CPAM is a rare congenital cystic lung lesion seen in children. CPAMs have been classified into 5 subtypes. About two thirds of CPAMs are diagnosed by prenatal ultrasound. A plain chest x-ray (CXR) may suggest the diagnosis with confirmation being made by chest CT scan. For large CPAM's causing respiratory distress, surgical resection of the lesion is curative. Small CPAMs may not require surgery and can be followed conservatively.

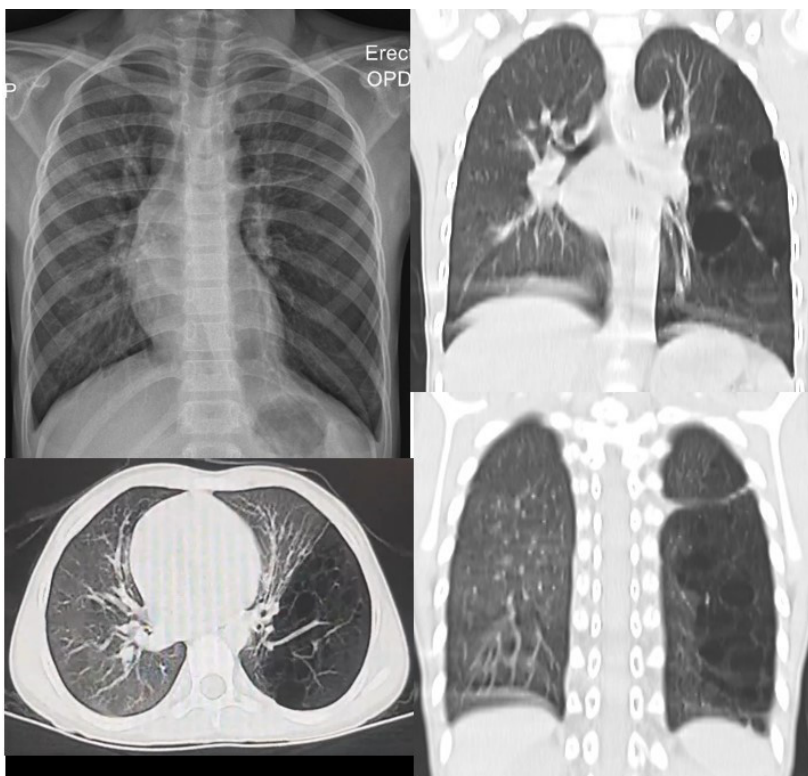
Case

A 10-year-old girl presented with recurrent episodes of fever, cough, and dyspnea starting at 18 months of age. Physical exam showed decreased breath sounds over the posterior left lung. A CXR showed decreased vascular markings, hyper-expansion of the left lower lobe (LLL) with mediastinal shift to the right, and the areas of chronic airway damage bilaterally. A chest CT showed multiple thin walled cysts in the entire LLL consistent with a Type 1 CPAM. The left upper lobe was compressed, and bronchiectasis was seen in the LLL and RML. A sputum culture grew methicillin sensitive *Staphylococcus aureus* and she improved with 4 weeks of cloxacillin.

Discussion

CPAMs may be diagnosed beyond the neonatal period as an incidental finding on a CXR or due to symptoms including respiratory distress, recurrent lung infections, and pneumothorax. In our case, the management would likely be surgical removal of the lesion. However, since she was not in respiratory distress at the time of diagnosis and as lobectomy in a low resource setting could be problematic we have decided to follow her conservatively with frequent Chest Clinic visits.

Nothing to disclose



YIA -2-8

Tuberculous Lymphadenitis in Children: Experience From a Referral Tertiary Hospital in a High-Burden Country

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Background and Aims

Tuberculous lymphadenitis (TL) is among children's most frequent extrapulmonary tuberculosis (TB). Diagnosis may be difficult since the clinical characteristics can be non-specific. This study aimed to describe the characteristics of children diagnosed with TL as primary morbidity or co-morbidity documented in a tertiary referral hospital.

Methods

This retrospective study was conducted at Hasan Sadikin General Hospital using Tuberculous Lymphadenitis Registry (2021) and medical records of children

Results

One-hundred-fifteen children were diagnosed with TL, predominantly female (59.1%), mean age was 13.5 years old. They presented with mass or enlargement of node in cervical site (83.5%). Most (80%) had normal nutritional status and unknown index cases (76.5%). TL children were also had pulmonary TB (22.6%). Chest X-rays were interpreted as suggestive pulmonary TB (specific for TB) in 35.7% children; 6 (5.2%) showed pleural effusion. Among tuberculin skin tested (35.6%), 53.1% yielded positive. Fifty-five (47.8%) children presented with only TL. Microbiological (Gene Xpert MTb-Rif) and were found in 28 (24.3%) children, all but one were drug sensitive confirmations; among them, 25% presented no systemic symptoms, only 1 (3.6%) found no histopathological diagnostic hallmark. All children completed TB treatment showing good result. Three (2.6%) experienced resolved drug-induced hepatotoxicity.

Conclusion

Histopathology examination must be performed in suspicious TL children, as they may present with no TB clinical features other than lymphadenopathy.

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YIA -2.9

The stability of blood eosinophil count and clinical outcomes in Thai chronic obstructive pulmonary disease patients: A prospective study

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Abstract

Background and Aims: Eosinophilic chronic obstructive pulmonary disease (COPD) patients have eosinophilic airway inflammation. Blood eosinophil count is an effective biomarker to predict inhaled corticosteroid (ICS) responsibility. There were a few reports of the stability of blood eosinophils. This study explored the stability of blood eosinophils, evaluated corticosteroid responsiveness, and identified the association between blood eosinophils and exacerbation rates/ clinical outcomes.

Methods

A prospective observational study was conducted on COPD patients for 52 weeks. Blood eosinophil counts were recorded at study entry, 6-month, and 12-month. The patients were classified into three groups according to baseline blood eosinophil counts < 100, 100-

Results

A total of 177 COPD patients were included. Twenty-two (12.4%), 65 (36.7%), and 90 (50.8%) patients were categorized into low, intermediate, and high eosinophil groups (< 100, 100-

Conclusions

Blood eosinophil level is quite stable in COPD patients with blood eosinophil counts ≥ 300 cells/ μ L. Blood eosinophil count is an effective biomarker to predict exacerbation risk in COPD patients.

Table 1 The stability of blood eosinophils according to each group at baseline, 6-month, and 12-month

Blood eosinophils (cells/ μ L)	Baseline	6-months	12-months
< 100	22	15 (68.2)	8 (36.4)
100- <300	65	44 (67.7)	26 (40)
≥ 300	90	76 (84.4)	71 (78.9)
Total	177	135 (76.3)	105 (59.3)

Data were presented as n (%)

YIA-2-10

Low compliance factors of NSCLC patients who refuse chemotherapy at dr. zainoel abidin hospital banda aceh

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Background

Chemotherapy has been widely used in the treatment of NSCLC both in early and advanced stages.^{1,2} This modality has been shown to improve quality of life and survival. Rejection of this therapeutic modality becomes an important problem in treatment.

Objective

This study aims to identify low compliance factors of chemotherapy among NSCLC patients dr. Zainoel Abidin Hospital, Banda Aceh. Low adherence was defined as a lack of adherence to chemotherapy by receiving at least one cycle of chemotherapy and then refusing to continue.³

Methods

This is a cross-sectional study with retrospective data from medical records of patients with NSCLC between 2019 and 2021 at dr. Zainoel Abidin Hospital. Inclusion criteria were patients with a diagnosis of NSCLC, who had received 2 or 3 cycle of chemotherapy. Exclusion criteria were patients whose incomplete data and died. Data were analyzed using chi-square test and logistic regression analysis.

Results

Of total 110 patients with NSCLC, 70 patients (63.64%) refused chemotherapy. Bivariate analysis showed that early stage was significant factor of low compliance chemotherapy ($p = 0.000$). Age ($p = 0.250$), gender ($p = 0.191$), smoking ($p = 0.191$), and histologic subtype ($p = 0.533$) was not significant factor of low compliance chemotherapy. Multivariate analysis showed that early stage remaining significant risk factors of low compliance chemotherapy (OR 2,088; 95% CI 1,148-3,798, $p = 0,016$).

Conclusion

NSCLC patients with early stage tend to have lower compliance of chemotherapy than advanced stage.
Keywords: chemotherapy, low compliance, non-small cell carcinoma lung cancer

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YIA-2-11

Remote telemonitoring among patients on home non-invasive ventilation (NIV): the Sarawak experience

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Introduction

During the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic, the adoption of remote telemonitoring has increased for patients with chronic hypercapnic respiratory failure due to social distancing measures. Unfortunately, telemonitoring service remains limited in Malaysia.

Aim

To determine effectiveness of telemonitoring among patients on home NIV

Method

Patients whom home NIV were initiated between March 2020 to April 2022 were recruited and divided into two groups (telemonitoring versus without telemonitoring).

Results


Total 45 patients' data were reviewed. Variables for patients on telemonitoring (TM) versus without TM were compared. Mean age was 56.8 ± 16.1 versus 61.6 ± 12.3 ($p=0.114$), BMI 36.4 ± 18.2 kg/m² versus 35.5 ± 12.7 kg/m² ($p=0.034$) and distance to hospital 71.9 ± 144.3 km versus 50.4 ± 60.0 km ($p=0.179$). The mean inspiratory positive airway pressure (IPAP) 18.7 ± 3.6 cmH₂O versus 19.5 ± 3.71 cmH₂O ($p=0.964$), expiratory positive airway pressure (EPAP) 9.8 ± 2.6 cmH₂O versus 9.9 ± 2.4 cmH₂O ($p=0.417$). The mean hours usage 6.2 versus 5.4 hours ($p=0.117$), tidal volume 658.8 versus 660.2 ml ($p=0.942$) and minute ventilation 10.7 vs 11.1 L/min ($p=0.117$). Adherence to NIV was better in TM group (84.2%) compared to those without 57.7% ($p=0.000$). Meanwhile mean decrease in daytime partial pressure of carbon dioxide PaCO₂ was 8.8 versus 8.3 mmHg ($p=0.197$) and bicarbonate level 3.9 versus 3.8 mmol/L ($p=0.982$).

Conclusion

Telemonitoring maybe helpful in improving adherence to home NIV among patients with difficult access to healthcare service



The 26th
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Asian Pacific Society
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**ORAL
PRESENTATION**

AO01-1

Severe asthma is associated with the adverse COVID-19 outcome – A Big Data Study

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Background and Aim

Limited information exists concerning the effects of SARS-CoV-2 (SCV2) infection on asthma subtypes. To investigate the effects of SCV2 infection on severe asthma, we investigated the effect of asthma on COVID-19 using Nationwide Cohort Study.

Methods

This large-scale cohort covers individuals who underwent SARS-CoV-2 testing in South Korea from January 1, 2020 to May 1, 2020 supported by the Korean Centers for Disease Control and the National health insurance service (NHIS).

Results

Among 230,327 patients who underwent SCV2 testing (mean age 41.7 ± 19.6 years), we identified 8,070 patients who tested positive. In the SCV2 test positive cohort, there were 1,378 patients in asthma group, and same number of patients in non-asthma group was obtained by 1:1 propensity score matching considering age, sex, economic status (all SMDs < 0.1). Results showed that having asthma did not significantly impact on the mortality of COVID-19 (overall mortality in asthma group: hazard ratios (HRs) 1.08, 95% CI [0.76, 1.52]).

However, asthmatics whose disease is not well controlled enough to become dependent on oral corticosteroids, defined as patients who had been prescribed oral corticosteroids at least once during the past five years, have significantly increased COVID-19 mortality rates compared to those who had not (HR 1.49, 95% CI [1.02, 2.20]). The HR in old age (over 60 years old) was 2.17 (95% CI [1.55, 3.02]) and in male was 1.84 (95% CI [1.24, 2.73]), all of them were statistically significant.

Conclusion

We then hypothesized that respiratory SCV2 infection in patients with severe asthma may predispose asthma and/or COVID-19 to aggravate and is associated with adverse COVID-19 outcome.

AO01-2

Demographic and Clinical Characteristics of Patients with Severe Asthma in the Asian Pacific Region: data from the International Severe Asthma Registry (ISAR)

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Background and Aim

The International Severe Asthma Registry (ISAR) shares data from asthma registries across the globe using standardized variables.¹

Methods

ISAR collected data prospectively from adult patients with severe asthma from Taiwan, Japan, India, South Korea and Australia from January 2017 and April 2022. Here we describe their baseline demographic and clinical characteristics at the time of biologic initiation or first visit for those who had, and had not, previously received biologic, respectively

Results

A total of 1326 patients from the Asia Pacific region were included (Table). Australian patients had early onset, high exacerbation burden (32.7% with > 3/year), prevalence of fixed airways obstruction (66.7%), and eosinophilic phenotype pre-biologic (78.9%), and subsequent high long-term (>90 days) OCS (40.3%) and biologic use (52.5%). Indian patients typically had uncontrolled asthma (>90%) but low exacerbation rates, poor lung function, low prevalence of long-term OCS (12.0%) and biologic use (1.7%). Japanese and Taiwanese patients typically had well-controlled disease, good lung function, experienced

Conclusion

There is substantial inter-country heterogeneity in the clinical characteristics of severe asthma patients in the Asia-Pacific region, likely a consequence of differences in access to severe asthma services, treatments and/or variability in biologic eligibility and socioeconomic status.

Funding

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Table: Demographic and clinical characteristics of adult patients with severe asthma in Asian Pacific Region

	AU (n=404)	IN (n=234)	JP (N=205)	SK (N=190)	TW (N=293)
Age, mean (SD)	57.5 (14.6)	44.8 (15.2)	60.7 (14.3)	56.9 (13.8)	59.4 (16.1)
Age of asthma onset, mean (SD)	22.9 (19.8)	30.3 (15.3)	40.4 (17.7)	42.7 (18.7)	44.4 (20.9)
Exacerbations^a	N=262	N=198	N=131	N=176	N=207
Mean (SD)	2.4 (3.3)	0.6 (0.7)	1.9 (3.1)	0.4 (0.9)	1.4 (2.1)
3+, n (%)	107 (32.7)	3 (1.5)	28 (21.4)	7 (4.0)	25 (16.9)
Asthma control^b	N=252	N=65	N=112	N=153	N=202
Uncontrolled, n (%)	143 (56.7)	60 (92.3)	39 (34.8)	70 (45.8)	68 (33.7)
Lung function	N=150	N=102	N=106	N=146	N=205
PB ppFEV ₁ , < 80%, n (%)	60 (40.0)	63 (61.8)	59 (55.7)	59 (40.4)	112 (54.6)
FEV ₁ /FVC < 0.7, n (%)	100 (66.7)	46 (45.1)	56 (52.8)	85 (58.2)	94 (45.9)
Eosinophilic phenotype^{2c}	N=57	N=54	N=49	N=55	N=72
Grade 3, n (%)	46 (78.9)	38 (70.4)	30 (61.2)	36 (65.5)	50 (69.4)
Grade 2, n (%)	10 (17.5)	10 (18.5)	11 (22.4)	7 (12.7)	12 (16.7)
Grade 1, n (%)	2 (3.5)	5 (9.3)	7 (14.3)	9 (16.4)	10 (13.9)
Grade 0, n (%)	0	1 (1.9)	1 (2.0)	3 (5.5)	0
Add on to ICS/LABA					
LAMA, n (%)	19 (4.7)	41 (17.5)	38 (18.5)	78 (41.1)	138 (47.1)
Theophylline, n (%)	1 (0.2)	9 (3.8)	41 (20.0)	2 (1.1)	38 (13.0)
LTRA, n (%)	4 (1.0)	56 (23.9)	99 (48.3)	46 (24.2)	112 (38.2)
Macrolides, n (%)	5 (1.2)	28 (12.0)	35 (17.1)	6 (3.2)	11 (3.8)
LTOCS ^d , n (%)	163 (40.3)	28 (12.0)	52 (25.4)	39 (20.5)	73 (24.9)
Biologic ^e , n (%)	212 (52.5)	4 (1.7)	113 (55.1)	33 (17.4)	105 (35.8)
^a Total number of exacerbations recorded within 1 year before the biologic initiation visit or the first visit; ^b Assessed by ACQ and ACT scores at biologic initiation visit or the first visit for patients who had never received biologic treatment; ^c SAR Eosinophilic phenotype grades ¹ are calculated based on BEC, FeNO, LTOCS, asthma onset and nasal polyps; ^d Long term (continuously use for > 3 months) OCS; ^e Anti-IgE, Anti-IL5/5R, and Anti-IL4; AU: Australia; BEC: blood eosinophil count; IgE: Immunoglobulin E; FeNO: Fractional exhaled Nitric Oxide; FEV ₁ : forced expiratory volume in one second; FVC: forced vital capacity; IL: interleukin; ICS/LABA: inhaled corticosteroid/long-acting β-agonist (LABA); IN: India; JP: Japan; LAMA: Long-acting muscarinic antagonist; OCS: oral corticosteroid; LTRA: Leukotriene receptor antagonist; SD: standard deviation; SK: South Korea; TW: Taiwan					

AO01-3

Ending the reign of short-acting β 2-agonists in Australia?

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Background

Overuse of short-acting β 2-agonist (SABA) inhalers to manage asthma is associated with increased risk of adverse outcomes. Over-the-counter (OTC) SABA availability and automated practitioner provision of up to 12 inhalers/prescription has created the perfect storm for potential SABA overuse in Australia.

Aim

To investigate the relationship of readily accessible SABA (OTC and prescription) on self-reported asthma outcomes in the Australian population.

Methods

Data from electronic medical records (EMR) and questionnaires from patients ≥ 12 years-old were extracted from the Optimum Patient Care Research Database Australia. The annual number of SABA inhalers prescribed (EMR data) and used (self-reported) was quantified, and the impact of overuse (≥ 3 inhalers/yr) on self-reported exacerbations and asthma control assessed.

Results

Of the 720 patients included the potential for SABA overuse (evidenced by EMR data) occurred in 52.8% of cases and was self-reported by 28.1% of patients. Those who self-reported use of 3-5 SABA inhalers/yr experienced 2.07 times (95% CI 1.34-3.23; $p < 0.001$) as many exacerbations and were 3.53 times (95% CI 2.32-5.41; $p < 0.001$) more likely to have poorly controlled asthma than those who reported using 1-2 canisters (Table 1).

Conclusion

In an environment with ready access to SABA, self-reported overuse is associated with poor asthma outcomes. Removal of the x5 repeats default setting for SABA prescriptions and limiting OTC accessibility, along with pharmacist review and patient education may address excessive SABA use in Australia.

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Table 1: Prescribed and self-reported SABA use is associated with poor asthma outcomes: data from Australia (n=720)					
SABA cannisters annually	SABA cannisters prescribed (EMR data*), n (%)	Self-reported exacerbations (IRR, 95% CI, p-value)	Self-reported SABA use (acquired OTC or on prescription), n (%)	Self-reported exacerbations (IRR, 95% CI, p value)	Self-reported GINA uncontrolled (OR, 95% CI, p value)
0	311 (43.2)	2.73 (1.08-7.27) p=0.04	174 (24.2)	1.33 (0.89-1.99) p=0.16	0.41 (0.27-0.62) p<0.001
1-2	29 (4.0)	1.00	344 (47.8)	1.00	1.00
3-5	12 (1.7)	3.06 (0.54-20.50) p=0.21	117 (16.3)	2.07 (1.34-3.23) p<0.001	3.53 (2.32-5.41) p<0.001
6-9	10 (1.4)	5.77 (1.66-22.19) p=0.01	39 (5.4)	3.56 (1.83-7.29) p<0.001	3.88 (1.97-7.78) p<0.001
10+	358 (49.7)	1.98 (0.78-5.30) p=0.15	46 (6.4)	3.06 (1.71-5.71) p<0.001	12.58 (6.06-28.30) P<0.001
Total overuse	380 (52.8)		202 (28.1)		
CI: confidence interval; EMR: electronic medical record; OR: odds ratio; IRR: Incidence Rate Ratio; OTC: over the counter; SABA: short-acting β_2 -agonist. OR reference = 1-2 SABA cannisters/year. *EMR data only captures SABA prescriptions not the number of inhalers dispensed.					

AO01-4

Pharmacological characterization of T cell-dependent steroid-resistant asthma model using several kinase inhibitors

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Background and Aim

To control therapy-resistant eosinophilia, synergistic effects of CTLA4-Ig, glucocorticoid, and several tyrosine kinase inhibitors (TKIs) on T cell-induced, steroid-resistant asthma model were investigated.

Methods

Ovalbumin (OVA)-specific Th clones were established from DO11.10 transgenic mice expressing T cell receptor specific for OVA/H-2d. To analyze in vitro drug responsiveness, Th clones were cultured with antigen presenting cells and OVA in the presence of various concentrations of dexamethasone (DEX) and TKIs. Proliferative responses were measured by BrdU incorporation. For in vivo analysis, unprimed Balb/c mice were transferred with Th clones, challenged with OVA, and administered with DEX and TKIs subcutaneously. CTLA4-Ig was administered either intravenously or intranasally. BALF was obtained 48 hours after the challenge, and the number of infiltrating cells was differentially counted.

Results

Steroid-sensitive (SS) and -resistant (SR) clones were selected based on in vitro effect of DEX on the proliferative responses of antigen-stimulated Th clones. Airway infiltration of eosinophils of mice transferred with SS clones were effectively inhibited by the administration of DEX. In contrast, those of mice transferred with SR clones were not significantly inhibited by DEX. Addition of CTLA4-Ig and several TKIs into the culture significantly suppressed the proliferation of DEX-treated SR clones in vitro. Administration of CTLA4-Ig and TKIs significantly suppressed eosinophil infiltration of SR asthma model transferred with SR clones in vivo.

Conclusion

Costimulatory signal is a promising target of TKIs to treat steroid-resistant asthma.

AO01-5

Dupilumab improved lung function and reduced exacerbation rates in patients with moderate-to-severe asthma and prior exacerbations: LIBERTY ASTHMA TRAVERSE study

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Background

Asthma exacerbation history can be a predictor of future exacerbation risk. Dupilumab blocks interleukin-4 and interleukin-13, central drivers of type 2 inflammation. TRAVERSE (NCT02134028) evaluated dupilumab long-term tolerability, safety and efficacy in patients who participated in a previous dupilumab asthma study. Dupilumab has demonstrated an acceptable safety profile.

Aims

This post-hoc analysis examined dupilumab efficacy in QUEST (NCT02414854) patients enrolled in TRAVERSE with ≥ 1 , ≥ 2 , or ≥ 3 exacerbations during the year before QUEST and type 2 asthma (blood eosinophils ≥ 150 cells/ μ L or FeNO ≥ 20 ppb) at parent study baseline (PSBL).

Methods

Patients who received placebo or dupilumab in QUEST received dupilumab 300mg in TRAVERSE for up to 48/96 weeks (placebo/dupilumab and dupilumab/dupilumab groups). Unadjusted annualized severe asthma exacerbation rate (AER), proportion of patients with 0 exacerbations who completed 3 full years of treatment, and FEV₁ change from PSBL were assessed.

Results

At TRAVERSE Week 0–48/48–96, AER (placebo/dupilumab and dupilumab/dupilumab) was reduced to 0.368 and 0.314/0.250 and 0.229, 0.453 and 0.403/0.235 and 0.285, and 0.545 and 0.445/0.186 and 0.268 in patients with ≥ 1 , ≥ 2 , or ≥ 3 prior exacerbations, respectively; 47.6% and 64.0%, 39.2% and 63.7%, and 38.0% and 66.0% experienced 0 exacerbations over 3 years of treatment.

Mean change in FEV₁ (placebo/dupilumab and dupilumab/dupilumab) was 0.37 and 0.34, 0.44 and 0.37, and 0.49 and 0.45 at TRAVERSE Week 96 in patients with ≥ 1 , ≥ 2 or ≥ 3 prior exacerbations, respectively.

Conclusion

Dupilumab showed sustained, long-term reduction in exacerbations and improved lung function regardless of exacerbation history in patients with uncontrolled, moderate-to-severe, type 2 asthma.

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AO01-6

Dupilumab sustains improvements in clinical efficacy and reductions in OCS use in patients with severe, OCS-dependent asthma: LIBERTY ASTHMA TRAVERSE study

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Background and Aim

TRAVERSE (NCT02134028) evaluated long-term safety, tolerability, and efficacy of add-on dupilumab 300mg every 2 weeks for up to 96 weeks in patients enrolled from VENTURE. Dupilumab had an acceptable safety profile, and its efficacy was assessed in patients with OCS-dependent, severe asthma.

Methods

Patients from TRAVERSE were analyzed as dupilumab/dupilumab or placebo/dupilumab groups and stratified by OCS dose (≤ 10 / >10 mg/day at VENTURE parent study baseline [PSBL]). Annualized severe asthma exacerbation rate (AER) during VENTURE and TRAVERSE, percentage of patients experiencing no exacerbations in TRAVERSE, pre-bronchodilator FEV₁ at TRAVERSE Weeks 0 and 96, OCS dose percentage reduction from PSBL at TRAVERSE Weeks 0 and 96, and mean cumulative OCS dose were assessed.

Results

187 pts from TRAVERSE were analyzed. AER further declined during TRAVERSE (range: 0.284–0.599) with 66.7–83.3% of patients experiencing no exacerbations in TRAVERSE. Pre-bronchodilator FEV₁ greatly improved from PSBL (Week 96 range: 1.71–2.02L). OCS daily-dose percentage reductions observed in VENTURE continued during TRAVERSE in dupilumab/dupilumab patients (Week 96: ≤ 10 mg/day: –89%, >10 mg/day: –83%) and placebo/dupilumab patients (Week 96: ≤ 10 mg/day: –70%, >10 mg/day: –76%). Patients achieving 0 or **Table**). Mean cumulative OCS dose in VENTURE was 597.1 and 853.4/1793.0 and 2038.2 and in TRAVERSE was 501.7 and 2013.8/1922.1 and 2750.0 mg (dupilumab/dupilumab and placebo/dupilumab; \leq / >10 mg/d).

Conclusion

Dupilumab improved and maintained clinical efficacy outcomes and reduced OCS dose regardless of baseline OCS starting dose. Dupilumab demonstrated persistently high reduction in OCS use.

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TABLE. OCS USE AT VARIOUS TIMEPOINTS IN VENTURE AND TRAVERSE.

	VENTURE baseline OCS dose ≤10 mg/day		VENTURE baseline OCS dose >10 mg/day	
	Placebo/ Dupilumab n=61	Dupilumab/ Dupilumab n=60	Placebo/ Dupilumab n=36	Dupilumab/ Dupilumab n=30
OCS use (mg/day)				
VENTURE				
Baseline, mean (SD)	8.07 (2.06)	7.42 (2.16)	17.57 (5.69)	18.08 (5.40)
TRAVERSE				
Week 0, mean (SD)	4.80 (4.50)	1.60 (2.85)	9.10 (9.18)	6.17 (7.95)
Week 96, mean (SD)	2.75 (2.91)	0.63 (1.44)	3.63 (3.50)	4.17 (7.22)
Achieved OCS dose (mg/day)				
End of VENTURE/start of TRAVERSE				
0 mg/day, n/N (%)	20/61 (32.8)	40/60 (66.7)	9/36 (25.0)	8/30 (26.7)
<5 mg/day, n/N (%)	25/61 (41.0)	51/60 (85.0)	12/36 (33.3)	16/30 (53.3)
TRAVERSE Week 48				
0 mg/day, n/N (%)	16/51 (31.4)	28/39 (71.8)	8/26 (30.8)	6/18 (33.3)
<5 mg/day, n/N (%)	23/51 (45.1)	34/39 (87.2)	11/26 (42.3)	9/18 (50.0)

OCS, oral corticosteroid; SD, standard deviation.

AO01-7

The association of short-acting β 2-agonist overuse with asthma control and severe exacerbations: an Australian perspective

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Background

Globally, short-acting β 2-agonist (SABA) use is higher than recommended,¹ a pattern which is associated with increased risk of adverse outcomes.² In Australia, the potential for overuse is enabled by the fact SABAs are available over-the-counter (OTC) and by GP prescription (routinely 2 canisters/dispensing and up to 5 repeats/prescription).

Aims

To describe SABA usage patterns in the Australian asthma population and investigate the impact of overuse on asthma outcomes.

Methods

In this historical, observational study, electronic medical record (EMR) data and questionnaire responses from patients ≥ 12 years-old with an asthma diagnosis of ≥ 1 years were extracted from the Optimum Patient Care Research Database Australia. The annual number of SABA canisters prescribed/purchased per patient was quantified, and the relationship between self-reported SABA overuse (≥ 3 canisters/year) and asthma control and exacerbation rate was assessed.

Results

A total of 720 patients were included. As per EMRs, 52.8% of patients were prescribed ≥ 3 SABA canisters/year. 28.9% of patients self-reported the purchase of SABA canisters OTC; of these 37.5% acquired ≥ 3 canisters/year. Self-reported, inappropriate use of SABA (≥ 3 canisters/year) was associated with an increased risk of uncontrolled asthma symptoms (OR 1.41; 95% CI

Conclusions

Australian patients living with asthma who use ≥ 3 SABA canisters/year have a 41% greater risk of having uncontrolled asthma and experience more exacerbations than those who use

References

1. Bateman ED, et al. Eur Respir J 2021; 2101402.
2. FitzGerald JM, et al. Resp Med 2017; 131:135-140.

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Presenter's Disclosure Statement

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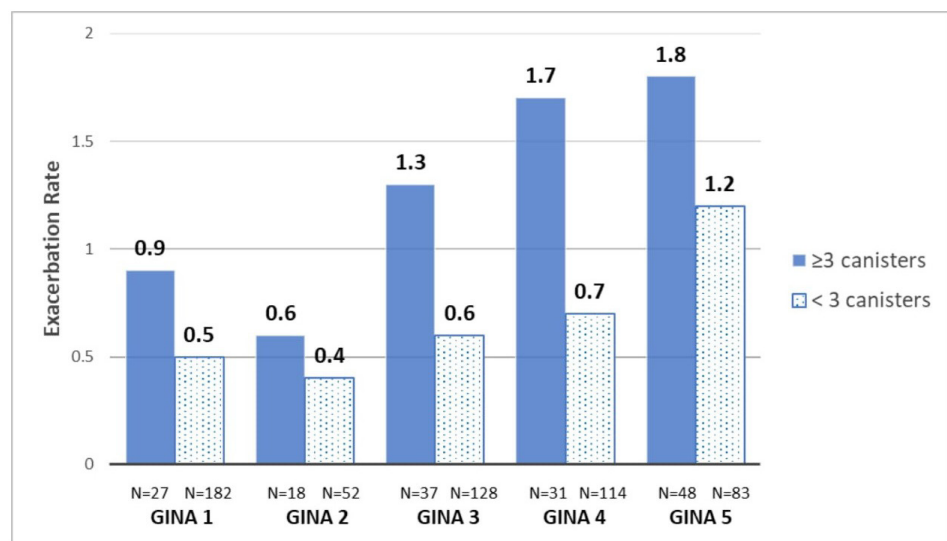


Figure 1: Mean frequency of self-reported asthma exacerbations as per Global Initiative for Asthma (GINA) treatment intensity steps for patients prescribed canisters of short acting β_2 -agonists (SABA).

AO01-8

Correlation of pulmonary function measured by Forced Oscillation Technique, Spirometry and asthma control questionnaire

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Background and Aim

Asthma control can be evaluated by measuring pulmonary function using forced oscillation technique (FOT), spirometry and asthma control questionnaire (ACQ). We aimed to study correlation among various pulmonary function parameters measured by FOT, spirometry, and ACQ-7.

Methods

64 asthma patients underwent measurement of pulmonary functions by Forced Oscillation Technique (FOT) with Antlia© device followed by spirometry using Cosmed microQuark© device in sitting position as per ATS and ERS guidelines. Demographic details, modified medical research council (mMRC) dyspnea score and ACQ-7 questionnaire were recorded.

We used Kendall Tau method to correlate pre-bronchodilator spirometry, FOT parameters and ACQ-7 questionnaire score.

Results

Out of 64 subjects completing the study, 47 patients had uncontrolled asthma and remaining controlled as per ACQ-7 scores (cut off 0.75) (Table 1). Subjects were predominantly male with the mean age of 59.

A Kendall Tau correlation (Table-2) to determine the relationship between FOT and spirometry showed significant negative correlation of resistance at 5Hz, R_5 % predicted with FEV1% predicted and FEV1/FVC% predicted. Resistance at 20Hz, R_{20} % predicted also correlated well with FEF_{25-75%} predicted but modestly with FEV1/FVC% predicted. However, ACQ-7 showed poor correlation with FEV1/FVC % predicted but none of the lung function measured by FOT parameters correlated well with ACQ-7.

Conclusion

Modestly significant correlation among lung function parameters measured by spirometry and FOT was observed but not with ACQ-7 in the study subjects suffering from asthma.

Palacios MÁ, Marín DH, Valero AG, Hernández NC, Barona CT, de Rojas DH. Correlation between impulse oscillometry parameters and asthma control in an adult population. *Journal of Asthma and Allergy*. 2019;12:195.

Table 1	
Characteristics	
Subjects(n)	64
Age	59±2
Gender Male	40
ACQ-7	0-3.85*
mMRC	0-4*
FEV1% predicted	72 ±26.7
FEV1/FVC % predicted	97 ± 14.3
PEF% predicted	64.1± 24.9
FEF25-75% predicted	49.8 ± 24.4
R5% predicted	156.1 ± 55.8
R20% predicted	103 ± 33.2
R5-R20	1.8± 1.3
X5 % predicted	724.1± 2609.2

Table 1 Values are in mean± SD, * values as range

Table 2- Correlation Coefficient					
Parameter	R5% predicted	R20% predicted	R5-R20	X5 % predicted	ACQ-7 Score
FEV1% predicted	-0.32*	-0.27*	-0.20	-0.08	-0.33*
FEV1/FVC % predicted	-0.28*	-0.28*	-0.15	-0.11	-0.28*
PEF% predicted	-0.27*	-0.21*	-0.18	-0.11	-0.27*
FEF25-75% predicted	-0.42*	-0.34*	-0.32*	-0.18	-0.32*
ACQ-7	0.27*	0.26*	0.23*	0.04	

Table 2- *Statistically Significant ($p < 0.01$)

AO02-1

CVA11 infection exerts potent immunogenic oncolytic activity in human malignant pleural mesothelioma via ICAM-1 receptor

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Background and Aim

Malignant pleural mesothelioma (MPM) is an aggressive solid cancer with a poor prognosis, whereas several studies demonstrated the potential of oncolytic virotherapy as a novel anticancer therapy. Recently, coxsackievirus A11 (CVA11) has been reported to be a potential oncolytic virus for colorectal cancer treatment.

Methods

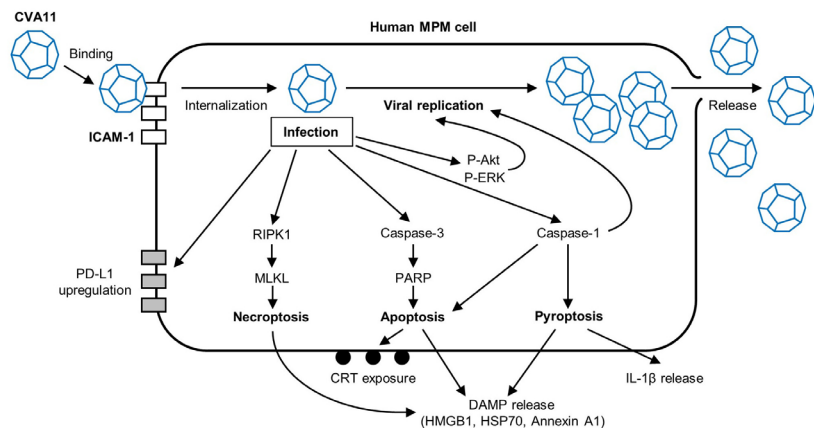
We investigated the oncolytic activity of CVA11 on a panel of human MPM cell lines, approached for the identification of a putative receptor for CVA11, and assessed the effect of CVA11 infection on Akt and ERK signaling pathways, multiple modes of tumor cell death, and the release of damage-associated molecular patterns (DAMPs) which are hallmarks of dying immunogenic cell death.

Results

In vitro cytotoxicity assays showed that CVA11 infection was substantially cytotoxic in all six MPM cell lines examined in an MOI dependent manner. MPM cells with a higher surface level of intercellular adhesion molecule-1 (ICAM-1) expression tended to be more susceptible to CVA11-induced cytotoxicity, and a neutralizing antibody to ICAM-1 markedly abrogated such cytotoxicity. CVA11 infection activated intracellular signaling by Akt and extracellular signal-regulated kinase (ERK) pathways, and inhibitors of such signaling also attenuated the CVA11-mediated cytotoxicity. In addition, CVA11 infection triggered multiple modes of tumor cell death including apoptosis, pyroptosis, and necroptosis, and such death was accompanied by the release or exposure of the proinflammatory cytokine interleukin-1 β and DAMPs such as calreticulin, high-mobility group box-1, annexin A1, and heat shock protein 70.

Conclusion

Our findings suggest that the oncolytic activity of CVA11 for MPM is dependent on ICAM-1 as a virus receptor as well as on Akt and ERK signaling, and that oncolytic virotherapy with CVA11 is a promising treatment modality with immunostimulatory activity for human MPM.



AO02-2

Study of genetic variability of production strains of *M. bovis* BCG

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The **aim** of the study was to study of genetic variability of production strains of *M. bovis* BCG.

Methods

The following samples were used: a) lyophilized BCG vaccine (year 1960), produced by the GKISV, b) vaccine produced by GP Allergen (year 1995), and c) lyophilized vaccine produced by Medgamal (year 2015).

Results

According to the analysis of the sequences of the complete genomes of *M. bovis* from BCG vaccines, all 3 studied samples were predicted by TB Profiler to be of genetic lineage La1.2.BCG. All genomic sequences were scanned for the presence of known drug-resistance associated variants in tuberculosis using TB Profiler. All sequences were also aligned to the BCG reference sequence NC_002945. TB Profiler reported the variant *pncA* p.His57Asp which is associated with Pyrazinamide resistance in tuberculosis in all three samples. Since TB Profiler uses the standard tuberculosis H37Rv reference, additional analysis of mapping to the BCG reference NC_002945 was conducted. Mappings from all three samples revealed reference Asp calls at *pncA* residue 57 which may help explain previous findings of intrinsic resistance to Pyrazinamide in BCG.

Conclusion

Despite the high genetic stability of mycobacteria, *M. bovis* used for production of BCG vaccine may acquire new genetic variants, some of which are related to resistance of anti-TB drugs.

AO02-3

Glyoxalase-1 is essential for the definitive endoderm and alveolar development of human pluripotent stem cells

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Background and Aim

Glyoxalase-1 (GLO1) is expressed in various tissues in vivo and is known to play an important role in the maintenance of homeostasis and pathological development. However, regulatory mechanism underlying the early definitive endoderm (DE) and alveolar epithelial cells (AEC) differentiation of human pluripotent stem cells (hPSCs) remains unclear. In this study, we aimed to investigate the role of GLO1 in differentiation of DE and AECs.

Methods

In order to understand the role of GLO1, GLO1-deficient (GLO1^{-/-}) hPSCs were generated using CRISPR gene editing. In this experiment, the expression of differentiation genes and markers was confirmed by quantitative real-time PCR and flow cytometry. Immunofluorescence and Real-time Cell Metabolism Analyzer were used to analyze mitochondrial biogenesis and function.

Results

The expression of GLO1 is increased during DE and AEC differentiation at the transcript and translational levels. GLO1^{-/-} hPSCs did not exhibit a difference in expression level of pluripotency genes. However, GLO1^{-/-} hPSCs showed a lower DE differentiation efficiency as well as lower expression levels of DE-related transcription factors and mitochondrial biogenesis compared to wildtype control. Notably, this impaired DE differentiation and mitochondrial biosynthesis levels of GLO1^{-/-} hPSCs was completely rescued by treatment of CHIR99021 (2.5 and 5 μM) during DE differentiation.

Acknowledgement

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AO02-4

GHS-R1a deficiency mitigates lipopolysaccharide-induced lung injury in mice via the downregulation of macrophage activity

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Background and Aim

Acute respiratory distress syndrome (ARDS) is a critical illness syndrome characterized by dysregulated pulmonary inflammation. Currently, effective pharmacological treatments for ARDS are unavailable. Ghrelin, an endogenous ligand for the growth hormone secretagogue receptor type 1a (GHS-R1a), has a pivotal role in regulating energy metabolism and immunomodulation. The role of endogenous ghrelin in ARDS remains unresolved. Herein, we investigated the role of endogenous ghrelin signaling by using GHS-R1a-null (Ghsr-KO) mice and lipopolysaccharide (LPS)-induced ARDS model.

Methods

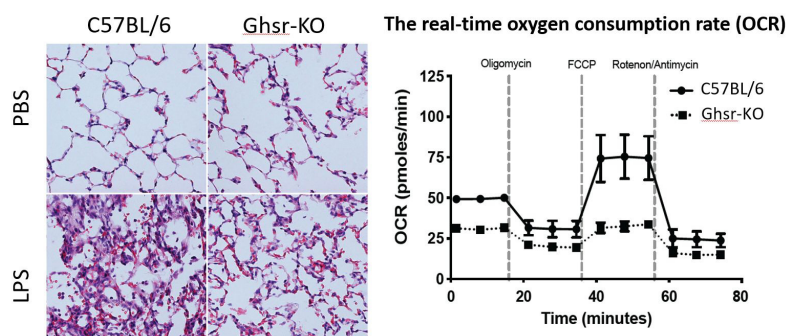
C57BL/6 mice and Ghsr-KO mice were intratracheally injected 5 mg/kg of LPS. The survival rate, levels of inflammatory cytokines, oxygenation levels and NF- κ B signaling after LPS challenge were analyzed. The mitochondrial respiration and induction of inflammatory cytokines in LPS-stimulated macrophages were analyzed.

Results

Ghsr-KO mice survived longer than controls after LPS-induced lung injury. Histologically, the lungs of the Ghsr-KO mice showed minor degree of intra-alveolar edema after lung injury. Ghsr-KO mice showed lower levels of pro-inflammatory cytokines (IL-6, TNF- α , IL-1 β and CCL2) and higher oxygenation levels after lung injury. The amount of increase in pNF- κ B/NF- κ B ratio of the Ghsr-KO mice was significantly lower than that of the control mice after LPS injection. The peritoneal macrophages isolated from Ghsr-KO mice exhibited lower levels of cytokines production and oxygen consumption rate after LPS stimulation.

Conclusion

Our results indicated that endogenous ghrelin plays a pivotal role in initiation and continuation in acute inflammatory response in LPS-induced ARDS model by modulating macrophage activity, and highlighted endogenous GHS-R1a signaling in macrophage as a potential therapeutic target in this relentless disease.



AO02-5

Therapeutic blockade of SIRT1 in lipopolysaccharide-induced acute lung injury in mice

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Background and Aim

Acute lung injury (ALI) is a major cause of acute respiratory failure. SIRT1 is a histone deacetylase that regulates diverse cellular functions, including inflammation, metabolism, and senescence. SIRT1 has been reported to exert anti-inflammatory roles in various contexts, however, its exact role in acute lung inflammation is still largely unknown.

Methods

We investigated the therapeutic effects of a SIRT1 inhibitor (sirtinol) in LPS-induced ALI, specifically focusing on the transcriptomic changes in the lungs.

Results

LPS induced severe acute lung inflammation associated with the increased mitochondrial oxidative stress, and treatment with sirtinol effectively ameliorated these features. We then focused on genes that were significantly differentially expressed in opposite directions when treated with LPS and sirtinol, respectively. These 'Flip DEGs' are expected to be involved in the reversal of the harmful effects of LPS. Pathway analyses identified that 'Flip DEGs' mainly belong to the oxidation, metabolism, immunity, and signaling-related pathways in LPS-induced ALI. Interestingly, sirtinol significantly reduced the LPS-induced increases of oxidative reactions. We also extracted candidate genes that are predicted to mediate the action of SIRT1, using a protein-protein interaction network database. Through the estimation of cell composition in the bulk RNA-seq data from lung tissues, we found that LPS-induced increases of the numbers of neutrophils, NK cells, antigen presenting cells, and adaptive immune cells were significantly lowered by sirtinol. In contrast, the opposite trend was verified in lung structural cells.

Conclusion

These data suggest that therapeutic blockade of SIRT1 ameliorates LPS-induced lung injury by regulating structural damage, oxidative stress, and immune responses.

AO02-6

Curcumin-like diarylpentanoid analogues inhibit influenza A virus (H1N1) replication and pro-inflammatory cytokines production in A549 lung epithelial cells

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Background and Aim

virus (IAV) infections cause significant morbidity and mortality due to mutations and uncontrolled cytokines production. Curcumin has anti-inflammatory effect and antiviral effect against IAV, but poor bioavailability hinders its development. Curcumin-like diarylpentanoid analogues, namely 2-benzoyl-6-(3,4-dihydroxybenzylidene)cyclohexen-1-ol (BDHBC) and 5-(3,4-dihydroxyphenyl)-3-hydroxy-1-(2-hydroxyphenyl)penta-2,4-dien-1-one (DHHPD), have shown better anti-inflammatory effects, solubility and stability compared to curcumin. Thus, this study aims to evaluate the effects of BDHBC and DHHPD on IAV replication and pro-inflammatory cytokines production *in vitro*.

Methods

A549 lung epithelial cells were infected with influenza A/PR/8/34 (H1N1) and treated with non-cytotoxic concentrations of BDHBC and DHHPD (5, 10 and 20µM). TCID₅₀ assay and ELISA were used to measure the levels of infectious viral particles and pro-inflammatory cytokines (IL-6 and IL-8), respectively. Dexamethasone (DEX) and oseltamivir carboxylate (OC) were used as positive controls. Results: DHHPD significantly reduced the levels of infectious viral particles, as well as IL-6 and IL-8 in a concentration-dependent manner. By contrast, a significant inhibition on these parameters was only observed with BDHBC at 20 µM, except that 10 µM of BDHBC also significantly inhibited IL-6 production. DEX (10µM) significantly suppressed IL-6 and IL-8 production but had no effect on viral replication, whereas OC (100µM) significantly reduced the viral titer but only had a modest inhibitory effect on IL-6 and IL-8 levels. These findings suggest that pro-inflammatory cytokines production was not totally dependent on viral replication. Conclusion: Curcumin-like diarylpentanoid analogues (BDHBC and DHHPD) exhibited both antiviral and anti-inflammatory activities and may be potential therapeutic agents for IAV infection and associated inflammatory responses.

Keywords

influenza, curcumin, diarylpentanoid analogue, antiviral, cytokine

Acknowledgements/Disclosure statement

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AO03-1

Short leukocyte telomere lengths correlate with poorer survival and absolute FVC decline from baseline independent of ILD diagnosis

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Background and Aim

Short telomeres correlate with poor outcomes within ILD subtypes, particularly IPF(1,2). We aimed to study the relationship between telomere length and outcomes across different ILD diagnoses.

Methods

We prospectively recruited 125 Singapore ILD patients from 1 September 2019 to 15 May 2021. Genomic DNA was obtained from blood drawn at recruitment and subjects followed up until death, lung transplantation or census date 14 May 2022. Leukocyte telomere lengths(LTL) were measured using qPCR. Short LTL was defined as that below the age-adjusted 10th percentile of unrelated healthy controls. Primary endpoint was transplant-free survival(TFS).

Results

Thirty-three(26.4%) subjects had short LTL. The proportion of short LTL for each diagnosis was: IPF 31.9%(n=15), connective tissue disease related-ILD 19.4%(n=7), chronic hypersensitivity pneumonitis 57.1%(n=4), idiopathic NSIP 3.7%(n=1), unclassifiable ILD 50%(n=1), pleuroparenchymal fibroelastosis 100%(n=2), sarcoidosis 100%(n=1) and asbestosis 66.7%(n=2)(p=0.07). Subjects with short LTL were younger(64.8+/-10.4 years vs 69.0+/- 8.9 years; p=0.029), had lower DLCO(55.2+/-18.7% vs 64.8+/-16.1%; p =0.008) and greater antifibrotic use(n=8(24.2%) vs n=6(6.5%); p =0.014). Short LTL had poorer TFS(HR 2.05[95%CI 1.11-3.77]; p=0.021) which remained significant after adjustment for age, diagnosis, smoking, pulmonary hypertension, FVC, DLCO and treatment) (HR 5.09[95%CI 1.45-17.81]; p=0.011). Linear mixed-effects model built using time, smoking, diagnosis, treatment, and LTL showed short LTL had a faster rate of absolute FVC decline from baseline at 12 months from recruitment(73.3+/-28.7ml/month vs 55.6+/-21.4ml/month, p=0.008).

Conclusion

Short LTL correlated with poorer transplant-free survival and faster rate of absolute FVC decline from baseline at 12 months independent of ILD diagnosis.

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Acknowledgements/Disclosure statement

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AO03-2

Role of ornithine aminotransferase in idiopathic pulmonary fibrosis: lung function decline and fibrogenesis

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Background and Aim

Idiopathic pulmonary fibrosis (IPF) exhibit aberrant lung remodeling that is characterized by excessive accumulation of extracellular matrix (ECM) proteins. In a previous study, we found that levels of ornithine aminotransferase (OAT), a key enzyme involved in converting ornithine into proline, are elevated in the lungs of patients with IPF. To evaluate the clinical significance of OAT and assess the relationship between OAT expression and fibrosis progression.

Methods

OAT levels were measured in bronchoalveolar lavage (BAL) fluid obtained from patients with IPF (n = 59) and control subjects (n = 20). Functional in vitro and in vivo studies were used to investigate the role of OAT in IPF pathogenesis.

Results

OAT expression was significantly higher in the lungs of patients with IPF. OAT levels in the BAL fluid of patients with IPF were inversely correlated with lung function. Increased BAL-fluid OAT levels were associated with higher mortality rates (hazard ratio, 1.0302; 95% confidence interval, 1.0147–1.046; p = 0.001), and significantly impacted overall survival. Overexpression of OAT increased the generation of reactive oxygen species (ROS) in the mitochondria by activating proline dehydrogenase, main enzyme for proline catabolism. OAT overexpression increased production of ECM components in lung fibroblasts, whereas knockdown of OAT decreased these expressions. OAT knockdown also inhibits transforming growth factor- β 1 activity. The OAT inhibitor L-canaline significantly attenuated bleomycin-induced experimental lung injury/fibrosis.

Conclusion

OAT plays an important role in IPF fibrogenesis. OAT in BAL fluid may be a novel biomarker for predicting the progression of IPF.

AO03-3

Direct hemoperfusion with polymyxin B-immobilized fibre column for acute exacerbation of idiopathic pulmonary fibrosis: A nationwide observational study

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Background and Aim

Acute exacerbation of idiopathic pulmonary fibrosis (AE-IPF) is the leading cause of death among patients with IPF. However, there is no established treatment for this condition. Hence, we aimed to investigate the effectiveness of direct hemoperfusion with polymyxin B-immobilized fibre column (PMX-DHP) for the treatment of AE-IPF.

Methods

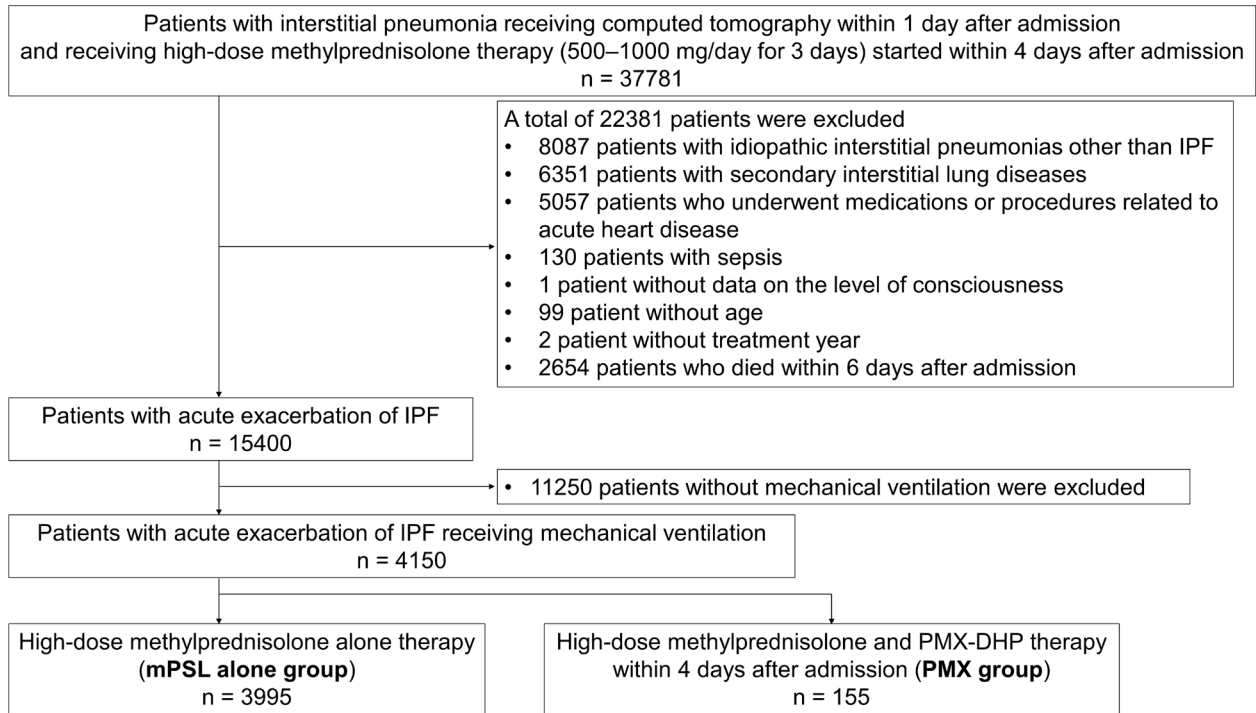
Data were retrospectively collected from the Japanese Diagnosis Procedure Combination database from 1 July 2010 to 31 March 2018. We identified adult patients with IPF who received high-dose methylprednisolone (mPSL) therapy and mechanical ventilation upon admission. Eligible patients (n = 4,150) were divided into those receiving high-dose mPSL alone (mPSL alone group, n = 3,995) and PMX-DHP combined with high-dose mPSL (PMX group, n = 155). A stabilised inverse probability of treatment weighting (IPTW) using propensity scores was performed to compare outcomes between the two groups. The primary outcome was in-hospital mortality, and the secondary outcomes were 14- and 28-day mortality and length of hospital stay.

Results

The in-hospital mortality rates of the mPSL alone and PMX groups were 77.2% and 80.7%, respectively. The results did not significantly differ between the two groups after performing a stabilised IPTW. The odds ratio of the PMX group compared to the mPSL alone group was 1.58 (95% confidence interval: 0.64–3.93; p = 0.33). Moreover, the secondary outcomes did not differ significantly between the two groups.

Conclusion

In patients with AE-IPF who developed severe respiratory failure, PMX-DHP in addition to high-dose mPSL was not associated with a better outcome.



AO03-4

Impact of initial dose of corticosteroid on clinical outcomes in acute exacerbation of idiopathic pulmonary fibrosis

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Background and Aim

Acute exacerbation of idiopathic pulmonary fibrosis (AE-IPF) has a very poor prognosis. Although corticosteroids are commonly used in AE-IPF, there is no specific guideline for appropriate regimen or dose of corticosteroid. We aimed to see whether initial dose of corticosteroid had impact on survival outcome of patients with AE-IPF.

Methods

We retrospectively analyzed patients with AE-IPF admitted to Seoul National University Hospital and treated with corticosteroid from January 2012 to December 2021. Patients were divided according to the initial dose of corticosteroid (pulse group vs. non-pulse group), which was determined by the attending physician. If pulse-dose of corticosteroid (methylprednisolone of ≥ 250 mg or its equivalent) was administered within 5 days after hospitalization, it was regarded as a pulse regimen.

Results

A total of 262 patients with mean age of 72 years were included for this study. Among them, 62 patients (23.7%) were initially treated with steroid pulse regimen. In non-pulse group, initial dose of corticosteroid was methylprednisolone of 0.9 ± 0.6 mg/kg. Overall, 40 patients (15.3%) needed mechanical ventilation, and in-hospital mortality was 35.5%. In univariate analysis, pulse group showed lower in-hospital mortality rate compared to non-pulse group (22.6% vs. 39.5%, $P=0.02$). However, after adjusting for covariates including age, sex, use of anti-fibrotic agent, and initial disease severity reflected by oxygen demand, there was no significant difference in in-hospital mortality between the two groups (OR 0.52, 95% CI 0.26-1.06).

Conclusion

In patients with AE-IPF, initial administration of pulse-dose of corticosteroid did not reduce in-hospital mortality compared non-pulse corticosteroid regimen.

AO03-5

Monocyte Counts and the Clinical Outcomes in the Idiopathic Nonspecific Interstitial Pneumonia

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Background and Aim

Interstitial lung disease (ILD) is characterized by inflammation and fibrosis of the lung parenchyma. Recent studies reported higher blood monocyte counts may be associated with worse survival in idiopathic pulmonary fibrosis (IPF). We investigated the impacts of blood monocyte counts on clinical outcomes of idiopathic nonspecific interstitial pneumonia (iNSIP).

Methods

We analyzed the 234 patients with non-IPF ILD patients from Jan 1st, 2003 to Dec 31st, 2019. Pulmonary function tests (PFT) and survival were analyzed in 126 patients diagnosed with iNSIP by surgical lung biopsy. Survival was evaluated using the Kaplan-Meier analysis with log-rank test and lung function changes were analyzed using linear mixed-effects model.

Results

The median age was 60 years old and 62 (49.2%) were male. The mean duration of follow-up was 60 ± 11.0) months. The high monocyte group ($\geq 600/\mu^l$) had more male patients compared to the low monocyte group (

The annual decline of predicted FVC (mL) of high and low monocyte groups was -65.76mL/year (95% CI -87.57, -43.95), and -28.49mL/year (95% CI -41.48 to -15.51) respectively, there was a difference after adjusting age, sex and smoking history ($p=0.006$). The high monocyte group showed worse survival rate than low monocyte group (log-rank; $p=0.012$).

Conclusion

High monocyte counts were associated with faster lung function decline and worse survival in iNSIP. Monocyte counts could be a useful biomarker for the prognosis in iNSIP.

Conflicts of Interest

No potential conflict of interest relevant to this article was reported

Acknowledgment

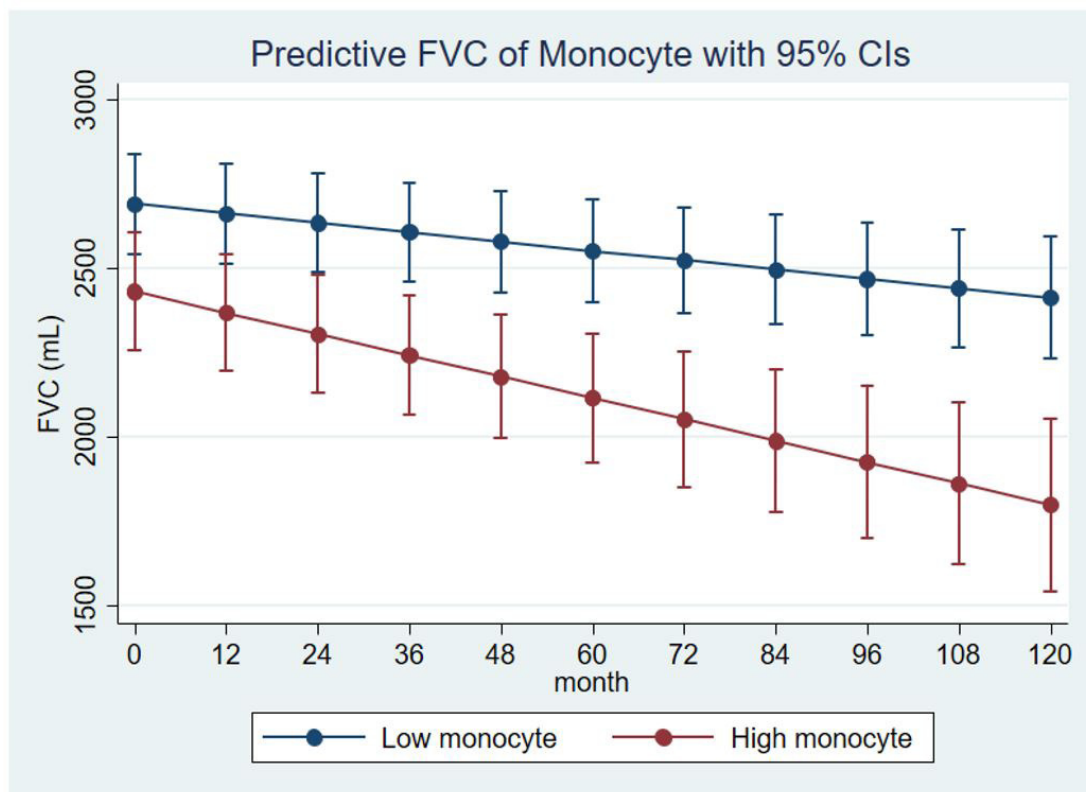
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Figure 1. Linear mixed model of changes in FVC (mL) based on monocyte count



AO03-6

Therapeutic potential of an indole derivative in fatal fibrosing interstitial lung diseases

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Background and Aim

Various environmental compounds are inducers of fibrosing ILDs. Mitochondria are crucial organelles for normal lung function that can be impacted by many lung diseases. NecroX is an antioxidant that specifically targets mitochondria. We aimed to evaluate therapeutic potential and related molecular mechanisms of NecroX in preclinical models of fatal fibrosing ILD.

Methods

We investigated the therapeutic effects of NecroX on two different experimental models of fibrosing ILD induced by polyhexamethylene guanidine (PHMG) and bleomycin through transcriptome analysis.

Results

Respiratory exposure to PHMG led to lung injury manifesting extensive inflammation followed by fibrosis. These specifically impacted mitochondria in regard to biogenesis, DNA integrity, and generation of ROS in various cell types. NecroX significantly improved the pathobiologic features of the PHMG- and bleomycin-induced fibrosing ILD through regulation of mitochondrial functionalities. ER stress was also implicated in PHMG-associated fatal fibrosing ILD of mice and human, which is improved by NecroX. Pathways related to oxidative stress, oxidative phosphorylation and mitochondrial translation were up-regulated in fibrosing models and significantly down-regulated by NecroX. To identify the effects of NecroX on individual cell types, we performed deconvolution on the bulk transcriptome data. Estimated proportions of alveolar type 2 (AT2) cells were significantly reduced, while proportions of macrophages and myofibroblast were significantly increased in PHMG-exposed lung tissues. NecroX treatment on these samples restored AT2 cell proportion and reduced macrophages and myofibroblasts.

Conclusion

These findings demonstrate that NecroX possesses therapeutic potential in fatal fibrosing ILDs of humans.

AO03-7

Effect of aspirin on mortality in patients with idiopathic pulmonary fibrosis; An analysis using the Korean National Health Insurance Service database from 2010 to 2020.

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Background and Aim

Previous studies have shown that aspirin exerts anti-fibrotic effects by interfering with TGF- β signaling, which plays a key role in regulating the inflammatory response. The purpose of this study was to investigate the potential of aspirin as a new therapeutic agent for idiopathic pulmonary fibrosis (IPF) by tracking the effect of aspirin on the prognosis of patients with IPF.

Methods

We analyze the medical records of the patients who newly granted for rare disease code of IPF(V236) from January 2010 to December 2018 using the National Health Insurance Service (NHIS) database. Our primary endpoint was the all-cause mortality of IPF patients depending upon aspirin use.

Results

A total of 6,592 patients were finally included in this study. Aspirin user group was defined as the patients who had taken aspirin for more than 6 months after the diagnosis of IPF. The use of pirfenidone, a proven therapeutic agent of IPF, was also investigated, and pirfenidone user group was defined as the patients who had taken pirfenidone for more than 9 months. In Kaplan-Meier's analysis all-cause mortality was lower in aspirin users than non-users both in pirfenidone user group ($p=0.0001$) and pirfenidone non-user group ($p=0.028$), respectively. Analyzing all-cause mortality by multivariate Cox regression, the hazard ratio for aspirin use in the pirfenidone non-user group was 0.483 (95% CI 0.415 to 0.562, $p=0.0001$) and 0.745 (95% CI 0.572 to 0.969, $p=0.0001$) in the pirfenidone user group.

Conclusion

Aspirin might be beneficial for patients with IPF in terms of all-cause mortality.

AO03-8

Immunogenicity and safety of ChAdOx1 nCoV-19 vaccine in interstitial lung disease patients with immunosuppressive therapy

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Background and objective

COVID-19 vaccine can prevent infection and severe pneumonia related to SARS-CoV-2 in the general population. However, the knowledge on safety and efficacy of the ChAdOx1 nCoV-19 vaccine in interstitial lung disease (ILD) patients is limited. This study aims to measure the anti-RBD antibody, neutralizing antibodies, and T-cell response against SARS-CoV-2 after two doses of ChAdOx1 nCoV-19 in ILD patients on immunosuppressants and assesses the impact of the vaccines on ILD status.

Methods

Immunogenicity of ChAdOx1 nCoV-19 vaccine in ILD patients receiving immunosuppressants was evaluated by measuring anti-RBD antibody, neutralizing antibody, and T-cell response against SARS-CoV-2. Demographic data, side effects, clinical course, and incidence of COVID-19 infection were collected.

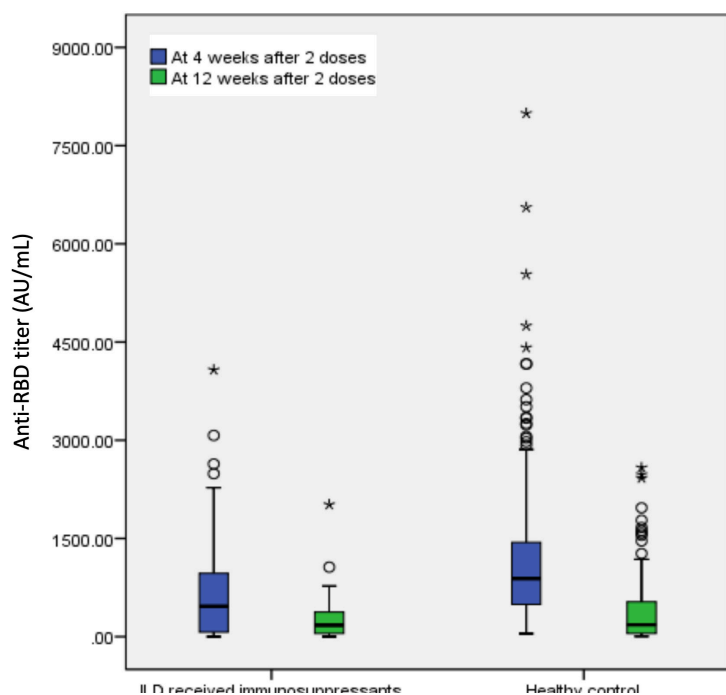
Results

Forty-four ILD patients with a mean age of 63.8 years were included in the study.

ILD patients were predominantly diagnosed with connective tissue diseases related ILD (65.9%). Four weeks after completing two doses of ChAdOx1 nCoV-19, 86% of participants mounted anti-RBD antibody. Moreover, the neutralizing antibody against Delta (B.1.617.2) and Omicron (B.1.1.529) variant were 77.3% and 2.3% respectively. At 12 weeks, 60.7% of the participants had a positive T-cell response. There was no significant difference in elicited anti-RBD antibody, neutralizing antibody, and T-cell response by ChAdOx1 nCoV-19 vaccine regardless of treatment adjustment according to the American College of Rheumatology suggestion. The most common side effect was fever. Three patients had ILD flare, and one patient had COVID-19 infection during the study.

Conclusions

Two doses of ChAdOx1 nCoV-19 vaccine given at 12 weeks apart was immunogenic and safe in ILD patients receiving immunosuppressants.



AO04-1

Comparison of active tuberculosis case finding strategies for immigrants in South Korea: epidemiology and cost-effectiveness analysis

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Background

Tuberculosis (TB) is one of the serious infectious diseases in South Korea, reporting 49 new cases per 100,000 people and 629 multi-drug resistant (MDR) TB in 2020. We compared active case finding (ACF) with passive case finding (semi-PCF) in epidemiological characteristics, and investigated the cost-effectiveness for screening immigrants TB.

Methods

ACF and semi-PCF as a VISA renewal process using chest X-ray (CXR) with additional acid fast bacilli (AFB) smear and cultures were performed. Epidemiological parameters were compared between the two strategies, and costs were collected by mixed costing. Cost-effectiveness was evaluated using a decision analysis model from the health system perspective. The primary outcome was the incremental cost-effectiveness ratio (ICER) per averted TB cases. Additional probabilistic sensitivity analysis was conducted.

Results

ACF (2.02%) showed a higher TB prevalence rate than semi-PCF (0.67%) on CXR. For the subjects above 60 years old, the suspected TB rate was significantly higher in ACF (36.6%) than semi-PCF (12.2%) ($P < 0.0012$). ACF (\$666.83) performed \$20.784 higher cost than semi-PCF (\$646.13), however TB progression decreased by 0.02, resulting in ICER as \$948.18 per averted TB case. In sensitivity analysis, indirect cost of ACF and semi-PCF had the highest impact on ICER.

Conclusion

ACF found more TB cases than semi-PCF through CXR screening, and old aged and family VISA types were more distributed in ACF than semi-PCF. ACF is considered cost-effective as a TB screening strategy for immigrants.

AO04-2

People with disabilities are at risk of tuberculosis: a nationwide serial cross-sectional study

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Background and Aim

People with disabilities are more likely to develop secondary health conditions and their social determinants of health often overlap with the risk factors for developing tuberculosis (TB) disease. We aimed to assess the risk of active TB disease among people with disabilities.

Methods

We conducted a nationwide serial cross-sectional study from 2008 to 2017. The crude incidence rate and odds of developing TB disease were examined by a logistic regression model using data from the 2017 cohort. Multivariable analysis was adjusted for age, income level, and residence. The age-standardised incidence rate of TB was analysed for each year according to the presence, type, and severity of disabilities.

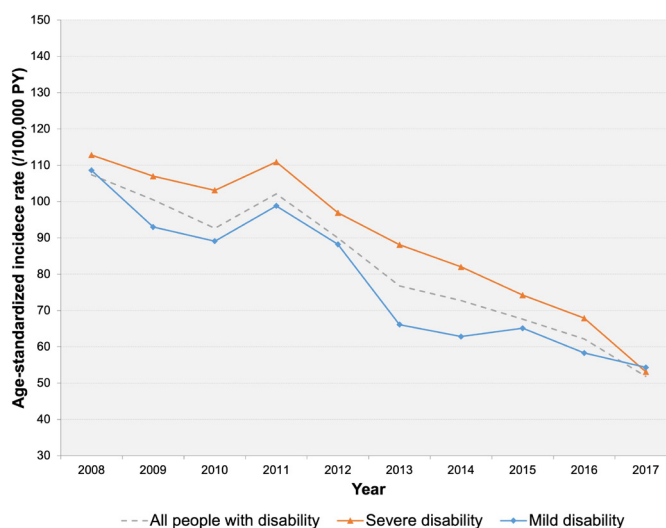
Results

The population with disabilities had a higher crude incidence rate of active TB disease than those without disability (119.9/100,000 vs. 48.5/100,000 person-years, $P < 0.001$), regardless of sex, income level, and place of residence. Compared to those without disability, those with disabilities had higher odds of active TB incidence (adjusted odds ratio [aOR], 1.19; 95% confidence interval [CI], 1.15–1.24). Among types of disability, mental disability (aOR, 1.51; 95% CI, 1.24–1.84) and developmental disability (aOR, 1.30; 95% CI, 1.09–1.55) were significantly associated with TB incidence. Age-standardised incidence rates of TB disease among people with disabilities were significantly higher than in those without disabilities throughout all observed years ($P < 0.001$).

Conclusion

People with disabilities are at a greater risk of developing TB disease. Active screening and care for TB infection would be beneficial for people with disabilities.

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AO04-3

Diagnostic performance of XPERT-MTB/RIF and XPERT-MTB/RIF Ultra on thoracoscopic pleural biopsy specimens for diagnosing pleural tuberculosis – A single center experience of 534 patients.

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Background

The gold standard for diagnosing tubercular pleural effusion(TPE) is demonstration of Mycobacterium tuberculosis(Mtb) in pleural fluid or tissue. The fully automated nucleic-acid amplification test, Xpert-MTB/RIF has a low sensitivity for diagnosing TPE. Xpert Ultra is developed to improve its sensitivity. There is no published data regarding diagnostic utility of Xpert Ultra on pleural biopsy specimens. This study was designed to compare diagnostic yield of Xpert-MTB/RIF and Xpert-MTB/RIF Ultra on pleural biopsy for diagnosing TPE.

Methods

This is a retrospective observational study conducted at Yashoda Hospital, Somajiguda, Hyderabad. All consecutive patients undergoing medical thoracoscopy(MT) for undiagnosed exudative pleural effusion between January 2015 and April 2022 were included. Xpert-MTB/RIF was performed from January 2015 to February 2019, while Xpert-MTB/RIF Ultra was done from March 2019 onwards.

Results

Of the 534 patients who underwent thoracoscopy, 244 were in Xpert-MTB/RIF group and 290 in Xpert-MTB/RIF Ultra group. Both groups were matched for mean age, sex distribution and pleural fluid analysis. A total of 190 patients were diagnosed to have TPE, 88(36.1%) in Gene Xpert-MTB/RIF group and 102(35.2%) in Gene Xpert Ultra group. Sensitivity of Xpert-MTB/RIF Ultra was significantly higher than that of Xpert-MTB/RIF [67.6% (69/102) vs 53.4% (47/88); p=0.044]. The specificity of both Xpert Ultra and Xpert remain the same [99.3% vs 100%].

Conclusion

Our study showed that Xpert-MTB/RIF Ultra has a significantly higher sensitivity compared to Xpert-MTB/RIF when performed on thoracoscopic pleural biopsy (p=0.044). We suggest that Xpert Ultra be performed in all cases undergoing MT for undiagnosed exudative pleural effusions.

AO04-4

Clinical course and risk factors associated with paradoxical responses in patients with mediastinal lymph node tuberculosis

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Background and Aim

Paradoxical responses are more common in lymph node tuberculosis (LNTB) than in pulmonary TB,^{1,2} and occur predominantly within 12 weeks of treatment initiation.¹ However, clinical course of mediastinal LNTB has not been well reported. The aim of this study was to investigate the clinical course of mediastinal LNTB and the risk factors associated with paradoxical responses.

Methods

This study was a retrospective observational study of patients diagnosed with mediastinal LNTB via EBUS-TBNA between October 2009 and December 2019.

Results

Of total 9052 patients underwent EBUS-TBNA during the study period, 158 patients were diagnosed with mediastinal LNTB. Of these, 55 (33%) and 41 (26%) concurrently had pulmonary TB and extrapulmonary TB other than mediastinal LNTB, respectively. Excluding 12 patients who were transferred out or lost to follow-up, 125 (86%) completed anti-TB treatment and 21 (14%) developed paradoxical responses at the median 4.4 months after the initiation of anti-TB treatment. The median duration of anti-TB treatment was 6.3 and 10.4 months in patients without and with paradoxical responses, respectively. The development of paradoxical responses was independently associated with an age < 55 years (aOR, 6.26; 95% CI, 1.92–20.42; p=0.002), lymphocyte < 800/μL (aOR, 6.74; 95% CI, 1.26–36.11; p=0.026), and constitutional symptoms (aOR, 5.21; 95% CI, 1.17–15.89; p=0.004) at the time of diagnosis of mediastinal LNTB.

Conclusion

Since one in four patients with mediastinal LNTB can experience paradoxical responses during anti-TB treatment, physicians should pay attention in patients with risk factors at the time of diagnosis.

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AO04-5

Comparison of different types of fixed-dose combination regimen for treatment of tuberculosis in elderly patients in Taiwan

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Background and Aim

Tuberculosis (TB) is one of the most widespread, communicable diseases in the world. It is the 13th leading cause of death and the second leading infectious killer after coronavirus disease 2019 worldwide. In Taiwan, > 60% of patients with pulmonary TB were aged > 65 years old. Our study aimed to assess the effectiveness and safety between Rifater/Rifinah and AkuriT-4/AkuriT-3, two commonly used fixed dose combination (FDC) regimens in Taiwan, in elderly patients with newly diagnosed TB in a single medical center.

Methods

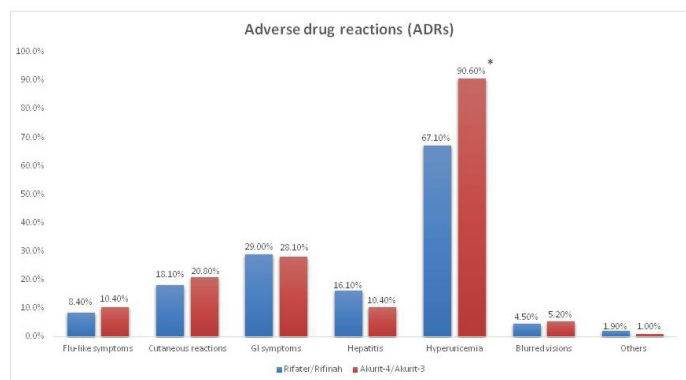
This prospective cohort study was conducted at Taichung Veterans General Hospital, a tertiary medical center in central Taiwan. Patients who were diagnosed of having TB, either pulmonary or extra-pulmonary, used Rifater/Rifinah or AkuriT-4/AkuriT-3 as part of treatment regimen, and were with age > 65 year-old were recruited in our study between August, 2012 and August, 2015.

Results

A total of 251 patients were eligible for the final analysis. 155 (61.8%) patients received Rifater/Rifinah regimens while 96 (38.2%) received AkuriT-4/AkuriT-3 regimens. 73.7% of participants were male. The mean age of all participants was 76.4 ± 7.4 years old. Treatment responses were similar, in terms of the smear conversion, culture conversion and chest X-ray change between the two study groups. The adverse drug reactions between the two FDC regimens showed that a higher percentage of the emergence of hyperuricemia in the AkuriT-4/AkuriT-3 group when compared to that in the Rifater/Rifinah group (90.6% vs. 67.1%, p 0.001), others showed no statistically significant difference.

Conclusion

The two FDC regimens, Rifater/Rifinah and AkuriT-4/ AkuriT-3, had similar effectiveness in elderly tuberculous patients while the AkuriT-4/ AkuriT-3 regimen had more concerns on the adverse effects, particularly hyperuricemia than the Rifater/Rifinah regimen.



*p<0.05

Figure 1. Adverse drug reactions (ADRs)

AO04-6

The treatment outcome of pulmonary tuberculosis with or without pyrazinamide for patients under or over the age of 80 in Osaka city, Japan.

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Background and Aim

To evaluate the treatment outcome, we surveyed the reasons not administering pyrazinamide (PZA) and analyzed the completion rate and discontinuation rate with PZA for pulmonary tuberculosis (PTB) patients during initial intensive phase in Osaka city, Japan.

Methods

We examined the usage status of PZA during initial intensive phase for registered PTB patients in Osaka city from 2018 through 2019 with dividing into over and under the age of 80. Next, according to our survey, we defined the reasons not using PZA as having a past history of liver disease or kidney disease, impossible to take a medicine, liver dysfunction causing by PZA, and advanced age. Then, we analyzed the association between PZA and treatment outcome using chi-squared test.

Results

PZA was used for 704 (88.9%) out of 792 patients under the age of 80, and was used for 41 (13.1%) out of 313 patients over the age of 80 ($p < 0.001$). Comparing to the completion rate of PZA, there was no significant difference between patients under the age of 80 (83.7%) and patients over the age of 80 (92.7%). For the discontinuation rate of PZA, there is a significant difference between with PZA (2.6%) and without PZA (10.0%) among patients under the age of 80 ($p < 0.001$). However, there is no significant difference among patients ages 80 and over. Patients under the age of 80 using PZA have significantly better treatment outcome.

Conclusion

We had better administer PZA regardless of age except for patients who have a risk to be hepatic dysfunction.

AO04-7

Real-world experience of rifampicin sparing treatment for drug-susceptible pulmonary tuberculosis

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Background and Aim

Despite the importance of rifampicin in treating tuberculosis, maintenance throughout the whole treatment may not be feasible due to adverse reactions. It is recommended that the regimen be given as multidrug-resistant tuberculosis in such settings, which requires longer treatment with even more toxic drugs. We aimed to share the real-world experience of rifampicin sparing treatment for drug-susceptible pulmonary tuberculosis.

Methods

We inspected drug-susceptible pulmonary tuberculosis patients treated with

Results

Of the 114 patients, 92 (80.7%) revealed favorable responses after initial treatment: 80 (70.1%) confirmed culture conversion, while 12 (10.5%) could not expectorate sputum but improved clinically. Of the remaining 22 patients, 12 (10.5%) did not complete treatment and 10 (8.8%) died. Those who completed treatment were prescribed for a median of 10.2 months (interquartile range [IQR] 8.8–12.6), including rifampicin for 1.2 months (IQR 0.6–2.2). The most popular regimens included isoniazid (9.7 months, IQR 7.91–12.53), ethambutol (8.9 months, IQR 6.0–11.6), fluoroquinolone (8.4 months, IQR 6.6–11.3), and pyrazinamide (2.1 months, IQR 0.9–7.9). Four and three drugs were most commonly used for the intensive phase (53.3%) and the consolidative phase (44.6%), respectively. Two patients (2.2%) experienced recurrence during 3.4 years (IQR 1.8–6.8) of follow-up.

Conclusion

A shorter regimen can be a useful alternative for all drug-susceptible pulmonary tuberculosis patients who cannot maintain rifampicin due to adverse reactions. Attention should be paid to the possibility of recurrence.

AO05-1

Study on the mechanism of msc-mirna-198-exos regulating mapk1 in malignant pleural effusion associated with non-small cell lung cancer

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Objective

To establish an animal model of malignant pleural effusion (MPE) associated with non-small cell lung cancer (NSCLC), to construct a high content of human umbilical cord MSC-miRNA-198-Exos by retrovirus transfection, and to investigate the effect of MSC-miRNA-198-Exos on pleural invasion and the mechanism of MSC-miRNA-198-Exos on NSCLC associated MPE.

Methods

To investigate the effects of intraperitoneal injection of MSC-Exos, MSC-mirna-198 and phosphate buffer solution (PBS) on the volume of pleural effusion and the size of intrathoracic tumor based on BALB/C nude mouse model. Through immunohistochemical detection, microvessel density counting, ELISA detection, bioinformatics analysis and Western blot to explore whether overexpression of miR-198 can inhibit MPE by inhibiting MAPK.

Results

Compared with PBS, the content of Evans blue in MPE, tumor and pleural fluid decreased significantly in msc-miRNA-198-Exos; The number of blood vessels in MSC-Exos was significantly lower than that in PBS, and the number of blood vessels and the expression of VEGF in MSC-miRNA-198-Exos were less than those in PBS; Western blot showed that the activities of c-MET and p-ERK were inhibited in MSC-miRNA-198-Exos and MSC-Exos.

Conclusion

1. Intrapleural injection of msc-mirna-198-exos can significantly inhibit the growth of intrathoracic tumors and the formation of malignant pleural effusion. 2. Exosomes are therapeutic vectors. Overexpression of mir-198 can inhibit the expression of c-met gene, inhibit the MAPK activity downstream of HGF/c-Met signaling pathway, inhibit the migration and invasion of NSCLC, reduce vascular permeability and inhibit the occurrence of MPE. The treatment of NSCL is related to the secretion of NSCLC.

AO05-2

KCNK3 inhibits proliferation and glucose metabolism of lung adenocarcinoma via activation of AMPK-TXNIP pathway

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Background and Aim

Non-small cell lung cancer (NSCLC) is a primary histological subtype of lung cancer with increased morbidity and mortality. K⁺ channels have been revealed to be involved in carcinogenesis in various malignant tumors. However, TWIK-related acid-sensitive potassium channel 1 (TASK-1, also called KCNK3), a genetic member of K2P channels, remains an enigma in lung adenocarcinoma (LUAD). Herein, we investigated the pathological process of KCNK3 in proliferation and glucose metabolism of LUAD.

Methods

The expressions of KCNK3 in LUAD tissues and corresponding adjacent tissues were identified by RNA-sequencing, qRT-PCR, western blot and immunohistochemistry. Gain and loss of function assays were performed to estimate the role of KCNK3 in proliferation and glucose metabolism of LUAD. Additionally, energy metabolites of LUAD cells were identified by targeted metabolomics analysis. The expressions of metabolic molecules and active biomarkers associated with AMPK-TXNIP signaling pathway were detected via western blot and immunofluorescence and.

Results

KCNK3 was significantly downregulated in LUAD tissues and correlated with patients' poor prognosis. Overexpression of KCNK3 largely regulated the process of oncogenesis and glycometabolism in LUAD in vitro and in vivo. Mechanistic studies found that KCNK3-mediated differential metabolites were mainly enriched in AMPK signaling pathway. Furthermore, rescue experiments demonstrated that KCNK3 suppressed proliferation and glucose metabolism via activation of the AMPK-TXNIP pathway in LUAD cells.

Conclusion

In summary, our research highlighted a emerging role of KCNK3 in the proliferative activity and glycometabolism of LUAD, suggesting that KCNK3 may be an optimal predictor for prognosis and a potential therapeutic target of LUAD.

AO05-3

Integrated profiling of endoplasmic reticulum stress-related DERL3 in prognostic and immune features of lung adenocarcinoma

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Objective

DERL3 has been implicated as an essential element in the degradation of misfolded luminal glycoproteins induced by endoplasmic reticulum (ER) stress. However, the correlation of DERL3 expression with malignant phenotype of lung adenocarcinoma (LUAD) cells is unclear and remains to be elucidated. Herein, we investigated the interaction between DERL3 and LUAD pathological process.

Methods

The Cancer Genome Atlas (TCGA) database was utilized to determine the genetic alteration of DERL3 in stage I LUAD. Clinical LUAD samples including carcinoma and adjacent tissues were obtained and were further extracted to detect DERL3 mRNA expression via RT-qPCR. Immunohistochemistry and Western blot were performed to evaluate the protein expression of DERL3 in LUAD tissues. The GEPIA and TIMER website were used to evaluate the correlation between DERL3 and immune cell infiltration. We further used t-SNE map to visualize the expression of DERL3 distributed in various clusters at the single-cell level via TISCH database. The potential mechanisms of biological process mediated by DERL3 in LUAD were conducted via KEGG and GSEA.

Results

It was indicated that DERL3 was differentially expressed in carcinoma and adjacent tissues in multiple kinds of tumors from TCGA database, especially in LUAD. Immunohistochemistry validated DERL3 was also up-regulated in LUAD tissues compared with adjacent tissues from individuals. DERL3 was preliminarily found to be associated with immune infiltration via TIMER database. Further, t-SNE map revealed that DERL3 was predominantly enriched in plasma cells of B cells population. It was demonstrated that DERL3 high-expressed patients presented significantly worse response to chemotherapy and immunotherapy. GSEA and KEGG results indicated that DERL3 was positively correlated with B cell activation and unfolded protein response (UPR).

Conclusion

Our findings indicated that DERL3 might play as an essential role in ERAD process in LUAD. Moreover, DERL3 may act as a promising immune biomarker, which could predict the efficacy of immunotherapy in LUAD.

AO05-4

Pilot study: comparative analysis of immune related gene expression in lung adenocarcinoma tissues between never smokers, non-emphysematous smokers and emphysematous lungs

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Background

Adenocarcinoma accounts the largest proportion of lung cancer populations, and it can be heterogeneous in terms of immune related backgrounds. Immune background of tumor tissues is important, and it is reported that smoking status and underlying emphysema of lung parenchyme can significantly affect immune backgrounds of lung tumor tissue. In this pilot study, immune related gene expression was compared between three groups stratified by smoking status and presence of emphysema of lungs.

Methods

Paraffin block tumor tissues which were acquired at initial lung adenocarcinoma diagnosis were used to compare the immune related gene expression between three groups: never smokers, smokers without evident emphysematous change (Smoker 1), and ever smokers with emphysematous lungs (Smoker 2). A commercial multiplexed gene expression panel, the NanoString nCounter PanCancer Immune Profiling Panel (NanoString Technologies, Seattle, WA, USA) providing gene expression data of 770 immune-related genes was used to compare mRNA expression between the three groups.

Results

Total of 12 lung adenocarcinoma patients were evaluated, with 4 patients allocated to each of the 3 groups. Compared to the never smoker group, SFRP1, IL6 and SERPINB5 were the three most upregulated genes in Smoker 1, and BLK, IL1RN and WNT2B were the three most upregulated genes in Smoker 2. Compared to Smoker 1, HLA-DQA2, MMP7 and TDO2 were the three most upregulated genes in Smoker 2. Singular enrichment analyses in KEGG terms showed that cytokine-cytokine receptor interaction was the most relevant in both Smoker 1 and Smoker 2 when compared to the never smoker group. Compared to Smoker 1, IL-17 signaling pathway was the most relevant pathway in Smoker 2.

Conclusion

Between the groups stratified according to smoking history and presence of emphysema, there were significant difference between immune related gene expression and singular enrichment analyses.

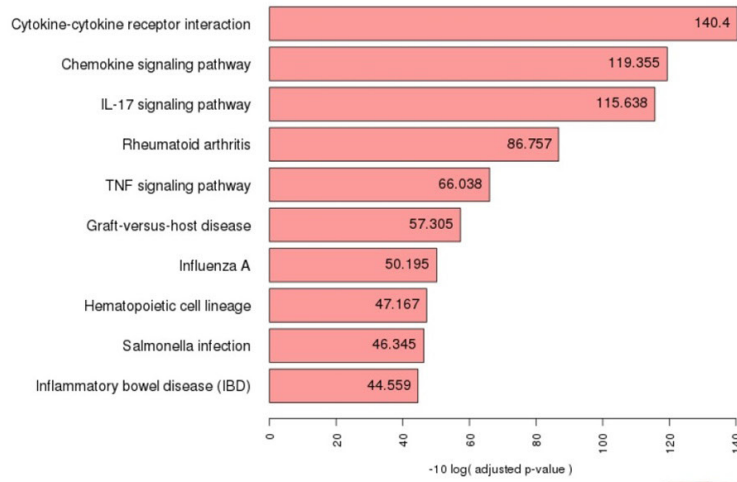
Authors report no conflict of interest

- NeverSmoker vs. Smoker1

the enriched biological terms from the DEGs of (P value \leq 0.05) \cap (|Fold-Change| \geq 2)

A

NeverSmoker vs Smoker1 : Top 10 Singular Enrichment Analysis Terms : KEGG pathway

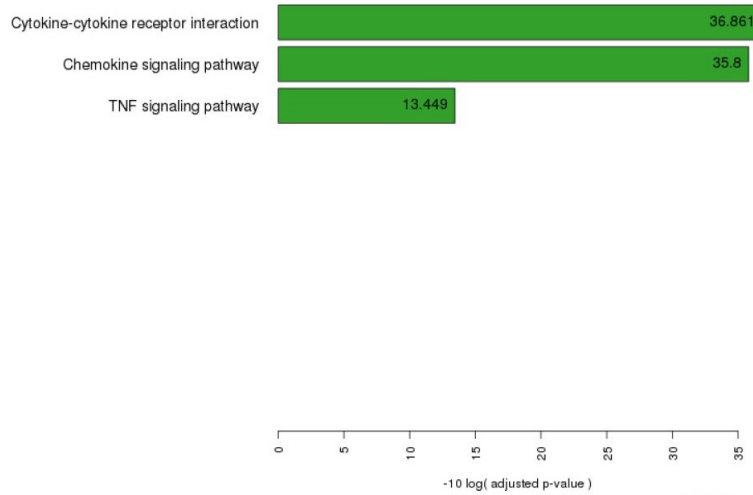


- NeverSmoker vs. Smoker2

the enriched biological terms from the DEGs of (P value \leq 0.05) \cap (|Fold-Change| \geq 2)

B

NeverSmoker vs Smoker2 : Top 10 Singular Enrichment Analysis Terms : KEGG pathway

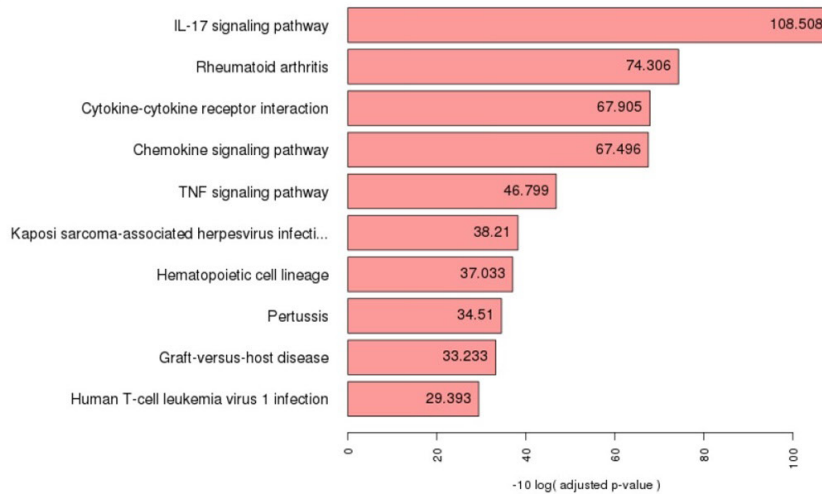


- Smoker1 vs. Smoker2

the enriched biological terms from the DEGs of (P value \leq 0.05) \cap (|Fold-Change| \geq 2)

C

Smoker1 vs Smoker2 : Top 10 Singular Enrichment Analysis Terms : KEGG pathway



AO05-5

Single-cell RNA sequencing reveals distinct molecular features of high-grade lung adenocarcinoma subtypes.

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Background and Aim

Studies have shown that the histopathological classification of lung adenocarcinoma (LUAD) provides prognostic information. Solid (S) and micropapillary (MP) subtypes, as a predominant subtype or even as a minor subtype, have been consistently associated with earlier recurrence and worse survival and are therefore categorized as high-grade histologic types. Deeper understanding of the molecular mechanisms underpinning the aggressive behaviors of these morphologically defined LUAD subtypes is critical to improve outcomes of LUAD patients. However, the molecular characterization of LUAD subtypes is challenging because most LUAD tumors are heterogeneous mixtures of different subtypes.

Methods

We performed single-cell RNA sequencing (scRNA-seq) of 117,266 cells collected from 18 surgically resected LUADs.

Results

Comprehensive scRNA-seq profiling of tumor microenvironment highlighted the immunosuppressive nature of S subtypes, while suggesting a therapeutic benefit with immune checkpoint inhibitors in this subset of LUAD. The analysis of cancer cells revealed that a considerable proportion of cancer cells of S subtype exhibited undifferentiated transcriptional patterns associated with poor prognosis. The analysis of cancer cells also suggested potential MP-specific marker genes expression.

Conclusion

Using single-cell transcriptomic profiling of LUAD, our study may help to understand the molecular mechanisms of aggressive phenotypes associated with high-grade subtypes of LUAD and to develop more precise, subtype-based therapeutic strategies in LUAD.

AO05-6

Artificial intelligence-based personalized survival prediction using clinical and radiomics features in patients with advanced non-small cell lung cancer

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Background and Aim

Anti-cancer treatment strategy for advanced non-small cell lung cancer (aNSCLC) is determined based on biomarker, but their efficacy varies widely each patient. The current study was aimed to develop an artificial intelligence-based model to predict overall survival (OS) depending on treatment options for individual patients with aNSCLC.

Methods

The prediction model was built based on random survival forest (RSF), a machine learning algorithm for analysis of right-censored survival data, using patient characteristics, history of anti-cancer agent administration, blood test, and radiomics features of primary tumor in training data (Tosei General Hospital), and validated with test data (Nagoya University Hospital). Then, its prediction performance was compared with that of cox proportional hazard (CPH) analysis-based model.

Results

A total of 459 patients (299 for training, 160 for test) with aNSCLC diagnosed from 2010 to 2019 were enrolled. The algorithm identified patient characteristics such as performance status, histology, and stage; blood test such as neutrophil-lymphocyte ratio, CRP, LDH; and three kinds of radiomics features which associated with tumor texture, volume, and 3-dimensional shape as prognostic factors. The c-index of the RSF model for test data was 0.841, which was higher than that of CPH model (0.775, p0.001). Furthermore, the RSF model was able to identify patients with good or poor prognosis among those who received immunotherapy and molecular-targeted therapy.

Conclusion

Our artificial intelligence-based model enables personalized OS prediction for aNSCLC. This methodology is expected to be used as a novel personalized prognostic marker for optimal treatment selection for each patient.

AO05-7

Lung Cancer Screening with Low-Dose CT in Never Smokers and Smokers: the real-world data in South Korea

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Background and Aim

The role of low-dose computed tomography (LDCT) screening in reducing lung cancer mortality in smokers has been well established. However, there has been limited evidence for the effects of LDCT screening for never smokers. The aim of this study is to investigate the role of LDCT screening among never smokers and smokers in real world practice.

Methods

This retrospective study included the subjects who underwent LDCT screening between 2008 and 2018 at the Center for Health Promotion, Samsung Medical Center. Study participants were categorized into three groups based on smoking history. The detection rate of lung cancers and clinical characteristics were compared among three groups.

Results

Of the 59,094 participants, 23,089 (39%), 19,106 (32%), and 16,899 (29%) were never, former, and current smokers, respectively. Lung cancer was diagnosed in 763 (1.3%) patients during median follow-up duration of 3.7 years. The detection rates of lung cancer among never, former, and current smokers were 1.2% (269/23,089), 1.8% (347/19,106) and 0.9% (147/16,899), respectively ($p < 0.001$).

Conclusion

LDCT screening detected a significant number of lung cancers in never smokers as well as in smokers. Never smokers and former smokers with less smoking intensity needs to be included in the target population for LDCT lung cancer screening in South Korea.

AO05-8

Assessment of traditional risk factors in Lung Cancer Patients who do not fit into NLST criteria

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Background and Aim

Screening for lung cancer with low dose thoracic computer tomographic scans (LDCT) had been recommended after the United States National Lung Screening Trial (NLST), but many Asian patients diagnosed with lung cancer likely would not meet criteria. We assessed the characteristics of patients diagnosed with lung cancer who would not meet NLST criteria and the presence/absence of traditional risk factors (TRF) for lung cancer.

Methods

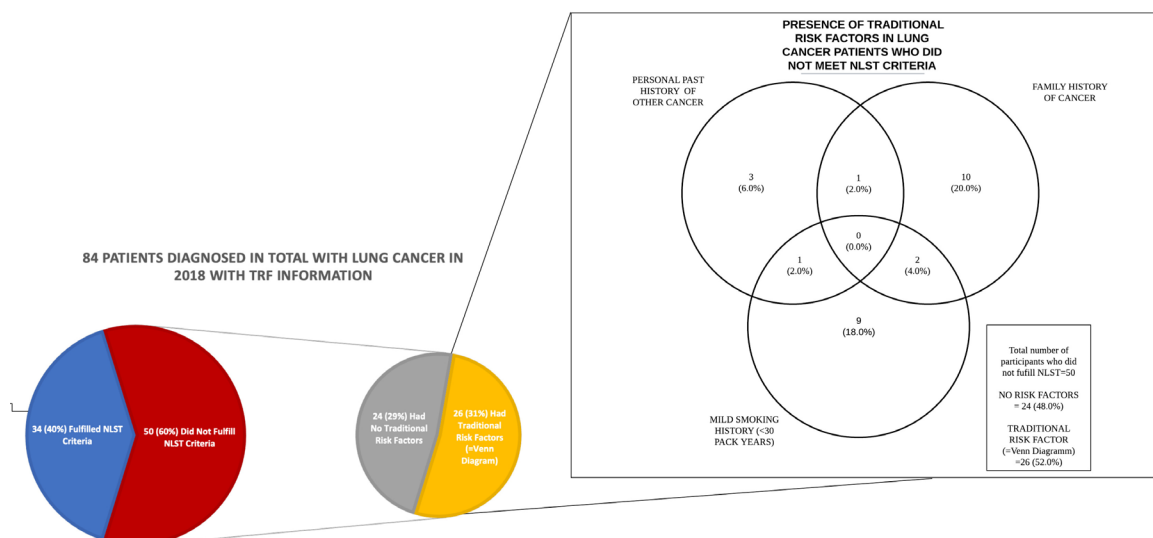
Retrospective analysis in patients diagnosed with lung cancer in 2018 in a Singapore tertiary academic hospital. We studied patients who had TRF such as smoking history, family history of cancer and past medical history of cancer, and excluded those fitting NLST criteria as well as those missing TRF information.

Results

84 patients were diagnosed with lung cancer and had TRF details. 34 (40%) fulfilled the NLST criteria and were excluded. Of the remaining 50 patients (60%) who did not fulfil NLST criteria, 48% did not have TRF (29% of the entire cohort). Amongst those with TRF, past medical history of cancer, family history of cancer and mild smoking history

Conclusion

Majority of patients diagnosed with lung cancer will be missed out based on NLST criteria. Of those diagnosed with lung cancer who did not fit into NLST criteria, close to half of patients had no identifiable TRF and will be missed on a lung cancer screening program.



AO06-1

The correlation of serum fibrinogen levels and the degree of pulmonary fibrosis among COVID-19 patients using post mortem core biopsy

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Background and Aim

World Health Organization (WHO) has declared COVID-19 as a pandemic and that it is responsible for a large number of deaths. The majority of patients die as a result of multi-organ failure. There is also an increase in values of fibrinogen in severe disease. In the coagulation cascade, fibrinogen will be converted into fibrin¹. Excessive fibrin deposits will then trigger pulmonary fibrosis by initiating an inflammatory response². This study will use core biopsy to investigate the correlation between serum fibrinogen levels and the occurrence of pulmonary fibrosis in COVID-19 patients.

Methods

This study is an observational analytic study with a prospective design at Dr. Soetomo Hospital during July 2020 - December 2020. Fibrinogen levels were compared with lung tissue in the form of lung fibrosis and the degree of fibrosis.

Results

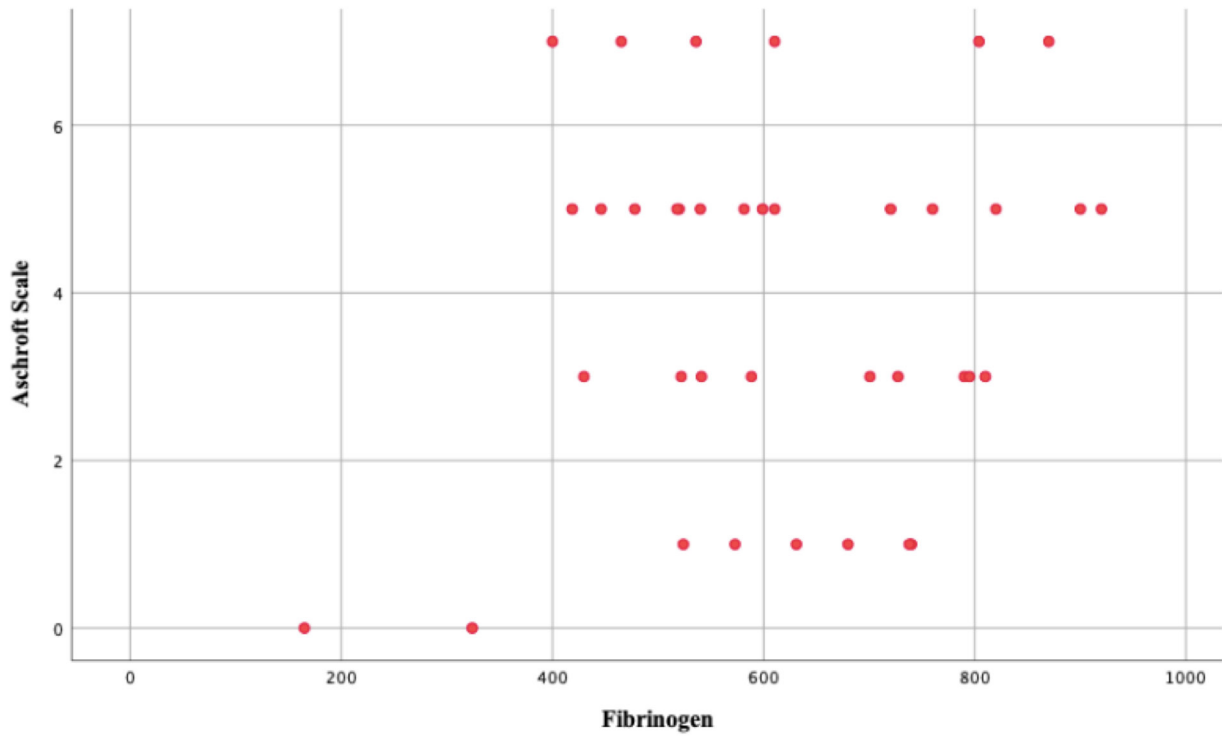
The mean fibrinogen level was 616.14 mg/dL, with histopathological examination showing 35 samples of positive fibrosis and the mean serum fibrinogen value was 637.37 mg/dL. Furthermore, Ashcroft scale of 5 was the most common degree of fibrosis (37.8%). The results of the Spearman correlation test between serum fibrinogen levels and the degree of lung fibrosis with the Ashcroft scale showed a $p=0.716$. (figure 1)

Conclusion

There was no significant relationship between serum fibrinogen levels and the degree of lung fibrosis by the Ashcroft scale, which means that an increase in serum fibrinogen levels is not always followed by an increase in the degree of fibrosis on the Ashcroft scale.

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AO06-2

Clinical characteristics and risk factors associated with mortality of patients with COVID-19 at Bussarakham Field Hospital, Thailand

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Background and Aim

The global pandemic of coronavirus disease 2019 (COVID-19) has been a significant public health problem worldwide. During the third wave of the COVID-19 outbreak in Thailand between April to September 2021, a surge capacity of hospitals occurred. The Bussarakham Field Hospital as the largest field hospital in Thailand, was rapidly set up along with other field hospitals to address this crisis. Data are scarce on patient characteristics, treatment, and the contributing risk factors associated with in-hospital mortality in field hospitals for COVID-19. We aimed to measure the mortality rate and identify risk factors associated with in-hospital mortality.

Methods

We conducted a retrospective study. All adult COVID-19 patients, confirmed by RT-PCR and admitted to Bussarakham Field Hospital from May 14 to September 20, 2021 were eligible for the study. Multivariable logistic regression analysis was performed to identify independent risk factors associated with in-hospital mortality of COVID-19 patients.

Results

A total of 18,173 COVID-19 patients were enrolled. The mean \pm SD age was 43.4 ± 16.1 years. Thirty percent had an underlying disease and the two most common were hypertension (18.2%) and diabetes mellitus (9.9%). Pregnancy accounted for 156 (0.9%) of all patients. Death occurred in 224 patients during hospitalization. The mortality rate was 1.23%. In-hospital mortality was independently associated with male (adjusted odds ratio [aOR] 1.82, 95% CI 1.32-2.52, P=0.001), ≥ 65 years (aOR 5.34, 95% CI 3.80-7.50, P=0.001), diabetes mellitus (aOR 2.57, 95% CI 1.76-3.76, P=0.001), pregnancy (aOR 6.57, 95% CI 2.39-18.10, P=0.001), lower respiratory tract (LRT) symptoms (dyspnea and tachypnea) at presentation (aOR 3.24, 95% CI 2.19-4.79, P=0.001), and pneumonia with hypoxemia (aOR 2.93, 95% CI 1.30-6.61 P=0.010).

Conclusion

In-hospital mortality at the Bussarakham Field Hospital was slightly higher than Thailand nationwide mortality. The pre-existing factors that increased the risk of mortality were elderly age, diabetes mellitus, and pregnancy. In addition, patients who presented with LRT symptoms and pneumonia with hypoxemia also had a higher mortality risk.

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Competing interests

None declared.

Table Factors associated with in-hospital mortality among COVID-19 patients in Bussarakham Field Hospital on univariable and multivariable analysis

Factors	Univariable analysis		Multivariable analysis	
	Crude OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
Male	1.66 (1.27, 2.16)	<0.001	1.82 (1.32, 2.52)	<0.001
Age >65 years	12.84 (9.81, 16.81)	<0.001	5.34 (3.80, 7.50)	<0.001
Hypertension	5.13 (3.92, 6.72)	<0.001	0.92 (0.61, 1.38)	0.675
Diabetes mellitus	8.05 (6.14, 10.55)	<0.001	2.57 (1.76, 3.76)	<0.001
Cardiovascular disease	4.95 (2.89, 8.48)	<0.001	1.21 (0.63, 2.32)	0.561
Pregnancy	3.27 (1.43, 7.48)	0.005	6.57 (2.39, 18.10)	<0.001
COVID-19 vaccination: Sinovac/Sinovac	0.34 (0.12, 0.90)	0.031	0.72 (0.22, 2.33)	0.583
Upper respiratory tract	0.39 (0.29, 0.53)	<0.001	0.66 (0.45, 0.95)	0.027
Lower respiratory tract	8.00 (5.77, 11.08)	<0.001	3.24 (2.19, 4.79)	<0.001
Severe pneumonia with hypoxemia	15.31 (9.20, 25.48)	<0.001	2.93 (1.30, 6.61)	0.010

AO06-3

Exploratory study of predictive factors of disease progression in the early stage of COVID-19

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Background and Aim

In the pathogenesis of COVID-19, the degree of progression of pulmonary complications defines life expectancy, but the validation of predictors of respiratory failure progression is insufficient and further exploration is needed.

Methods

We examined the clinical course and laboratory data of 46 patients diagnosed with COVID-19 at our hospital between April 2020 and March 2021, for whom serum was collected within 5 days of onset, to search for predictors of severe disease in a retrospective study. Patients were classified into four groups according to the severity of respiratory failure of COVID-19, and the association between the severity and the values of biomarkers that have been reported to be associated with severity in the past was examined. Furthermore, patients were divided into two groups, "exacerbation group" and "non-exacerbation group," after hospitalization, and the association between laboratory data and clinical course was examined.

Results

Serum IL-6 was significantly higher in severe cases than in mild cases (P<0.005). 17 of 46 validated cases showed progression of disease severity (exacerbation group), and serum IL-6 was significantly increased in exacerbation group compared to non-exacerbation group (P<0.001). The sensitivity and specificity for predicting exacerbations were 82.4% and 72% (AUC=0.7976), respectively, using serum IL-6=8.9 pg/ml as the cutoff calculated from the ROC curve, suggesting that serum IL-6 in the early stage of COVID-19 onset may be a predictive factor for exacerbation

Conclusion

Serum IL-6 may be a predictive biomarker for disease progression of respiratory failure in the early stages of COVID-19.

AO06-4

Prognostic factors for pulmonary fibrosis followed by pneumonia in patient with COVID-19

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Background and Aim

Concerning growing issue about pulmonary sequelae with fibrotic change after COVID-19, we aimed to investigate prognostic factors for pulmonary fibrosis after COVID-19 pneumonia and related clinical courses.

Methods

In this single-center prospective study, 519 hospitalized patients aged over 18 years old, had confirmed SARS-CoV-2 infection by RT-PCR, and had pneumonia present in Chest X-ray, from April 12th to October 22nd 2021 at National Medical Center, were initially screened. Among those consented to study, a total of 98 patients finally participated in 3-month follow-up chest CT after discharge.

Results

Mean age of study participants was 55.0 (SD 12.3), 65 patients (66.3%) were male. Among 43 patients who presented pulmonary fibrosis at follow-up CT, parenchymal bands were typically observed in all patients with fibrosis, followed by traction bronchiectasis with or without volume loss (18.6%), reticulation (2.3%), and honeycombing (4.7%). Patients confirmed with radiologic pulmonary fibrosis were older, had higher Charlson Comorbidity Index, higher serum Krebs von den Lungen (KL-6) level, lactate dehydrogenase(LDH), aspartate transferase (AST), lower albumin level, lower initial SpO₂/FiO₂ ratio, and higher demand for oxygen support (p<0.05). In clinical courses, patients with pulmonary fibrosis were more likely to have ICU admission, higher maximum oxygen demand, and receive antivirals and steroids for treatment (p<0.05). In multiple logistic regression analysis, age (aOR 1.12, 95% CI 1.03-1.21) and low initial SpO₂/FiO₂ ratio (aOR 7.17 95% CI 1.72-29.91) were significant independent risk factors of pulmonary fibrosis

Conclusion

We found older age and low initial SpO₂/FiO₂ ratio were risk factors for pulmonary fibrosis following pneumonia in COVID-19 infection.

AO06-5

Association between Cardiovascular Diseases with Pneumonia COVID-19 Clinical Outcome in Jakarta, Indonesia: a Retrospective Cohort Multi-center Study

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Background and Aim

Coronavirus disease 2019 pneumonia (COVID-19) is a pandemic affecting 185 countries including Indonesia. Cardiovascular diseases (CVD) in COVID-19 patients were linked to worse clinical outcomes. However, the association remained inconclusive due to limited data in Indonesia. This study aimed to determine the association between pre-existing and acute CVD in pneumonia COVID-19 patients with COVID-19 clinical outcomes.

Methods

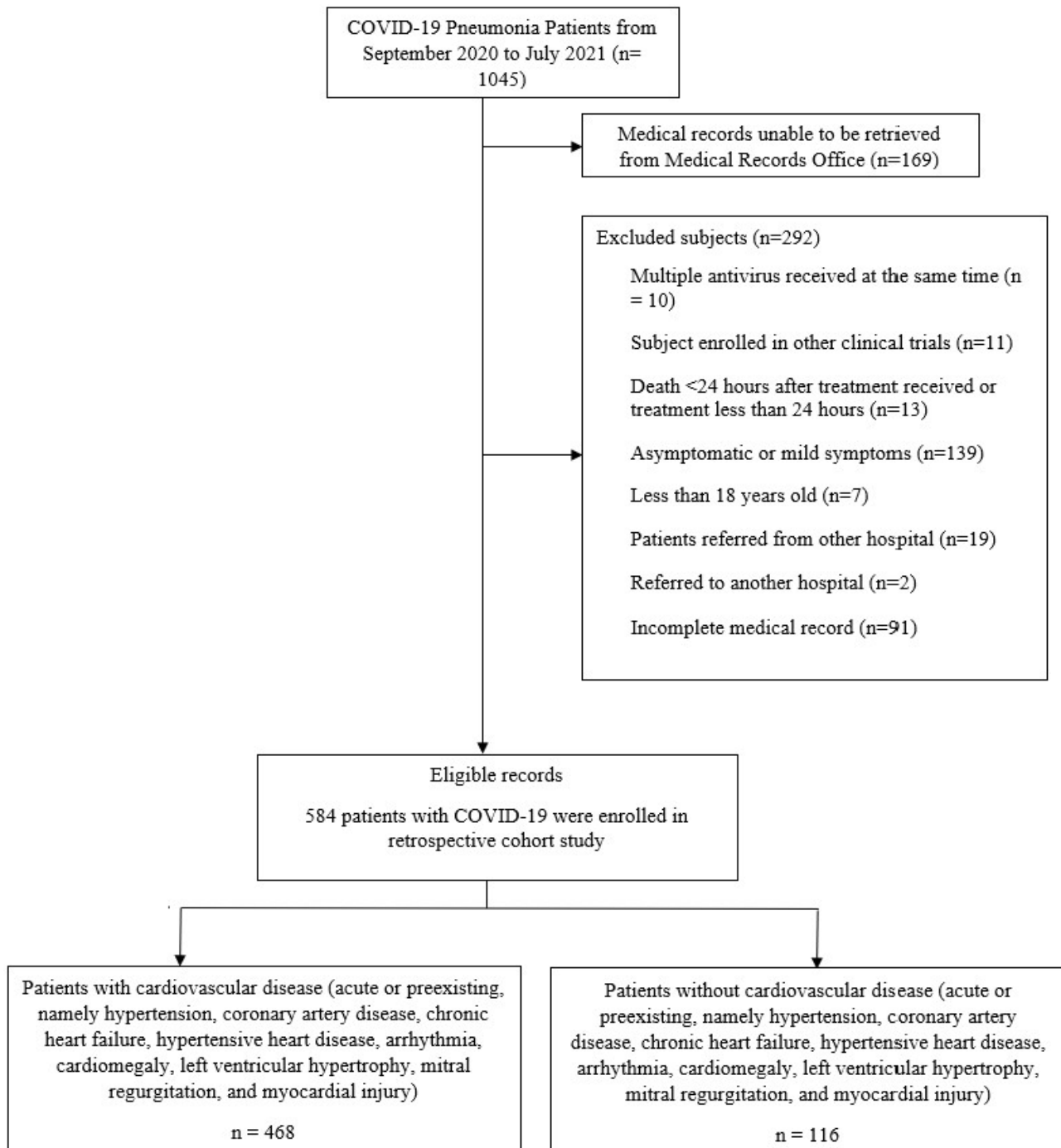
This is a retrospective cohort study involving four hospitals in Indonesia. Adult in-patients admitted with pneumonia COVID-19 (moderate, severe and critical diseases) in September 2020-July 2021 were included in this study.

Results

From the total of 584 patients enrolled in this study, the most common pre-existing CVD was hypertension (48.1%). Other pre-existing cardiovascular diseases observed were coronary artery disease (9.2%), chronic heart failure (6.8%), hypertensive heart disease (3.1%), arrhythmia (1.7%), and other diseases namely cardiomegaly, left ventricular hypertrophy, and mitral regurgitation (0.7%). Acute cardiovascular event obtained was myocardial injury (10.6%). Mortality rate was 24% and patients were hospitalized for a median of 12 (2-47) days. Among the pre-existing and acute CVDs, myocardial injury was the only disease associated with in-hospital death (54.8% vs 45.2%, $p=0.001$, RR 2.105 (95% CI 1.529 - 2.898)); meanwhile, prolonged length of hospital stay was associated with myocardial injury (median 14.5 vs 12 days, $p=0.005$) and hypertension (median 13 vs 11 days, $p=0.017$)

Conclusion

Based on this study, pneumonia COVID-19 in-patients with CVD, specifically myocardial injury and/or hypertension, were associated with worse COVID-19 clinical outcomes. Healthcare providers should be vigilant in treating pneumonia COVID-19 patients with myocardial injury and/or hypertension.



AO06-6

The Changes in Antibody Responses Induced by the BNT162b2 mRNA COVID-19 Vaccine in Healthcare Workers in a Single Community Hospital in Japan

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Background and Aim

In Japan, COVID-19 mRNA vaccination program was started in February 2021 for healthcare workers. The promising efficacy of mRNA vaccine against COVID-19 has been reported in several studies, but it is still unclear how long the antibodies persist following vaccination and the protective effect can be expected. In National Hospital Organization Hakodate National Hospital, researchers have investigated the changes in antibody titers in healthcare workers (HCWs) following vaccination, and evaluated the effectiveness of the vaccination.

Methods

rum anti-SARS CoV-2 spike antibody titers of HCWs were measured 5 and 9 months after the second vaccination and 2 weeks and 3 months after the third vaccination.

Results

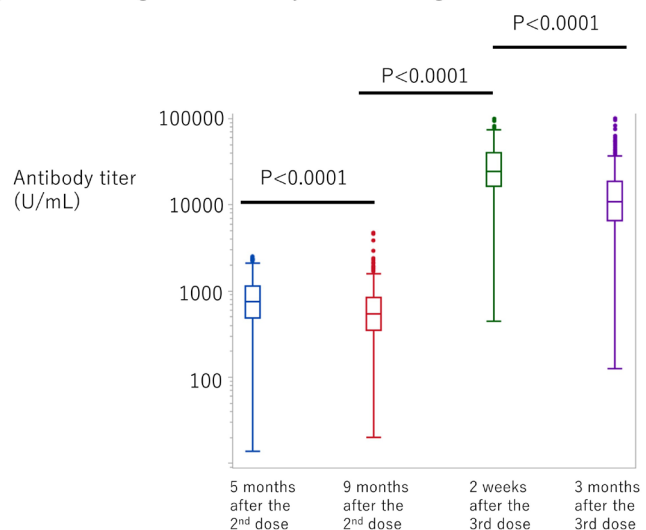
A total of 339 HCWs were enrolled in this study. The levels of serum anti-SARS-CoV-2 spike antibodies were detectable and defined as positive in all participants 5 months after the second vaccination (median: 739.7 U/mL). Though the median antibody titer had declined to 536.3 U/mL, it increased dramatically to 23839 U/mL at two weeks and 16762 U/mL at three months after the third dose.

Though no HCWs were confirmed to be infected with SARS-CoV-2 until December 2021, an in-hospital infection outbreak associated with Omicron variant (B.1.1.529) involving 93 hospital inpatients and 37 HCWs occurred in February 2022. There was no significant difference in antibody titers before the outbreak between infected and non-infected HCWs (95% CI: -0.15, 0.27).

Conclusion

Though mRNA COVID-19 vaccination can definitely promote anti-SARS-CoV-2 antibody reaction, the protective effect would be weakened against certain variants such as Omicron.

Figure The change of the antibody titers following vaccination.



AO06-7

‘Long covid’ is more common, underestimated, important health issue in Post covid-19 care setting: Prospective, observational and interventional study of 6000 cases in tertiary care setting in India.

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Background and Aim

COVID-19 are heterogeneous lung disease with pulmonary and extrapulmonary manifestations, and occurs irrespective of severity of illness. Our aim of this study is to analyze effects on organ system and its correlation with inflammatory markers and CT severity score.

Methods

Observational study, included 6000 COVID-19 indoor cases confirmed with RT-PCR. Retrospective analysis with treatment records, laboratory markers as IL-6, D-dimer, Ferritin, LDH, BSL, HBA1C. All cases undergone thorough interview in ‘post covid care’ outdoor setting regarding symptomatology, documented vital signs abnormality, & workup as HBA1C, BSL, TFT, KFT, ECG, chest x-ray, HRCT thorax, BMD, Echocardiography, MRI brain whichever is necessary. Statistical analysis by using Chi square test and ANOVA.

Observations

Long covid manifestations were documented in 36.06% (2517/6000) post COVID cases, Fatigue 41.95%, dyspnea 35.98%, cough 31.96%, chest discomfort 26.95%, anosmia 8.76%, joint pain & headache 11.96%, dizziness, vertigo & insomnia 22.95% & alopecia 4.18% cases, Lung fibrosis in 16.66%, minimal lung abnormality 23.65%, pulmonary embolism 7.18% cases, palpitations 25.56%, chest pain 11.3%, arrhythmias 5.53%, cardiac dysfunction 24.31%, PTSD 28%, impaired memory with or without poor concentration (brain fog) 24.03%, Anxiety and or depression 6.33%, Reduction in quality of life 33%, Diabetes mellitus-new onset 26%, transient 34%, uncontrolled 27%, Osteoporosis 38.08%, thyroid dysfunction 12.1%. CT severity score, Intensive care treatment with or without oxygen and or ventilator use & Laboratory parameters (D-dimer, IL-6, LDH, Ferritin) during hospitalization has significant association with long covid manifestations (p0.00001)

Conclusion

Long covid is an underestimated, improperly evaluated and halfheartedly treated during follow-up. All treated cases need prompt evaluation, more awareness regarding its manifestations and its impact on quality of life is must

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disclosure statement

we, all authors disclose no conflict of interest. we also disclose no funding has been received from any organization or research institutes.

AO07-1

The effect of N-acetylcysteine nebulizer therapy on chronic obstructive pulmonary disease

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Background and Aim

Chronic bronchitis symptom is common in patients with chronic obstructive pulmonary disease (COPD). There has been little study regarding the effect of N-acetylcysteine (NAC) nebulizer on patients with COPD. This study aimed to evaluate the effect of NAC nebulizer on the improvement in difficulty of expectoration symptoms in patients with COPD.

Methods

This was a prospective, multi-center trial (NCT05102305) performed in Korea. Enroll criteria included age ≥ 40 , post bronchodilator FEV1/FVC < 0.7 , current or ex-smoker with smoking pack years ≥ 10 , and COPD assessment test (CAT) phlegm score ≥ 2 . CAT and St. George's Respiratory Questionnaire for COPD patients (SGRQ-C) were measured at baseline, 4, 8, and 12 weeks.

Results

Total 100 COPD patients were enrolled from 10 hospitals. Mean age was 71.9 and 83.0% were ex-smoker and 17.0% were current. Mean smoking pack years was 39.1. Mean FEV1, FVC, and FEV1/FVC were 2.17 L (58.8%), 3.86 (75.7%), and 0.53. Baseline CAT phlegm score was 3.51 and decreased significantly to 2.67 at 12 weeks ($P < 0.01$). More than half (53.5%) patients were satisfied with NAC nebulizer treatment. Adverse events occurred in 8 (8.0%) patients. There was no serious adverse event.

Conclusion

NAC nebulizer treatment significantly improved phlegm symptom in patients with COPD. NAC nebulizer treatment effective and safe.

Funding

This study was funded by Boryung Pharmaceutical.

AO07-2

Association of N-terminal proB-type Natriuretic Peptide (NT-proBNP) with airflow limitation and exacerbation in COPD

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Background and Aim

N-terminal pro-B-type natriuretic peptide (NT-proBNP) is a diagnostic and prognostic marker for heart failure. We examined the association between the level of NT-proBNP with pulmonary function and exacerbation in chronic obstructive pulmonary disease (COPD).

Methods

We performed a retrospective cohort study of 891 COPD patients without previous history of myocardial infarction or heart failure from a multicentered cohort study, The Korea COPD Subgroup Study (KOCOSS), from 2012 to 2019 in South Korea. We analyzed the relationship between serum NT-proBNP and clinical outcomes of pulmonary functions and exacerbations.

Results

Serum NT-proBNP had a negative correlation with FVC (% predicted, $r=-0.094$, $p=0.006$) and DLCO (% predicted, $r=-0.142$, $p210$ (pg/mL) and low FEV1 (% predicted) predicted severe exacerbation of COPD ($p=0.019$ and $p210$ (pg/mL), was predictive of overall COPD exacerbation.

Conclusion

Serum NT-proBNP correlates with airflow limitation, DLCO and RV/TLC. In patients who are not diagnosed with heart failure, severe exacerbations of COPD, not moderate, is predicted by serum NT-proBNP > 210 (pg/mL) and FEV1 (% predicted).

AO07-3

Development of a scoring model for the prediction of the effects of discontinuation or addition of inhaled corticosteroid in chronic obstructive pulmonary disease patients

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Background and Aim

We aimed to develop and validate a scoring model that predicts the beneficial effect in consideration with the harmful effect when an inhaled corticosteroid is withdrawn from the triple therapy or is added on the dual bronchodilators in chronic obstructive pulmonary disease (COPD) patients.

Methods

We developed a prediction scoring model using IMPACT study dataset, consisting of 2,389 patients treated with triple therapy before enrollment. The model was validated with the data from 540 patients treated with dual bronchodilators before enrollment. The study outcome was the composite event of moderate-to-severe exacerbation, all-cause mortality, or pneumonia. Area under the time-dependent receiver operating characteristic curves (time-dependent AUC) and C-index were calculated to assess the prediction models. The C-index of the model were compared with history of exacerbation in previous year and blood eosinophil count.

Results

The developed scores ranged 0-11.5 in triple therapy group and -2-15.5 in dual bronchodilators group (Table 1). The scoring model can predict the composite event with the time-dependent AUC ranged 0.61-0.62 in development dataset and ranged 0.59-0.62 in the validation dataset. The C-index in the development dataset was 0.60 and that of the validation dataset was 0.59. This was significantly superior to the prediction based by the history of exacerbation or blood eosinophil count in both datasets.

Conclusion

The developed scoring model might be applied for the prediction for the risk of composite events when we consider ICS addition on dual bronchodilators or ICS withdrawal from triple therapy in COPD patients.

Acknowledgements

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Table 1. Scoring system for the prediction model

Variables	Triple Therapy	Dual bronchodilators
Baseline score due to treatment regimen	0	-2
Sex		
Male	0	0
Female	1.5	2
Race		
Other	0	0
White	0	2
COPD duration		
< 1 year	0	0
≥ 1 year	2	2
Number of moderate or severe exacerbations in previous year		
< 3	0	0
≥ 3	2	3
Number of exacerbations requiring systemic steroid in the previous year		
0	0	0
1	1	1
≥ 2	2	2
FEV1 % predicted		
≥ 50	0	0
≥ 30 and < 50	1.5	1.5
< 30	3	3
Blood eosinophil count (10 ⁹ cells per L)		
< 0.1	0	0
≥ 0.1 to < 0.3	0	1
≥ 0.3	1	3.5

AO07-4

Identification of hub genes of airway epithelial cells in chronic obstructive pulmonary disease

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Background and Aim

Pulmonary airway epitheliums are the primary site of cellular and histological alterations in chronic obstructive pulmonary disease (COPD), while the exact biomarkers of pulmonary epithelium are rarely identified to elucidate profound alterations in the progression of the disease.

Methods

Microarray dataset of GSE11906, containing small airway epithelia from 34 healthy non-smokers and 33 COPD patients, was applied to screen differentially expressed genes (DEGs). Weighted gene correlation network analysis (WGCNA) was further used to identify the hub genes related to clinical features. Moreover, single-cell RNA sequencing data from GSE113896 and GSE167295 dataset were applied to explore the gene expression and distribution of the DEGs. The expression levels of hub genes in epithelial cells stimulated by cigarette smoke extract (CSE) were detected by RT-qPCR.

Results

Ninety-eight key genes correlated with clinical features of COPD were identified via limma and WGCNA. Eight hub genes (including AKR1C3, ALDH3A1, AKR1C1, CYP1A1, GPX2, CBR3, AKR1B1, GSR) that might exert an antioxidant role in COPD process were identified. Single-cell transcriptomic analysis indicated that the expression of AKR1C3, ALDH3A1, GPX2, CBR3 and AKR1B1 were significantly increased in COPD group when compared with normal group. Moreover, we found that the expression of ALDH3A1 was the most abundantly expressed in ciliated cells. RT-qPCR results indicated that AKR1C3, ALDH3A1, AKR1C1, CYP1A1, GPX2, CBR3, GSR were significantly elevated when the epithelial cells were exposed to CSE.

Conclusion

By integrating limma, WGCNA, and protein-protein interaction (PPI) analysis, a total of eight hub genes of pulmonary airway epithelium were identified in COPD. Moreover, single-cell transcriptomic analysis indicated that ALDH3A1 was abundantly expressed in ciliated cells, which may provide a new insight into the pathogenesis and treatment of COPD.

AO07-5

Image standardization through kernel conversion of CT in KOCOSS cohort

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Background and Aim

Emphysema is related with the outcomes of COPD. However, different protocols from the multi-centers can be difficult to analyze emphysema. So, we aimed to conduct the kernel conversion of CT and investigate the association between converted emphysema and prognosis in KOCOSS cohort.

Methods

We checked the patients' CT scan and converted from the sharp kernel to smooth kernel using the commercially available software (A-view COPD, Coreline, Seoul, KR), and the percentage of low-attenuation area below -950HU (%LAA-950) in the whole lung was evaluated as the emphysema.

Results

Of 484 COPD patients, most are male (444, 91.7%) and the average age was 67.7±8.1 years. In addition, 417 (86.2%) experienced smoking exposure and 314 (64.9%) were still smokers. In the sharp kernel, emphysema in whole lung was correlated with FEV1 ($r=-0.350$, $p<0.001$), DLCO ($r=-0.442$, $p<0.001$), RV/TLC ($r=0.308$, $p<0.001$), mMRC ($r=0.219$, $p<0.001$), and SGRQ-c ($r=0.132$, $p=0.004$). However, in converted smooth kernel, emphysema in whole lung was correlated with FEV1 ($r=-0.412$, $p<0.001$), DLCO ($r=-0.415$, $p<0.001$), RV/TLC ($r=0.420$, $p<0.001$), mMRC ($r=0.252$, $p<0.001$), SGRQ-c ($r=0.212$, $p<0.001$) and 6-min walk distance ($r=0.147$, $p=0.004$) and the correlation in converted kernel showed slightly higher than that in original version. Furthermore, in multivariate analysis, DLCO ($B=-0.215$, $p<0.001$), and emphysema index in converted CT ($B=0.207$, $p=0.011$) were the risk factors of predicting the quality of life in COPD patients

Conclusion

When conducting a multicenter study with variable CT protocols, %LAA-950 after CT protocol standardization was highly correlated with the patient's lung function, would be more helpful in predicting the prognosis.

AO07-6

Risk of tuberculosis caused by fluticasone propionate versus budesonide in chronic obstructive pulmonary disease: a nationwide population based study

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Background and Aim

Inhaled corticosteroids (ICSs) is indicated for patients with frequent exacerbations and blood eosinophilia. However, ICS is excessively prescribed regardless of the indication of ICS in real world clinical practice. COPD cohort and population based study reported the increased risk of tuberculosis as a result of ICS use. This study aimed to compare the risk of tuberculosis according to the different ICS components.

Methods

This is a nationwide population based study using claims data, the Korean National Health Insurance Service. Patients with newly diagnosed COPD between 2005 to 2018 and treated with either fluticasone propionate or budesonide were selected. They were followed up until the development of tuberculosis. Cumulative doses of ICS were categorized into quartiles.

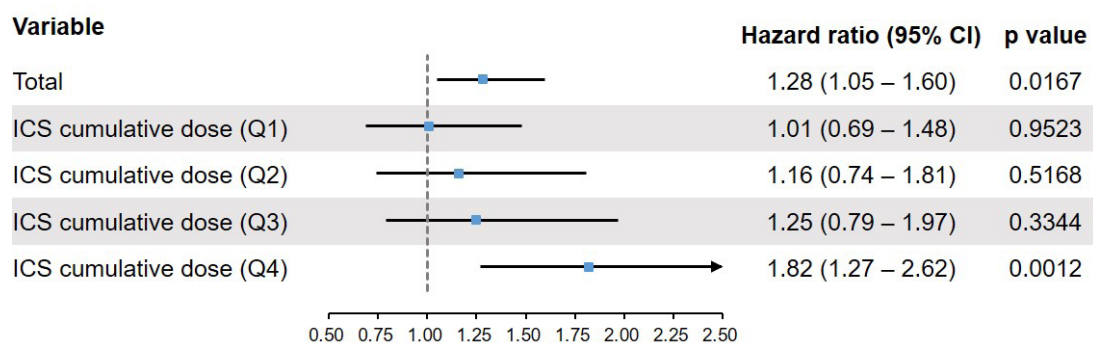
Results

A total of 16,514 fluticasone propionate and 16,514 budesonide users were identified after 1:1 propensity score matching. The incidence rate of tuberculosis per 100,000 person-years was 274.73 for fluticasone propionate users and 214.18 for budesonide users. The hazard ratio of tuberculosis in fluticasone propionate compared to budesonide was 1.28 (95% CI 1.05–1.60, p=0.0167). The risk of tuberculosis for fluticasone propionate compared to budesonide increased with higher ICS cumulative doses: 1.01 (0.69–1.48), 1.16 (0.74–1.81), 1.25 (0.79–1.97), and 1.82 (1.27–2.62) from the lowest to highest quartiles, respectively.

Conclusion

Fluticasone propionate is associated with the higher risk of tuberculosis compared to budesonide. ICS components can differently affect the risk of tuberculosis in COPD.

The authors declare no financial conflicts of interest.



AO07-7

Association of ¹⁸F-FDG uptake in semi-quantitative PET/CT with emphysema progression in smokers: a retrospective observational study

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Background and Aim

Clinical factors that can predict emphysema progression in smokers have not been established. This study aimed to investigate the relationship between emphysema progression in current smokers and ¹⁸F-FDG uptake on clinically prevalent semi-quantitative PET/CT.

Methods

This retrospective observational study included 391 current smokers (mean age, 53 years; 340 men; median, 20 cigarettes/day) who underwent intensive medical checkups including ¹⁸F-FDG PET/CT and unenhanced chest CT twice or more between January 2015 and November 2017. The relationship between the progression of emphysema indices (15th percentile point, Perc15; mean lung attenuation, MLA; and relative area of lung attenuation <-950 HU, RA950) and mean SUV corrected for lean body mass was examined in the upper third of the lung field for left and right sides, respectively.

Results

Median interval of the two visits was 350 (interquartile range, 336–385) days. When dividing the participants into two groups; increase in Perc15 between two visits, >0 vs ≤0 HU; MLA, >0 vs 0 vs P =.003), 0.449 vs 0.466 (P =.06), respectively, in the left upper lung field. Likewise, they were 0.418 vs 0.433 (P =.03), 0.421 vs 0.432 (P =.12), 0.432 vs 0.419 (P =.07), respectively, in the right upper lung field.

Conclusion

This is the first study that showed the association of ¹⁸F-FDG uptake in semi-quantitative PET/CT with emphysema progression. This non-invasive method could be applied to predict the emphysema progression in smokers.

Financial Disclosure

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AO07-8

COPD is a risk factor for COVID-19, but does not confer increased severity of the disease

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Background and Aim

Evaluating the excess risk of chronic obstructive pulmonary disease (COPD) for COVID-19 and, in particular, for more severe disease, is challenging. The aim of this study is to determine whether COPD influences the occurrence and clinical severity of COVID-19.

Methods

This large-scale cohort covers individuals who underwent SARS-CoV-2 testing in South Korea from January 1, 2020 to May 1, 2020 supported by NHIS. For each patient who underwent SARS-CoV-2 testing, we combined medical data on COVID-19-related outcomes during the hospitalization with claim-based data from January 1, 2015 to May 1, 2020, including personal data and health care records of inpatients and outpatients throughout the past 5 years, retrospectively.

Results

Among 129,120 patients who underwent SARS-CoV-2 testing (mean age \pm SD, 41.7 \pm 19.6 years), we identified 8,070 (6.25%) patients who tested positive (all SMDs $<$ 0.1). There were 4,800 patients with a history of COPD in the entire cohort (n = 129,120).

Then, we performed 1:1 propensity score matching in the full-unmatched cohort and identified 4,800 patients without a history of COPD (all SMDs $<$ 0.05). Among all patients tested, the positivity rate of SARS-CoV-2 testing in patients with COPD was 7.3% (350/4800), compared with 4.8% (230/4800) in those without COPD (aOR, 1.54; 95% CI, 1.3–1.83). Furthermore, we identified 350 patients with COPD among the patients who tested positive for SARS-CoV-2 (n = 8,070).

We also performed 1:1 propensity score matching in the full-unmatched cohort and identified 350 patients with no history of COPD (all SMDs $<$ 0.1). The rate of severe disease in patients with COPD was 28.9% (101/350) among patients who tested positive for SARS-CoV-2, compared with 25.1% (88/350) in those without COPD (aOR, 1.23; 95% CI, 0.85–1.76). In particular, among patients confirmed to have COVID-19, the rate of mortality in patients with COPD was 17.7% (62/350), compared with 13.7% (48/350) in those without COPD (aOR, 1.39; 95% CI, 0.87–2.23).

Conclusion

Herein, we have identified that COPD is associated with an increased risk for COVID-19. Moreover, having COPD does not seem to confer a substantial risk for severe disease and mortality.

AO08-1

Clinical utility of endobronchial ultrasound-guided transbronchial needle aspiration in clinical N1 non-small cell lung cancer patients

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Background and Aim

It is not well known whether performing EBUS-TBNA first in patients with radiologic N1 (rN1) has any advantages over upfront surgery. Therefore, this study assessed the clinical utility of EBUS-TBNA in rN1 patients with non-small cell lung cancer (NSCLC).

Methods

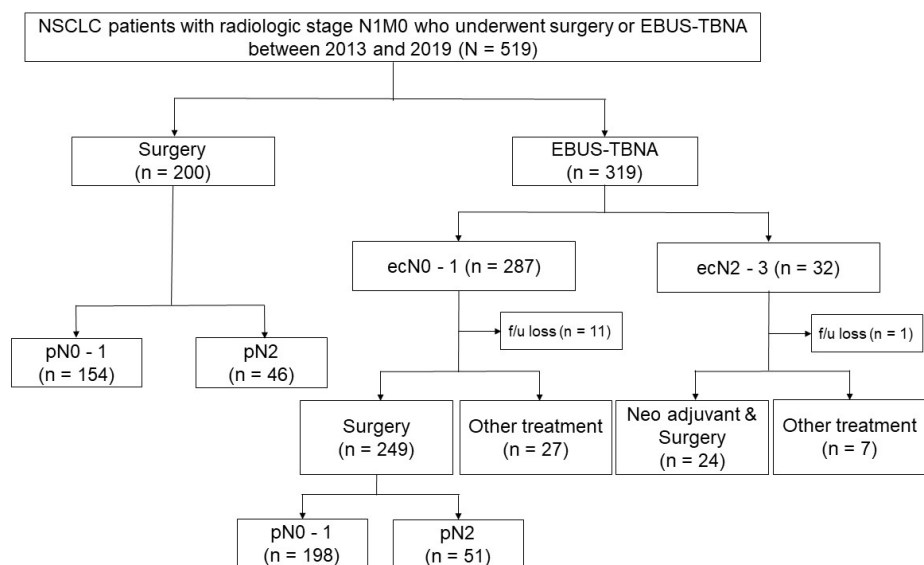
This is a retrospective analysis of patients with rN1 NSCLC between 2013 and 2019. We divided them into 'group A' who underwent EBUS-TBNA first (n=315) and 'group B' who underwent upfront definitive surgical resection (n=200).

Results

There was no difference in baseline characteristics between the two groups other than histologic types. In group A, 32/315 (10.2%) were confirmed to pN2-3 after EBUS-TBNA, and additionally 51/249 (20.5%) who finally underwent surgery were confirmed to pN2. In group B, 46/200 (23.0%) were confirmed to pN2. There was no benefit of OS in group A compared to group B (aHR, 1.00; 95% CI, 0.70-1.41; p=0.982). However, EBUS-TBNA had trends of beneficial effects on OS in patients who underwent surgery after excluding pN2-3 (aHR, 0.70; 95% CI, 0.46-1.05; p=0.083) and in patients who underwent neoadjuvant therapy and surgery after confirming pN2-3 (aHR, 0.08; 95% CI, 0.01-1.49; p=0.092) compared to group B.

Conclusion

The beneficial effect of EBUS-TBNA was not shown in rN1 NSCLC patients. However, EBUS-TBNA might have beneficial effects if the treatment is tailored to the correct staging. Therefore, we think that it is more important to perform EBUS-TBNA on patients at risk for N2-3 than to perform EBUS-TBNA on all rN1 patients.



AO08-2

The superiority of bronchial washing fluid for detection of EGFR mutations by droplet digital PCR in lung adenocarcinoma

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Background and Aim

Bronchial washing fluid(BWF) is routinely obtained for cytology during bronchoscopy. BWF has been emerging as a source for detecting cell-free DNA of lung cancer. We explored the feasibility of the droplet-digital PCR(ddPCR) in the detection of EGFR mutations(EGFRm) in BWF and plasma using the matched lung adenocarcinoma tissue as the standard.

Methods

A total of 83 patients histologically confirmed with lung adenocarcinoma from 2021 to 2022 were included. For each patient, matched tumor tissue, BWF, and plasma were collected. The accuracy, sensitivity, and specificity of BWF and plasma in detecting EGFRm using ddPCR (Droplex EGFR Mutation Test v2, Gencurix, Inc.) were analyzed.

Results

This study included 75 patients with the initial diagnosis of lung cancer and 8 patients who underwent re-biopsy after EGFR-TKI treatment. In the total cases, the accuracy of EGFRm detection using ddPCR in BWF and plasma were 74.7% and 52.2% respectively. In the locally advanced and metastatic lung adenocarcinoma, BWF showed a higher sensitivity (87% vs. 67%) than plasma. T790M was detected in 5 cases of BWF and 3 cases of tissue samples among 8 patients who underwent re-biopsy. In the 2 cases with T790M-positive in BWF, T790M was not confirmed at the first tissue re-biopsy, and then it was confirmed at the second re-biopsy later.

Conclusion

BWF using ddPCR detects EGFRm with higher accuracy than plasma in lung adenocarcinoma. In some cases, T790M was detected earlier than tissue re-biopsy, confirming that it is a useful method to compensate for the low sensitivity of tumor re-biopsy.

AO08-3

A Prospective Phase 2 Study of Rapid Detection and EGFR-TKI Initiation by EV-based BALF Liquid Biopsy in Advanced NSCLC Patients

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Background and Aim

In previous research, we demonstrated that EGFR genotyping using EV (extracellular vesicles)-derived DNA isolated from bronchoalveolar lavage fluid (BALF) is highly concordant with conventional tissue-based genotyping and its TAT (turn-around-time) is only 1-2 days. In this study, we prospectively validated the performance of EV-based BALF EGFR genotyping in the aspect of rapid detection and TKI treatment in advanced NSCC patients.

Methods

From Jun 2017 to Aug 2020, 51 eligible cases were detected by EV-based BALF EGFR genotyping after screening 224 newly diagnosed stage III-IV NSCLC patients, and 11 cases were excluded. Total 40 patients were enrolled and treated by gefitinib, 2 were dropped out early (1 was transferred, 1 had SCLC with EGFR mutation), and 38 were analyzed. BALF EV were isolated by ultracentrifuge method and EGFR genotyping was performed with PCR-based PNA-clamping assisted fluorescence melting curve analysis. The objective response rate, PFS, TAT, and concordance rate were analyzed with clinical parameters.

Results

The median age of the patients was 72.5 ± 8.06 . Females were 57.5% and non-smokers were 72.5%. The patients with E19del were 63% and the patients with E21L858R mutation were 36.8%. The concordance rate with tissue-based genotyping was 97.3%. The proportion of achieving objective responses was 76.3% (29/38) and disease control rate was 92.1% (35/38). The median progression-free survival was 14.6 months [CI 8.8-21.9].

Conclusion

We demonstrated, for the first time, that EV-based BALF liquid biopsy could be used for rapid diagnosis and early therapeutic intervention with EGFR-TKI in advanced NSCLC patients.

AO08-4

Diff-Quik smears from EBUS TBNA procedures: evaluating measures of tumour cellularity and feasibility of whole genome sequencing (WGS)

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Background and Aim

Diff-Quik (DQ) cytology smears are collected at EBUS TBNA and represent an alternative source of DNA for molecular testing. Whole genome sequencing (WGS) is the most comprehensive method for analysing cancer genomes¹, however the method requires more DNA and higher tumour content compared to other sequencing approaches. Here we evaluated simple slide microscopy and SNP array-based² assessment for predicting tumour content as surrogate for whole genome sequencing.

Methods

At EBUS TBNA, cytology samples were collected as DQ smears and cell blocks as normal, and a fresh frozen research sample. Smear tumour content was scored by microscopy. DNA extracted from the DQ slides and research specimens were quantified, and a subset underwent SNP arrays and WGS sequencing.

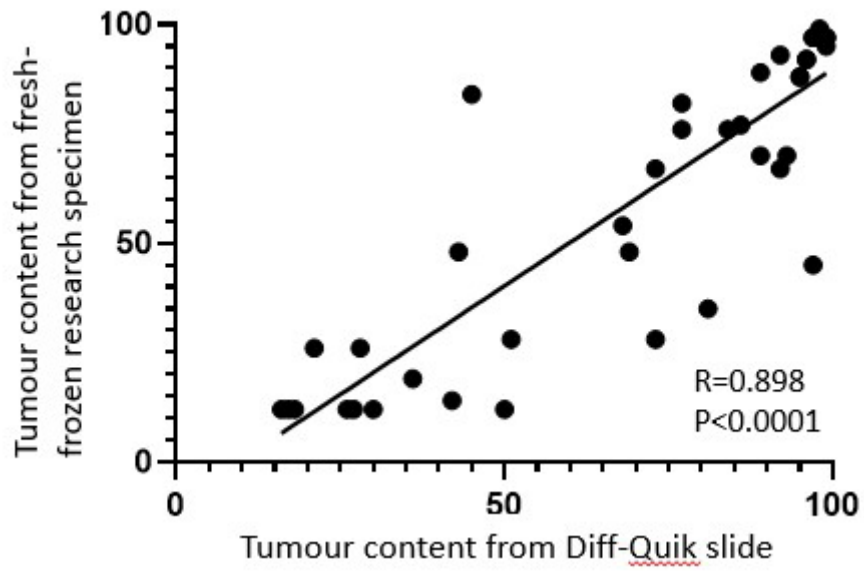
Results

The cohort consisted of 32 advanced lung cancers, including 25 NSCLC, 15 small cell carcinoma and 5 metastatic from other sites. Tumour content was estimated for 42 DQ slides and 32 research specimens using SNP arrays. Correlation of tumour content between DQ and research specimen was excellent ($R=0.89$, $p50\%$, $n=35$) also had $\geq 50\%$ tumour content by SNP array. Median DNA yield of smears was 3285ng (range: 195-10,590 ng); median DNA integrity = 5.35 (range: 2.3-6.6). Ongoing whole genome sequencing of samples with sufficient DNA ($n=11$) shows evidence of feasibility.

Conclusion

Microscopy is an excellent way to predict tumour content in smears as a prelude to their use in molecular testing, including by whole genome sequencing.

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AO08-5

Successful culture of lung cancer organoid derived from cryobiopsy sample of lung cancer

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Introduction

Recently, studies for personalized medicine using lung cancer organoids are being actively conducted. However, until now, most lung cancer organoids are derived from surgical tissues, so it is difficult to utilize lung cancer organoids for the treatment of advanced and metastatic lung cancer. Furthermore, in lung cancer organoids from surgical tissue, normal lung organoids often overgrow. To overcome these limitations, we utilized the tissues from cryobiopsy for lung cancer organoid.

Material & Methods

Lung cancer tissues were obtained by cryobiopsy with radial EBUS. Biopsy tissues were dissociated into single cells by only mechanical dissection and strainers without enzyme digestion. Then cells were embedded in Matrigel and submerged in airway organoid media including R-spondin, Noggin, FGF-7/10 and EGF.

Results

We successfully cultured lung cancer organoids derived from cryobiopsy tissues (n=56). Compared to conventional bronchoscope biopsy or radial EBUS-TBLB, cryobiopsy yield 5 to 10 times more cells. The success rate of lung cancer organoid culture using cryobiopsy tissues was about three times higher than that of conventional biopsy tissues. NGS results revealed that lung cancer organoids with cryobiopsy tissues had high purity of cancer cells.

Discussion & Conclusion

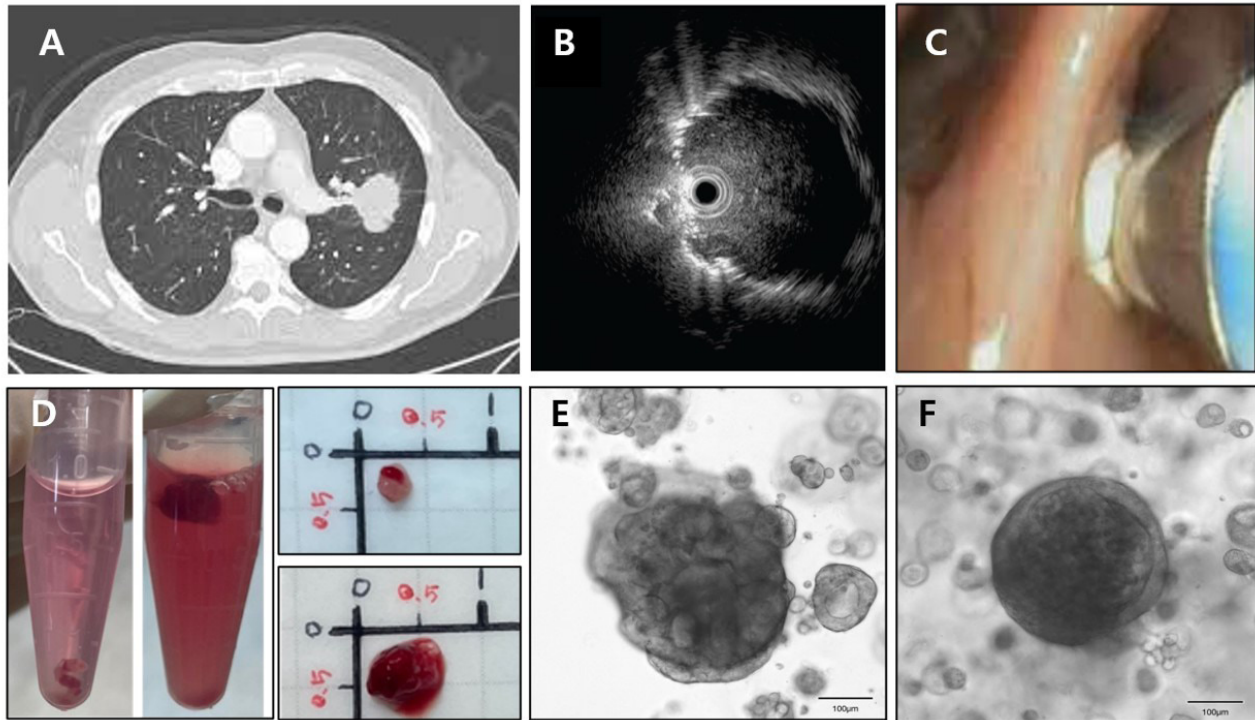
Lung cancer organoids derived from cryobiopsy tissue can overcome the shortcomings of present lung cancer organoids. We expect that this method will be a breakthrough strategy of clinical application of lung cancer organoid.

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AO08-6

Establishment of human lung cancer organoids using EBUS-TBNA specimens and surgical tissues

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Background and Aim

Patient-derived organoids are three-dimensional in vitro multicellular structures designed to retain key characteristics of the tissues of origin. In this study, we tried to establish patient derived tumor organoids (PTDOs) using endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) specimens and surgical tissues in patients with lung cancer.

Methods

Single cells were isolated from human lung tumors or metastatic lymph nodes and plated in 100% BME dome with overlaying culture media including niche factors such as R-spondin 1, noggin, Y-27632, FGF7/10, EGF, etc. Established PDOs were evaluated using H&E staining, immunohistochemistry, and targeted-exome sequencing.

Results

A total of 103 lung cancer patients' specimens from EBUS-TBNA (N=76), surgery (N=25) and pleural fluid (N=2) was included in this study. The establishment rate of PDO (beyond passage 3) was 33.0% (34/103). Among 34 PDOs, 14 (41.2%), 13 (38.2%), and 7 (20.5%) were finally classified as PDTOs, benign epithelial cell organoids, and indeterminate organoids, respectively. The genotypes of PDTOs included EGFR L858R, EGFR exon 20 insertion, KRAS G12C, MET exon 14 skipping mutation, ROS1 fusion, etc. PDTOs successful generated the tumors in BALB/C nude mice in in vivo tumorigenesis assay and xenograft tumors also maintained the genotypes of parental tumors. PDTOs were also suitable for drug sensitivity tests and coculture experiments with fibroblasts and lymphocytes to investigate tumor microenvironment.

Conclusion

The PDTOs derived from human lung cancer tissues retained the characteristics of the parental tumors. PDTOs could be the useful platform for the further investigation of tumor microenvironment and drug sensitivity.

Nothing to disclose

AO08-7

COX-2 and IL-6 are associated with progressive stages and metastasis process in advanced NSCLC

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Background and Aim

Cyclooxygenase-2 (COX-2) and Interleukin-6 (IL-6) have been implicated in tumorigenesis and metastasis. However, their prognostic value remains controversial. This study was conducted to determine the prognostic value of COX-2 and IL-6 on survival in patients with non-small cell lung cancer (NSCLC).

Methods

This study recruited advanced-stage NSCLC patients. Serum COX-2 and IL-6 levels were measured using ELISA. Proportional-hazard models and Kaplan-Meier were used to evaluate the relationship between COX-2, and IL-6 levels and patient survival time.

Results

30 patients (76.7% male and 23.3% female) were examined. The most common type is adenocarcinoma (63.3%) and at the IVA stage (70%). The median concentrations of COX-2 and IL-6 were 14.00 U/L and 20.89 ng/L respectively. They were defined as the threshold in dividing patients into low and high groups. COX-2 and IL-6 levels were associated with the tumor, node, and metastasis (TNM) stage, being higher in the IVB stage ($p = 0.009$ and 0.005). Extensive metastases were evaluated in 25 patients by comparing M1a, M1b, and M1c. The results found the higher serum COX-2 and IL-6 levels related to the wider metastasis process ($p = 0.008$ and 0.002). The hazard ratio with high COX-2 and IL-6 levels for lung cancer-specific survival were 1.59 [95% CI = 0.74-3.41] and 1.21 [95% CI = 0.57-2.54] compared with low COX-2 and IL-6 levels ($p > 0.05$).

Conclusion

High levels of COX-2 and IL-6 have no significant impact on the survival of NSCLC patients. However, they were found to be statistically significant with stages and metastasis Jiang H, Wang J, Zhao W. Cox-2 in Non-Small Cell Lung Cancer: A meta-analysis. Elsevier. 2013;419:26-32 Sobolewski C, Cerella C, Dicato M, Ghibelli L, Diedrich M. The Role of Cyclooxygenase-2 in Cell Proliferation and Cell Death in Human Malignancies. International Journal of Cell Biology. 2010:1-21 Y.W. Pan¹, Z.G. Zhou¹, M. Wang¹, J.Q. Dong², K.P. Du¹, S. Li¹, Y.L. Liu², P.J. Lv², and J.B. Gao. Combination of IL-6, IL-10, and MCP-1 with traditional serum tumor markers in lung cancer diagnosis and prognosis.

AO08-8

The Associations of Hypertension Medication with Lung Cancer Risk and related Mortality

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Background and Aim

The aim of this study was to investigate the associations of hypertension medication, especially calcium-channel blocker (CCB), angiotensin converting enzyme inhibitor (ACEI), or angiotensin II receptor blocker (ARB) with lung cancer risk and mortality using population-based nationwide cohort data.

Methods

This study included a total of 3,718,905 participants who underwent a national health check-up from 2010 to 2019. Lung cancer incidence and mortality were identified using a registered lung cancer diagnosis code (International Classification of Diseases, 10th revision, code C34) and the Korean National Death Registry. Patients who took combination hypertensive drugs were excluded, and patients with drug change between different drug groups were also excluded. Patients who took one drug for more than 3 months were defined as taking antihypertensive drugs.

Results

There were 461,967 people in the ARB group (ACEi or ARB) and 199,227 people in the CCB group. ACEi or ARB use had a protective association with lung cancer incidence (P-value = 0.0043) and all-cause mortality (P-value < 0.0001) than CCB group. Sub-group analysis showed that ARB was effective for males, BMI < 25, and smoking history group. For correction of baseline characteristics, we conducted propensity score matching. After matching, ACEi or ARB use also had a protective association with lung cancer incidence (P-value = 0.0103) and all-cause mortality (P-value < 0.0001).

Conclusion

Among antihypertensive drugs, the use of ACEi or ARB rather than CCB is thought to lower the incidence of lung cancer.

AO09-1

The preventive effects of statin on lung cancer development in patients with idiopathic pulmonary fibrosis using National Health Insurance Service Database in Korea

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Background and Aim

Background and Aims

Statin use is a proven factor to reduce the all-cause mortality in interstitial lung disease and idiopathic pulmonary fibrosis (IPF) patients. We analyzed the database of the National Health Insurance Service (NHIS) to further investigate the clinical impacts on lung cancer development and overall survival in IPF patients.

Methods

We collected the data from NHIS and retrospectively reviewed 9,182 of IPF patients over the age of 40 from 2002 to 2018 with the two-year of washout period. The primary endpoint of this study was the development of lung cancer according to statin use during the study period. The secondary endpoint was overall survival of IPF patients according to statin use.

Results

The final analysis included 9,182 individuals diagnosed as IPF, of which 3,372 (36.7%) was the statin user. In statin user group, the average proportion of statin use during the total follow up period marked about 30%, and the proportion of male statin user was lower compared to non-statin group (59.4% vs. 67.1%). Out of 9,182 IPF patients screened, 850 cases were diagnosed as lung cancer during the study period. The duration from the date diagnosed as IPF to the development of lung cancer was significantly longer in statin group (3,361.0 vs. 2,194.6 days, Log rank $P < 0.0001$). The mortality rate was lower in statin group (41.6% vs. 66.9%, Log rank $P < 0.0001$) and overall survival was longer than non-statin user (3,741.8 vs. 2413.9 days, log rank $P < 0.0001$). Age at the diagnosis of IPF (hazard ratio [HR] 1.05, 95% confidence interval [CI] 1.04-1.06, $P < 0.0001$), and smoking status (HR 1.55, 95% CI 1.39-1.72, $P < 0.0001$) were associated with lung cancer development in IPF patients.

Conclusion

This analytic study showed the regular and consecutive statin use increased the overall survival of IPF patients but also delayed the development of lung cancer in study period. Further studies are necessary to impose the statin use on beneficial effects to reduce cancer related mortality in IPF patients.

Keywords

Idiopathic Pulmonary Fibrosis; Lung Neoplasms; Hydroxymethylglutaryl-CoA Reductase Inhibitors; Database

AO09-2

Health-related quality of life in a multi-ethnic Asian interstitial lung disease cohort

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Background and Aim

Understanding the health-related quality of life (HRQL) in patients with interstitial lung disease (ILD) allows insight into disease burden and treatment effects on patients' well-being. We examined HRQL in a multi-ethnic Asian ILD cohort using the King's brief ILD (K-BILD) and EuroQol 5-dimension-3-level (EQ5D-3L) questionnaires and their association with several clinical variables.

Methods

Single-centre cross-sectional study of ILD patients in a university-affiliated tertiary public hospital in Singapore. All patients completed two self-administered HRQL questionnaires upon study entry and their clinical information was extracted from electronic medical records.

Results

Ninety-nine patients (56% male, 75% ethnic Chinese) were included. The median (interquartile range) age was 63 (54-72) years. The most common ILD diagnosis was connective tissue disease-related ILD (n=51, 52%), followed by idiopathic pulmonary fibrosis (n=27, 27%). Mean (standard deviation) scores for EQ5D-3L utility value, EQ5D Visual Analogue Scale (VAS) and K-BILD total were 0.806 (0.284), 75.1 (12.8) and 63.9 (14.3) respectively. A moderate correlation was found between EQ5D-3L and K-BILD total and domain scores. The HRQL scores also correlate moderately with the modified medical research council (mMRC) dyspnoea scale. There was weak-to-moderate correlation between HRQL and FVC, DLCO and Charlson comorbidity index (Table 1). Multivariate linear regression showed a significant association of K-BILD total with DLCO (beta coefficient 0.244, 95% CI [0.075-0.414], p=0.005), after adjustment for age, sex, BMI, race, smoking history, comorbidities and ILD diagnosis.

Conclusion

HRQL is significantly impaired in ILD patients and low DLCO is a significant predictor of this impairment.

Table 1: Correlation between health-related quality of life scores and disease severity measures

	EQ5D-3L utility value	EQ5D-3L VAS	K-BILD total	K-BILD Breath	K-BILD Psych	K-BILD Chest	mMRC dyspnoea scale	FVC ^a	DLCO ^a	CCI
EQ5D-3L utility value	1									
EQ5D-3L VAS	0.530**	1								
K-BILD total	0.538**	0.471**	1							
K-BILD Breath	0.547**	0.470**	0.950**	1						
K-BILD Psych	0.470**	0.420**	0.952**	0.830**	1					
K-BILD Chest	0.489**	0.382**	0.840**	0.772**	0.756**	1				
mMRC dyspnoea scale	-0.535**	-0.525**	-0.585**	-0.581**	-0.535**	-0.475**	1			
FVC ^a	0.336**	0.266**	0.396**	0.389**	0.375**	0.213*	-0.527**	1		
DLCO ^a	0.218*	0.275**	0.414**	0.448**	0.360**	0.260**	-0.437**	0.569*	1	
CCI	-0.187	-0.220*	-0.185	-0.228*	-0.162	-0.128	0.314**	-0.013	-0.185	1

Correlation ≥ 0.8 = very strong, 0.6-0.79 = strong, 0.3-0.59 = moderate, <0.3 = weak.

Dark grey fields highlight very strong or strong correlation. Grey fields highlight moderate correlation

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

^aPercentage predicted values.

CCI = Charlson comorbidity index, DLCO = Carbon monoxide diffusing capacity, EQ5D-3L = EuroQol 5-dimension 3 level version, FVC = Forced vital capacity, K-BILD = King's brief interstitial lung disease Questionnaire, K-BILD Breath = K-BILD Breathlessness & activities, K-BILD Chest = K-BILD Chest symptoms, K-BILD Psych = K-BILD Psychological, mMRC = Modified medical research council, VAS = Visual analogue scale

AO09-3

Monitoring of cough in patients with ILD by smartphone application: Preliminary results

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Background and Aim

Cough is a distressing symptom with a significant impact on patients' quality of life in patients with interstitial lung disease (ILD). However, there are few studies about the characteristics of the cough in patients with ILDs. We evaluated cough frequency in ILD patients in their own environment using smartphone application

Methods

Patients with ILD were prospectively enrolled from Seoul National University Bundang Hospital in South Korea. Baseline pulmonary function tests were performed within 3 months of the enrollment. Coughs were monitored by a smartphone application (CoughyTM). The patients were guided to answer cough visual analogue scale(VAS) and Leicester Cough Questionnaire(LCQ) at the beginning.

Results

A total of 9 patients (6 male and 3 female patients) were enrolled in this study. 3 were diagnosed as IPF, 3 with unclassifiable ILD, 2 with connective tissue disease associated ILD, and 1 with idiopathic nonspecific interstitial pneumonia. Median age was 68 years (range:54-71). Baseline mean FVC and DLCO was $2.25 \pm 0.74L$ (65.4 ± 8.0 % predicted) and 11.6 ± 3.48 mL/min/mmHg (62.3 ± 16.1 % predicted), respectively. Cough frequency of 24hrs was not correlated with baseline lung function. Cough frequency of 24 hours showed positive correlation with VAS score ($r=0.86$, P-value = 0.0031) but did not show correlation with LCQ score ($r=-0.32$, P-value = 0.395). The cough frequency of 35hours showed similar result.

Conclusion

Cough frequency monitored by a smartphone application showed good correlation with VAS score in these preliminary results. It would be a useful monitoring tool of cough in patients with ILDs.

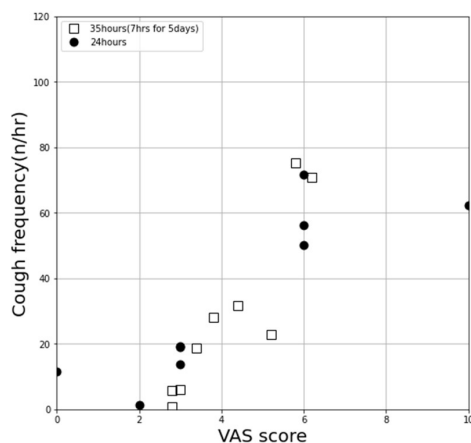


Fig 1a. Cough frequency vs VAS score

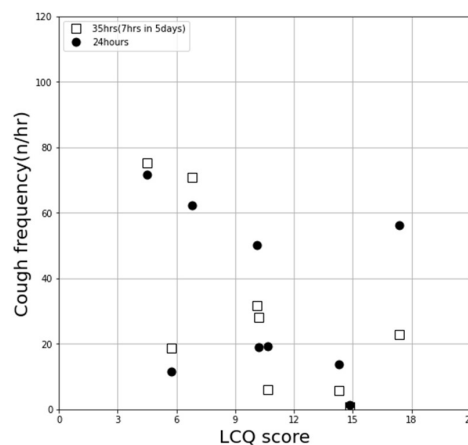


Fig 1b. Cough frequency vs LCQ score

AO09-4

Prognostic implication of 1-year decline in diffusing capacity in newly diagnosed IPF

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Background and Aim

IPF has a variable clinical course, and it is difficult to predict the natural course of a patient newly diagnosed with IPF. Although forced vital capacity (FVC) and diffusing capacity of carbon monoxide (DLCO) are commonly used to assess disease severity and define disease progression, it is unclear whether measurement of both parameters (FVC and DLCO) provides more prognostic information compared to measurement of only FVC.

Methods

Patients newly diagnosed with IPF at Seoul National University Hospital between January 2015 and December 2020 were retrospectively analyzed. We evaluated whether patients with both FVC decline ($\geq 5\%$) and DLCO decline ($\geq 7.5\%$) in the 1st year after diagnosis had worse long-term prognosis, compared to those with decline of only single parameter, either FVC or DLCO.

Results

A total of 301 patients newly diagnosed with IPF were included for this study, and their mean follow-up period was 141 weeks. Whereas 56 patients (18.6%) showed both FVC decline and DLCO decline, 43 patients (14.2%) and 69 patients (22.9%) showed FVC decline alone and DLCO decline alone, respectively. The remaining 133 patients (44.3%) showed stable FVC and DLCO. At last follow-up, patients with decline of both FVC and DLCO had significantly greater FVC decline (9.5%/year), compared to those with FVC decline only (5.5%/year) and DLCO decline only (1.8%/year). This difference was significant after adjusting for baseline lung function and use of antifibrotic agents.

Conclusion

In patients with newly diagnosed IPF, initial 1-year decline in DLCO was predictive of greater long-term decline in FVC.

AO09-5

Clinical characteristics and outcomes of hypersensitivity pneumonitis in South Korea

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Background

Hypersensitivity pneumonitis (HP) is an interstitial lung disease (ILD) that results from an immune-mediated reaction by various antigen in susceptible individuals. A new guideline was suggested in 2020 that classified HP according to presence of radiologic or histopathologic fibrosis to reflect prognosis. However, the clinical characteristics of HP have not been well known in South Korea.

Methods

This retrospective study included the subjects with pathologically-proven HP at a single tertiary hospital in Korea between 1996 and 2020. The clinical characteristics, etiologies, treatment and outcomes were reviewed.

Results

Among 43 patients with biopsy-proven HP, 12 (27.9%) fibrotic and 31 (72.1%) non-fibrotic subtypes were identified. The fibrotic HP group was older (64.6±8.5 vs 55.2±8.3, p=0.002) with more arthralgia symptoms (41.7% vs 3.2, p=0.006) compared to non-fibrotic HP group. On contrary, proportion of patients who complaint of fever was higher in non-fibrotic group (45.2 vs 0.0, p=0.013). The most common etiology was household mold (21, 48.8%), followed by inorganic substance (6, 14.0%). Etiologic antigens were not identified in 8 (18.6%) patients. Treatment of corticosteroid was initiated in 34 (79.1%) patients. Overall clinical characteristics were comparable to case series in South Korea.

Conclusion

Biopsy-proven HP patients in South Korea showed similar clinical characteristics and outcomes to previous studies in other countries. Efforts of clinicians to be aware of the possibility of HP when newly detected ILD is encountered, and to classify the disease according to presence of fibrosis to reflect the prognosis are needed.

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AO09-6

The incidence and risk factors of persistent pulmonary fibrotic change after COVID-19 infection.

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Background and Aim

Persistent pulmonary fibrotic change after COVID-19 has been frequently reported, yet data inclusive of a cohort of an entire city is scarce. The aim of this study was to evaluate the incidence and risk factors of persistent fibrotic change of COVID-19 patients in Ulsan.

Methods

This retrospective study reviewed medical records of COVID-19 patients admitted to Ulsan University Hospital (UUH) from February 20, 2020, to December 31, 2021. During this time, there were 6923 cases reported in Ulsan. All patients diagnosed before December 16, 2020, and after then, all moderate to severe patients in Ulsan were admitted to UUH.

Results

A total of 1,912 COVID-19 patients were admitted (M:F=888:1024; mean age 53.7±17.8 years). During hospitalization, 164 patients were treated with high flow nasal cannula (HFNC), and 47 patients received ventilator care. A total of 50 patients died. Among them, 36 patients died without ventilator care due to refusal of life-sustaining treatment. Among survived patients, 94 patients showed fibrotic change on chest X-rays over one month, and nine patients showed fibrotic change after three months. Based on multivariate analysis, risk factors associated with the mortality were age ($p=0.001$), initial ESR ($p=0.045$), and treatment with HFNC ($p=0.024$). And those associated with persistent fibrotic change were treatment with HFNC ($p=0.042$) or ventilator ($p=0.046$).

Conclusion

A small number of COVID-19 patients showed fibrotic change over three months. The mortality was associated with age, initial ESR, and HFNC. The risk factors associated with prolonged pulmonary fibrotic change were HFNC or ventilator care.

AO09-7

Quantitative evaluation of changes in three-dimensional CT density distributions in pulmonary alveolar proteinosis after GM-CSF inhalation

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Background and Aim

HRCT imaging is highly important in the diagnosis and treatment of diffuse lung disease. However, they are visual and lack objectivity and are mainly used for semi-quantitative evaluation. Quantitative evaluation for determining treatment efficacy has not yet been established. Therefore, the purpose of this study was to establish an evaluation method based on CT values before and after GM-CSF inhalation therapy for autoimmune pulmonary alveolar proteinosis (APAP), in which ground glass opacity (GGO) is the main HRCT finding.

Methods

CT data of 31 and 27 patients who received GM-CSF and placebo, respectively, were analyzed. To overcome the difference of various shooting conditions, a newly developed automatic lung field segmentation algorithm was applied to CT data to extract the whole lung volume, and the accuracy of the segmentation was evaluated by five pulmonary physicians independently.¹ For normalization, percent pixel (PP) in a certain density range was calculated as a percentage of the total number of pixels from -1000 to 0 HU.

Results

The most significant difference in Δ PP between GM-CSF and placebo groups was observed in two ranges from -1000 to -857 and -143 to 0 HU. Δ PP in those two regions was also moderately or significantly correlated with changes in clinical indices (AaDO₂, KL-6, %DLco, etc.).

Conclusion

Whole lung extraction followed by density histogram analysis of Δ PP may be an appropriate evaluation method for assessing CT improvement in APAP.

Reference

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acknowledgement: The authors thank all investigators and patients who participated in this study.

disclosure statement: This study supported by grants from the Japan Agency for Medical Research and Development (17ek0109079h and 17930161).

AO09-8

Acute exacerbation of progressive fibrosing interstitial lung disease: incidence and outcomes

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Background and Aim

Few data are available on acute exacerbation (AE) in patients with progressive fibrosing interstitial lung disease (PF-ILD) other than idiopathic pulmonary fibrosis (IPF). This study aimed to investigate the incidence and outcomes of AE in PF-ILD.

Methods

Clinical data of patients with PF-ILD (n=133) were retrospectively collected at Asan Medical Center, South Korea. The PF-ILD was defined based on the criteria used in the INBUILD trial. AE was defined as the worsening of dyspnea within 30 days, with new bilateral lung infiltration and not fully explained by cardiac failure or fluid overload.

Results

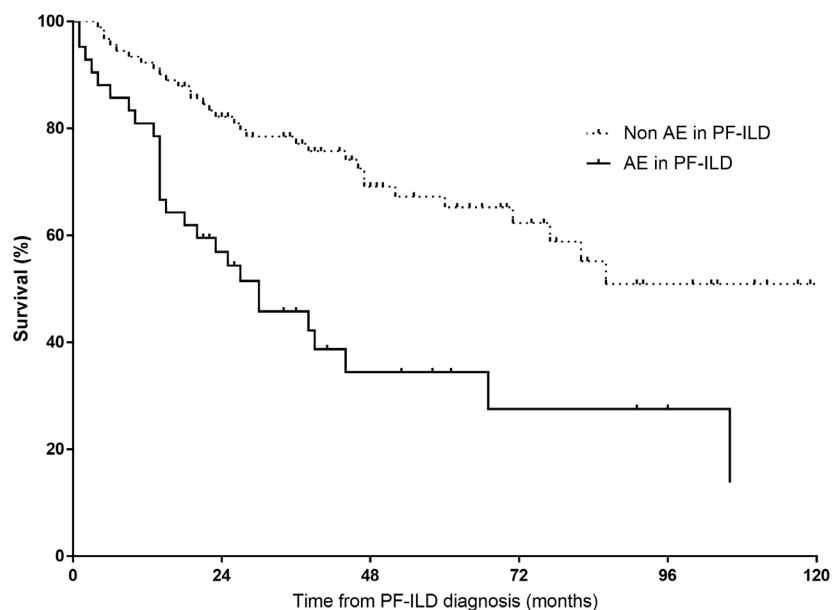
The mean age of PF-ILD patients was 60.6 years, 60.4% were females, and autoimmune ILD was the most common (63.9%). During the follow-up (median: 30.0 months), 42 patients (31.6% of PF-ILD) experienced AE; the 1-, 3-, and 5-year incidence of AE were 12.5, 30.3 and 38.0%, respectively. Older age and lower total lung capacity were risk factors of AE.

Patients with AE showed worse survival (median survival: 30 months vs. not reached; p0.001) after PF-ILD diagnosis compared to those without (Figure-1). AE was independently associated with the mortality in patients with PF-ILD (HR 3.2; 95%CI 1.7-6.0; p0.001), along with older age, and lower lung function, and oxygen saturation of six-minute walk test in the multivariable Cox analysis.

After hospitalization, the 30- and 90-day mortality rates of PF-ILD patients were 28.6%, and 39.4%, respectively. Lower ratio of partial pressure arterial oxygen and fraction of inspired oxygen was a risk factor for in-hospital death.

Conclusion

Our results suggest that AE is not uncommon and significantly impact on survival in PF-ILD.



AO09-9

Impact of non-tuberculous mycobacterial pulmonary disease on clinical outcomes in idiopathic pulmonary fibrosis: a landmark analysis

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Background and Aim

The clinical course of idiopathic pulmonary fibrosis (IPF) is affected by combined comorbidities. We aimed to investigate the impact of nontuberculous mycobacterial pulmonary disease (NTM-PD) on the clinical outcomes in patients with IPF.

Methods

The clinical data of IPF patients (n = 1,360) diagnosed at Asan Medical Center, , South Korea were retrospectively collected. We performed landmark analysis to examine survival difference between patients with NTM-PD and those without; a landmark time of eight months was chosen (the median duration from IPF diagnosis to NTM-PD development: 234 days). Time-dependent Cox proportional-hazards regression analysis was performed to determine the impact of NTM-PD on the overall survival.

Results

Of all patients, the mean age was 66.4 years, 81.3% were male, and NTM-PD occurred in 72 (5.3%) during follow-up (the median duration: 27.3 months). NTM-PD group showed lower body mass index and diffusing capacity of the lungs for carbon monoxide (DLCO,) than no NTM-PD group.

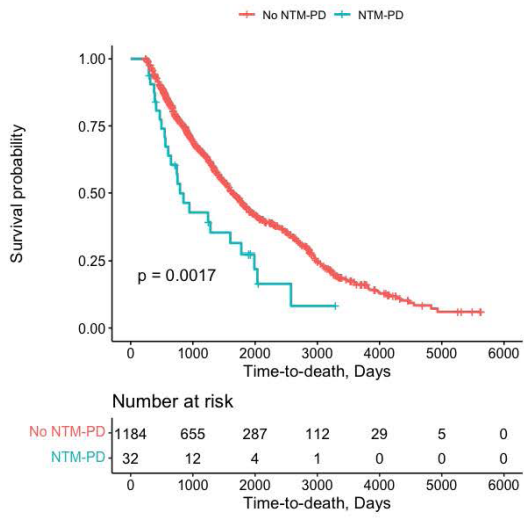
From the landmark time, NTM-PD group showed worse survival (median time: 26.4 vs. 55.2 months, P = 0.002) than no NTM-PD group; they also had worse outcomes in terms of admission (all-cause and respiratory-cause), and acute exacerbations.

In the univariate Cox analysis, NTM-PD showed increased risk of clinical outcomes (figure 1). In the multivariable Cox analysis, NTM-PD was also associated with increased risk of mortality and all-cause admission in patients with IPF.

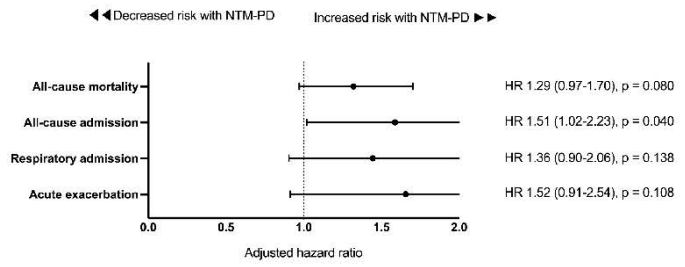
Conclusion

Our results suggest that NTM-PD is not uncommon, and associated with worse clinical outcomes of IPF patients.

A



B



AO10-1

Developing and Validating the NEAR Models for Integrated Prediction of the 30-day Re-exacerbation and Readmission in Patients Hospitalized with Acute Exacerbation of COPD in China

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Background and Aim

Accurate prediction of the risk of exacerbation enables personalized care for chronic obstructive pulmonary disease (COPD) patients. We developed and validated integrated models to predict newly- and ever-diagnosed AECOPD patients' risk of re-exacerbation and readmission (NEAR) within 30-day after discharge.

Methods

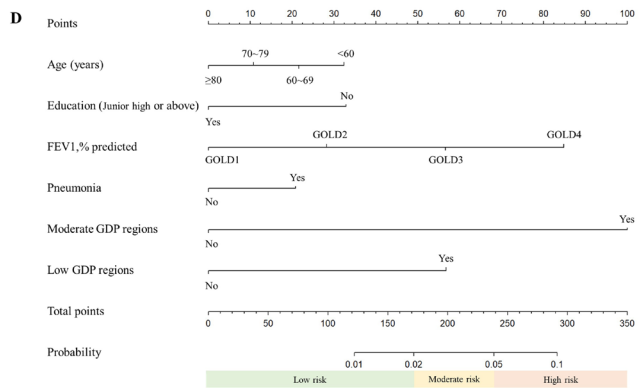
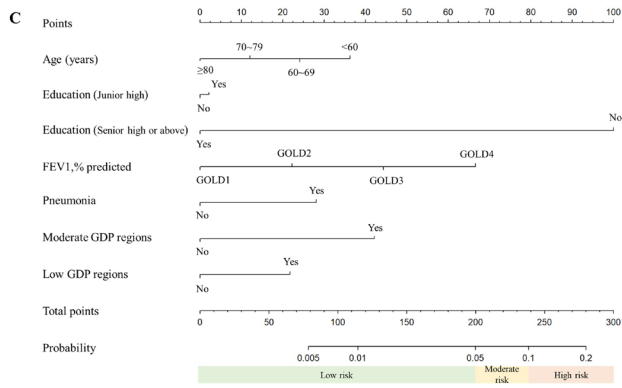
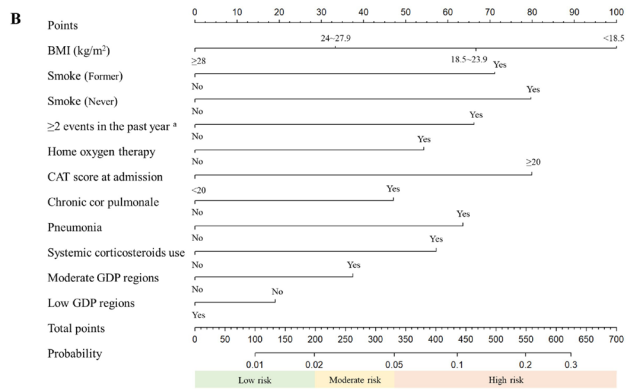
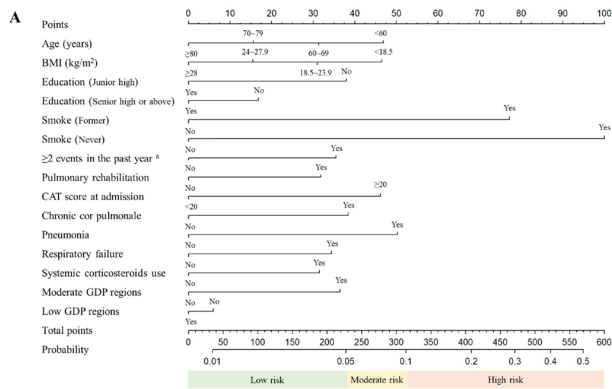
The data were obtained from the acute exacerbation of chronic obstructive pulmonary disease inpatient registry (ACURE) study. Patients were separated into newly- and ever-diagnosed AECOPD groups according to their past medical history. Logistic regression was used to identify predictors of COPD-related re-exacerbation and readmission after discharge among newly- and ever-diagnosed patients in the development cohort. C statistic and calibration plot quantified the model performance. Models were validated internally (bootstrap method) and externally (merely in ever-diagnosed AECOPD patients).

Results

Among the 5142 patients included for analyses, 71% were ever-diagnosed with AECOPD (n=3694) and the other 1448 patients were newly-diagnosed. The 30-day re-exacerbation and readmission rates were 7.2% and 4.1% in ever-diagnosed patients, and 3.8% and 1.6% in newly-diagnosed patients. In ever-diagnosed patients, the NEAR model had a C statistic of 0.67 (95%CI 0.63-0.70) for re-exacerbation and 0.70 (95% CI 0.65-0.74) for readmission. Corresponding C statistics for newly-diagnosed patients were 0.72 (95%CI 0.65-0.78) and 0.69 (95%CI 0.57-0.80). C statistic values were stable in both internal validation (0.68 for re-exacerbation and 0.71 for readmission in ever-diagnosed patients, 0.73 for both outcomes in newly-diagnosed patients) and external validation (0.70 (95%CI 0.57-0.82) for re-exacerbation, 0.73 (95%CI 0.59-0.87) for readmission). The calibration plot showed close agreement between the predicted and observed risks.

Conclusion

The NEAR models provide precise prediction to identify AECOPD patients' risk of re-exacerbation and readmission within 30 days after discharge. This model can be used as a decision tool to personalized prevention treatment and patients' discharge destination.



AO10-2

Validation and optimization of COPD population screener questionnaire (COPD-PS) in Chinese population: A national multicenter study

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Background and Aim

Chronic obstructive pulmonary disease (COPD) is highly prevalent and underdiagnosed worldwide. This study aimed to prospectively validate and optimize COPD-PS questionnaire in a large-sample Chinese population, so as to estimate and improve the performance of COPD-PS in screening Chinese COPD patients.

Methods

This is a national multicenter prospective study that enrolled 1824 patients from 13 hospital sites in China. COPD was diagnosed with post-bronchodilator FEV1/FVC < 0.7 (FEV1=forced expiratory volume in the first second; FVC=forced vital capacity). Scores of the Chinese version of COPD-PS questionnaire, demographic data and clinical information were collected. The validity and the test-retest reliability were evaluated. In the next step, COPD-PS questionnaire was modified based on the results of the logistic regression analysis. In addition, four commonly used machine learning models, including lasso regression, random forest, support vector machine and extreme gradient boosting machine were developed and were evaluated for questionnaire performance.

Results

1824 participants were involved in this study and 404 (22.1%) were diagnosed with COPD. The overall area under the curve (AUC) of the receiver operating characteristic (ROC) for COPD-PS questionnaire was 0.761 (95%CI: 0.734 – 0.787). A cut-off point of 4 was recommended, corresponding to a sensitivity of 74.50%, specificity of 64.37%, a positive predictive value (PPV) of 37.30% and a negative predictive value of 89.87%. The COPD-PS questionnaire was found to be reliable by showing an overall Pearson's correlation of 0.88. A modified COPD-PS questionnaire with 4 items was developed, which had an AUC (0.769; 95% CI: 0.742-0.796) similar to that of the original version (0.761; 95%CI: 0.734-0.787), [P = 0.288]. Machine learning models showed a higher AUC than those of the COPD-PS and the modified COPD-PS questionnaire, but the differences were not statistically significant.

Conclusion

The COPD-PS questionnaire appears to be a practical tool for COPD screening among the Chinese population. A simpler modified version of COPD-PS questionnaire was developed with similar screening performance.

AO10-3

Clinical characteristics of tuberculosis-destroyed lung chronic obstructive pulmonary disease

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Background

Tuberculosis-destroyed lung (TDL) is a widely accepted term that describes the lung which was destructed by previous tuberculosis (TB) infection. Previous articles showed that the prior TB patients and TDL patients have lower lung function and have more rapid lung function decline^{1,2}. However, there is little evidence about the characteristics of TDL-associated chronic pulmonary obstructive disease (COPD). We set this study to reveal that from Korean COPD Subgroup Study (KOCOSS).

Methods

We extracted the patients from KOCOSS study who matched with COPD definition by pulmonary functions and had radiologically diagnosed TDL from 1-year follow-up data. overall 131 TDL COPD was grouped as the TDL-COPD group. Others were grouped as non-TDL COPD groups. Baseline demographics, lung function, and annual exacerbation were compared between the groups.

Results

There were no statistically different factors in demographic data. TDL COPD group had lower Total lung capacity (TLC). Others were not different et al. TDL-COPD group showed higher annual moderate and severe exacerbation than non-TDL COPD group without clinical significance.

Conclusion

We demonstrated the characteristics of TDL-COPD in this study. TDL-COPD group showed similar baseline characteristics, lower TLC, and higher annual exacerbation without clinical significance than non-TDL COPD group.

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AO10-4

Heart-rate recovery immediately after exercise is useful in exacerbation prediction in chronic obstructive pulmonary disease when spirometry is not available

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Background and Aim

BODE index predict clinical outcome in chronic obstructive pulmonary disease. However, in COVID-19 pandemic where spirometry may not be available, a modified index may be needed. Abnormal heart rate recovery had been noted to be associated with reduced FEV1 and poor prognosis in previous literature. Hence, we hypothesized that by incorporating post exercise heart rate recovery, the modified model could be as good as BODE index.

Methods

From January 2019 to December 2019, enrolled patients were analysed as deprivation cohort for the setup of model. This model was testified in another validation cohort generated from January 2020 to December 2020. The parameters of 6-minute walking test, post-6-minute walking test heart rate recovery, defined by the difference of peak heart rate and post-test one-minute heart rate, were recorded. By replacing FEV1 (O) with heart rate recovery (H), we compared the predictability of one year incidence of severe exacerbation of the modified index, BHDE, with BODE index.

Results

A total of 537 COPD patients were enrolled in National Taiwan University Hospital. The predictability of the new index is similar with BODE index in both cohorts (AUROC 0.80 vs 0.78, $p=0.369$; AUROC 0.76 vs 0.80, $p=0.05$). This model is good in severe acute exacerbation risk stratification. Univariate and multivariate analysis showed that the new index is an independent prediction factor of annual severe acute exacerbation.

Conclusion

BHDE, a modified index, is a good and easy to performed prediction model where spirometry is not available.

The authors declare no competing interests.

AO10-5

Evaluation of the effectiveness of the advanced Evidence-Based Practice (EBP) Programme – Bundle of care to prevent COPD unplanned readmission

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Background

Unplanned COPD readmission rates in HK were common, and an EBP- Bundle care to prevent COPD unplanned readmission rate program was implemented.

Aim

1. To evaluate the effectiveness in the reduction of length of stay (LOS) & unplanned admission or hospital readmission
2. To standardize the practice of advanced nursing care by formulation of COPD Care Bundle Guideline

Methods

The care Model includes 7 elements: 1. Inhaler technique assessment and education, 2. Smoke cessation counseling, 3. follow-Up in Nurse clinic 2 weeks after discharge and in regular intervals 4. Self-home plan management 5. Pulmonary Rehabilitation Programme referral, 6. Phone follow-Up within 72 hours upon discharge, then 4 and 8 weeks after discharge 7. Help-line for self-home plan management, fast track access to nurse and doctor's clinic appointments. It was a multi-centered prospective study that was carried out from November 2019 to April 2021. Patients with COPD exacerbation admission from 14 hospitals with smoking history and FEV1

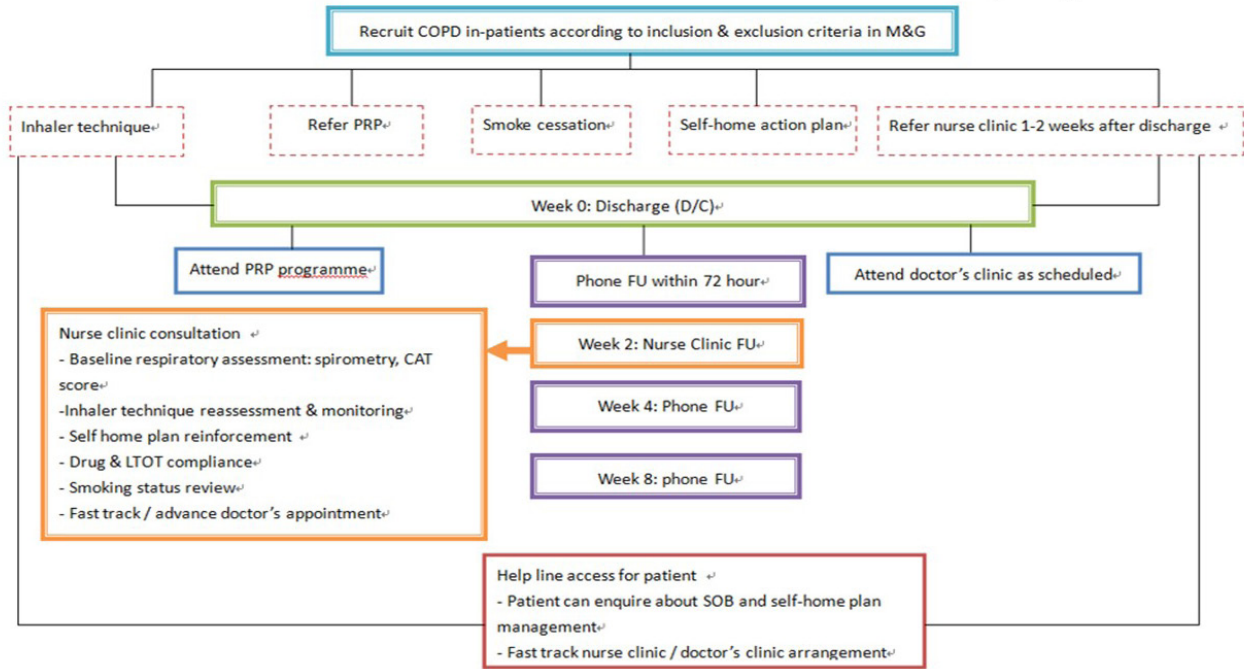
Results

There were 94 COPD patients of which 91 were male and 3 were female (mean age 74.6 vs.73). The EBP COPD bundle care program had successfully shortened the average length of stay by -1.782 Days, (P <0.05)

Conclusion

EBP-COPD bundle care with 7 elements adoption can reduce LOS of hospitalization, unplanned readmission, and retention of knowledge, and improve inhaler technique and drug adherence.

Workflow of the COPD bundle care project



AO10-6

Mobile application based pulmonary rehabilitation in patients with chronic obstructive pulmonary disease

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Background and Aim

Pulmonary rehabilitation (PR) is well known to improve clinical symptoms in patients with chronic obstructive pulmonary disease (COPD). Recently, mobile application-based PR became available in clinical practice. We aimed to investigate the outcomes of mobile application-based PR in patients with COPD.

Methods

We performed a systematic literature search on the databases of Pubmed, Embase, Cochrane, and CINAHL to identify relevant randomized controlled trials in patients with COPD. The meta-analysis evaluated mean differences in 6-minute walk distance (6MWD), COPD Assessment Test (CAT) score, modified Medical Research Council (mMRC) dyspnea scale, and St. George's Respiratory Questionnaire (SGRQ), and risk ratio in hospitalization.

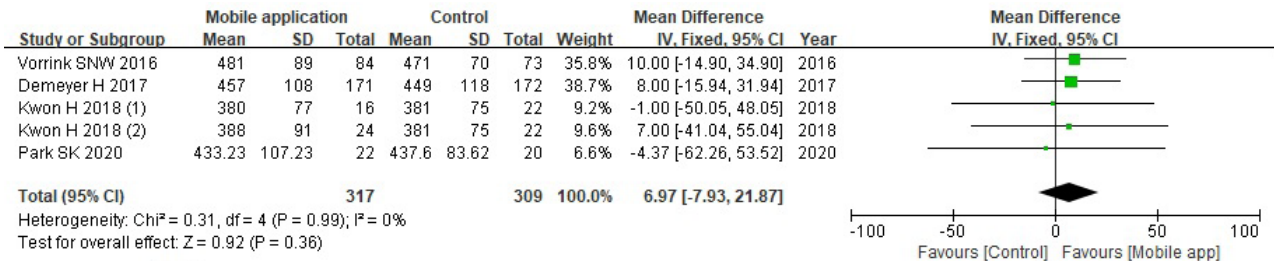
Results

Among 835 literatures screened, eight studies (N = 860) were included in the meta-analysis. Four (n = 626), four (n = 291), three (n = 231), two (n = 147), and three (n = 143) studies assessed 6MWD, CAT score, mMRC dyspnea scale, SGRQ, and hospitalization, respectively. These clinical parameters were not different between the mobile application-based PR group and the conventional PR group with mean difference of 6MWD 6.97 (95% confidence interval [CI] -7.93-21.87), CAT score -1.28 (95% CI -3.04-0.49), mMRC dyspnea scale -0.08 (95% CI -0.29-0.13), SGRQ -3.62 (95% CI -9.62-2.38), and with risk ratio of hospitalization 0.65 (95% CI 0.27-1.53).

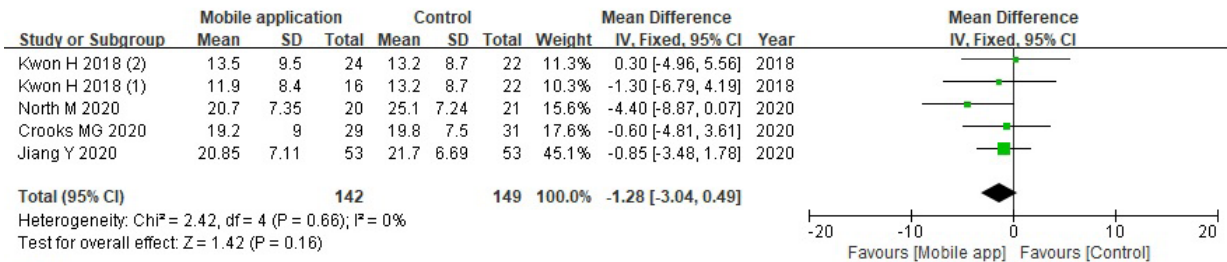
Conclusion

Mobile application-based PR showed comparable clinical outcomes compared with conventional PR in patients with COPD. Mobile application-based PR may be a useful treatment option when conventional PR is not feasible.

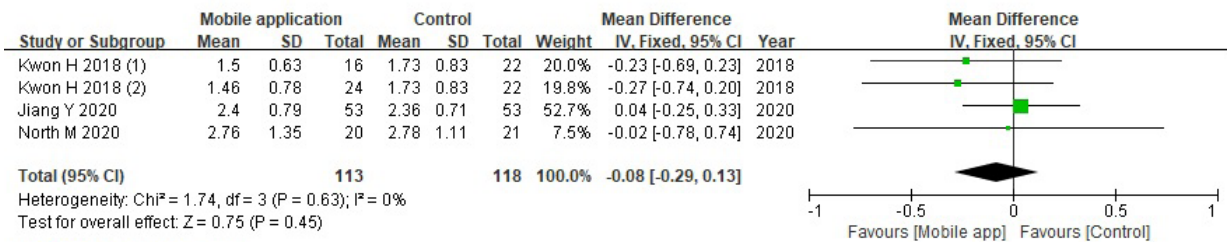
This research was supported by a grant of the Korea Health Promotion R&D Project, funded by the Ministry of Health & Welfare, Republic of Korea (grant number: HS21C0096).



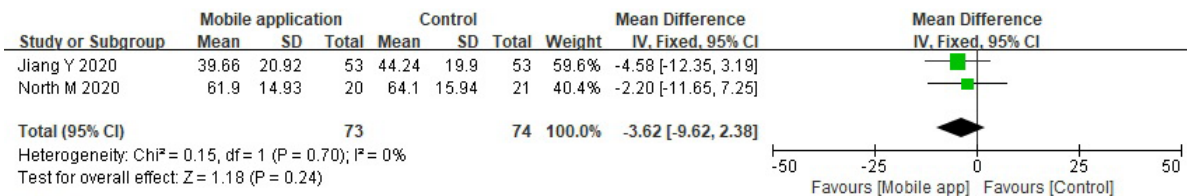
6-minute walk distance



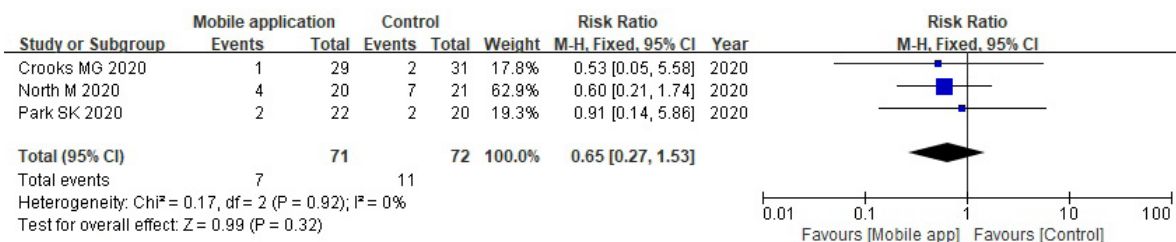
CAT score



mMRC dyspnea scale



SGRQ



Hospitalization

AO10-7

Prognostication using the severity classification based on Rome proposal for acute exacerbation of chronic obstructive pulmonary disease

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Background and Aim

The severity classification for acute exacerbation of chronic obstructive pulmonary disease (AECOPD) has been newly suggested by Rome proposal but needs to be validated. Our study aimed to evaluate the performance of the severity classification of AECOPD for predicting intensive care unit (ICU) admission and in-hospital mortality.

Methods

Our longitudinal observational study analysed all the patients with AECOPD who visited Boramae Medical Center from January 2010 and December 2020. Mild, moderate, and severe exacerbations were defined using clinical variables including severity of dyspnea, respiratory rate, heart rate, SaO₂, C-reactive protein, pH, and PaCO₂.

Results

A total of 740 events of AECOPD were observed and classified into the mild (30.9%), moderate (58.6%), and severe (10.4%) exacerbation based on Rome proposal. There was an increasing trend of oxygen requirement, mechanical ventilation, and ICU admission according to the severity of AECOPD. We found a higher 7-, 28-, and in-hospital mortalities in more severe AECOPD. Predictive performance for ICU admission was significantly higher with severity classification based on Rome proposal compared to based on healthcare utilization (ICU admission, area under the receiver operating characteristic curve (AU-ROC)=0.850 (95% confidence interval (CI)=0.789-0.911) vs. 0.647 (95% CI=0.586-0.708), P-value

Conclusion

The severity classification of AECOPD based on Rome proposal showed a better performance to predict ICU admission compared to current severity classification based on healthcare utilization.

Table 1. Clinical outcomes according to Rome classification

	Rome classification				P-value for linear trend	P-value
	Mild (n=229, 30.9%)	Moderate (n=434, 58.6%)	Severe (n=77, 10.4%)	Total (N=740)		
ICU admission (yes)	0	9 (2.07)	19 (24.68)	28 (3.78)	<0.001	<0.001
Hospital LOS, days	8.52±1.98	10.4±1.27	13.23±1.44	10.11±0.97	0.169	0.379
ICU LOS, days	0	0.12±0.05	1.45±0.35	0.22±0.05	<0.001	<0.001
Oxygen delivery equipment						
COT	55 (24.02)	237 (54.61)	56 (72.73)	348 (47.03)	<0.001	<0.001
High flow nasal oxygen	0	6 (1.38)	3 (3.9)	9 (1.22)	0.008	0.023
Non-invasive ventilation	0	8 (1.84)	15 (19.48)	23 (3.11)	<0.001	<0.001
Mechanical ventilation	0	2 (0.46)	14 (18.18)	16 (2.16)	<0.001	<0.001
Reintubation	0	0 (0)	1 (1.3)	1 (0.14)	0.048	0.013
Tracheostomy	0	0 (0)	2 (2.6)	2 (0.27)	0.005	<0.001
7-day mortality	0	0	1 (1.3)	1 (0.1)	0.048	0.013
14-day mortality	0	1 (0.2)	1 (1.3)	2 (0.3)	0.101	0.160
28-day mortality	0	3 (0.7)	3 (3.9)	6 (0.8)	0.004	0.004
In-hospital mortality	0	5 (1.2)	5 (6.5)	10 (1.4)	<0.001	<0.001

Note: Data presented as n (%) or mean±SE.

Abbreviations: COT, conventional oxygen therapy; ICU, intensive care unit; LOS, length of stay

Table 2. ROC curve analysis of GOLD and Rome classification

Parameter	Prognostic factor	Optimal cut-off	Sensitivity	Specificity	AUC	95% CI
ICU admission	Rome	3	0.679	0.919	0.850	0.789–0.911
	GOLD	3	0.857	0.420	0.647	0.586–0.708
In-hospital mortality	Rome	3	0.500	0.901	0.779	0.666–0.892
	GOLD	3	0.800	0.412	0.618	0.500–0.735

Note: Data were analyzed with ROC curve analysis and are presented as area under the receiver operating characteristic curve (95% confidence interval).

Abbreviations: AUC, area under the receiver operating characteristic; GOLD, global initiative for chronic obstructive lung disease; ICU, intensive care unit.

AO10-8

Association between depression and anxiety index and frequency of acute exacerbation in chronic obstructive pulmonary disease.

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Background and Aim

Chronic obstructive pulmonary disease (COPD) is associated with many psychiatric comorbidities including anxiety and depression. The aim of this study was to investigate the association between depression and anxiety index and frequency of acute exacerbation in COPD.

Methods

This study used data from the Korea COPD Subgroup Study (KOCOSS), which is a multicenter cohort study from 54 medical centers in South Korea. We used the Beck Depression Inventory (BDI) and the Beck Anxiety Inventory (BAI) to define depression and anxiety in COPD patients. Baseline characteristics, 1-year exacerbation frequency, 3-year FEV1 decline were compared in patients with and without depression or anxiety.

Results

Among 2,147 patients enrolled, the mean age was 68.9, and the majority was male (93.1%). Patients with depression had smoked more ($p=0.01$), lower FEV1/FVC ($p=0.01$), lower DLCO ($p=0.01$), higher mMRC grade ($p=0.01$) and associated with presence of the past year exacerbation ($p=0.01$). The patients with anxiety were older ($p=0.01$), had lower FEV1/FVC ($p=0.04$), lower DLCO ($p=0.02$), higher mMRC grade ($p=0.01$) and associated with presence of the past year exacerbation ($p=0.01$). Patients with depression (HR=1.57, $p=0.01$) had higher risk of 1-year moderate-to-severe exacerbation. Patients with anxiety had also higher risk of 1-year moderate-to-severe exacerbation (HR=1.52, $p=0.04$). and severe exacerbation (HR=2.13, $p=0.03$). The differences in the annual FEV1 change over 3 years between groups with and without depression ($p=0.10$) or anxiety ($p=0.59$) were not significant.

Conclusion

Patients with depression had more frequent moderate-to-severe exacerbation and those with anxiety had more moderate-to-severe and severe exacerbation.

AO11-1

Clinical characteristics and risks to mortality among severe patients with COVID-19 from B.1.617.2 (Delta) variant

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Background and Aim

The SARS-CoV-2 Delta variant caused huge numbers of infected and severely ill patients in many countries, including Vietnam. Understanding the mortality risks of COVID-19 is crucial for developing effective approaches to clinical management for severe COVID-19, especially for resource-limited countries.

Methods

We conducted a retrospective observational study at the BMH COVID-19 ICU center in Ho Chi Minh City which was urgently set up in response to the fourth wave of COVID-19 when the Delta variant dominated in Vietnam. Participants were laboratory-confirmed COVID-19 patients and admitted to the study site in August 2021. Data on patients' demographics and clinical conditions, radiographic findings, laboratory results, treatments, and clinical time-course were collected and compared between survivors and non-survivors. Risk factors for mortality were assessed using a logistic regression model.

Results

Among 504 eligible COVID-19 patients, 52.2% were non-survivors. Patients with zero doses of vaccination were 61.2% non-survivors and 43.6% in survivors ($p=0.001$). The median interval from onset to admission was 8 days in non-survivors and 7 days in survivors ($p=0.004$). There were 90.2 % of non-survivors developed ARDS after the hospitalization and 54.2% of non-survivors tested positive for bacterial culture. The logistic regression model revealed that risk factors for mortality were diabetes mellitus, respiration rate, SpO₂, vaccination status, time from onset to admission, and older age

Conclusion

The most severe COVID-19 cases in Vietnam showed delayed hospital admission and advanced ARDS which led to death. The early availability of vaccination and the prevention of bacterial infections may help to reduce the severity and mortality of COVID-19 in Vietnam.

AO11-2

The Utility of Estimating the Shunt Fraction of Critical Patients with COVID-19 in determining the outcome of High Flow Nasal Cannula at Lung Center of the Philippines, a pilot study.

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Background

High Flow Nasal Cannula enabled us to treat Acute Respiratory Distress Syndrome successfully on subsets of patients with COVID 19 without requiring invasive ventilatory support and with low mortality. Unfortunately, due to the complex mathematical relationship between the Hb level, the Hb-O₂ dissociation curve, and the arterial-mixed venous O₂ concentration difference, the relationship between PaO₂ / FIO₂ and FIO₂ is nonlinear and depends on the underlying QS/QT (shunt fraction).

Aim

This study evaluated the effectiveness of the HFNC using the shunt fraction to determine who will benefit in terms of its success, mortality and hospital stay and consequently, will prevent delayed intubations and conserve resources.

Methods

This was a retrospective, cohort study and was conducted at the Lung Center of the Philippines.

Results

Forty-seven patients (22.9%) showed improved oxygenation and were successfully withdrawn from HFNC. In the binary logistic regression analysis, factors affecting mortality showed that age was the only variable predictive of in-hospital all-cause mortality. In the factors affecting intubation, logistic regression revealed that greater shunt fraction would increase the odds of being intubated. Patients who had 30-40% shunt fraction had 3.8 times higher odds of being intubated and those who had a shunt fraction of >40% had 3.5 times the odds of being intubated.

Conclusion

HFNC has low success rate in covid19 critical patients but significantly showed benefit in those with shunt fraction

AO11-3

Extracorporeal membrane oxygenation or prone positioning for COVID-19 acute respiratory distress syndrome: a prospective multicenter observational study

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Background and Aim

Data regarding rescue therapies for COVID-19 acute respiratory distress syndrome (ARDS) are limited. We aimed to describe outcomes of COVID-19 ARDS patients receiving extracorporeal membrane oxygenation (ECMO) or prone positioning.

Methods

A total of 110 patients with COVID-19 ARDS receiving mechanical ventilation (MV) were prospectively enrolled from 8 hospitals in Korea, and outcomes were compared between those required ECMO (n=22) or prone positioning (n=50). The presence of fibrotic change on chest CT was evaluated by visual assessment of two radiologists.

Results

The median (IQR) age was 64.0 (52.5–69.0) years and 71% were male. Baseline characteristics were not generally different between the groups. In the prone group, the median (IQR) time from MV to prone positioning was 1 (0–1) days. In the ECMO group, the median (IQR) time from MV to ECMO was 4 (3–16) days, and prone positioning prior to ECMO was applied in 68%. Hospital mortality was not different between the ECMO and prone groups (36.4% vs 44.0%, p=0.55); however, MV duration, intensive care unit and hospital lengths of stay, and tracheostomy rate were higher in the ECMO group. Among survivors with follow-up CT images (9 in the ECMO and 22 in the prone groups; median [IQR] interval=72 [64–92] days), fibrotic changes were identified among 64% in the ECMO and 81% in the prone groups (p=0.40).

Conclusion

Among patients with COVID-19 ARDS, hospital mortality of ECMO was comparable to that of prone positioning. Pulmonary abnormalities were highly prevalent in both groups.

Acknowledgements

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AO11-4

'Radiological Phenotypes' in Covid-19 Pneumonia: Retrospective, Multicentric study of 6000 cases in tertiary care setting in India

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Introduction

Globally, COVID-19 has 'heterogeneous' radiological presentations with variable effects on mortality and morbidity. Radiological markers will help in targeting interventions in majority of cases. Our aim of study is to determine different radiological presentations (phenotypes) with impact on overall outcome and its role in 'triaging' the cases and predicting course during hospitalization.

Methods

multicentric observational study, included 6000 COVID-19 RT PCR Positive cases with lung involvement on HRCT thorax at entry point & categorized as Radiological presentation phenotypes as severity assessment-mild, moderate, severe as per lung segment involvement (mild

Observations and analysis

In 6000 radiological assessment of covid-19 pneumonia, significant association was documented in Evolving and Evolved pneumonia phenotypes ($p < 0.00001$)

Conclusion

Radiological phenotypes will guide in assessing severity, predicting response to therapy and final outcome in covid-19 pneumonia which will impact quality of life, and morbidity.

disclosure of statement

we disclose NO conflicts of interest, and no any funding or reaserch grat has been taken from any oragnization or institute

AO11-5

Comparison of pulmonary fibrosis between delta and non-delta variant periods in critically ill patients with SARS-CoV-2: A multicenter observational study in South Korea

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Background and Aim

It is not yet known whether pulmonary fibrotic changes differ between SARS-CoV-2 variants. The aim of this study was to compare pulmonary fibrotic changes between two SARS-CoV-2 variant periods (delta vs non-delta) in critically ill patients with SARS-CoV-2 pneumonia.

Methods

Clinical data and chest CT images of patients with SARS-CoV-2 pneumonia receiving mechanical ventilation were collected over two periods-delta (July-December, 2021; n=53) and non-delta period (December 2020-June, 2021; n=109)-from 10 hospitals in South Korea. The presence of fibrotic change on chest CT was evaluated by visual assessment.

Results

Of 162 patients, the mean age was 64.6 years, and male was 60.5%, and fibrotic changes on chest CT (median 51 days, interquartile range 27-76 days) were identified in 75.3%. The proportion of patients with at least one fibrotic changes were not different between delta and non-delta groups (71.7 % vs 74.3%); however, delta group showed more severe fibrotic changes (≥ 2) (69.8% vs 43.1%, $P=0.001$) and more frequent reticulation and architectural distortion+/-parenchymal band than non-delta group. Even after propensity score matching with clinical variables, the proportion of patients with at least one fibrotic changes were not different between delta and non-delta groups (73.5 % vs 73.5%). But, delta group had more severe (≥ 2) fibrotic change (71.4% vs 38.8%, $P=0.001$), and more frequent reticulation and architectural distortion+/-parenchymal band than non-delta group.

Conclusion

Our data suggest that critically ill patients with SARS-CoV-2 in delta period had more severe pulmonary fibrotic changes than those in non-delta period.

Funding

This research was supported by the "National Institute of Health" research project (2021ER190400)

AO11-6

Association of corticosteroid or paralytic use with mortality in patients with H1N1, non-H1N1/COVID-19, and COVID-19 acute respiratory distress syndrome: a nationwide cohort study

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Background and Aim

The impact of corticosteroids and paralytics on outcomes of acute respiratory distress syndrome (ARDS) is controversial. We aimed to assess whether corticosteroid or paralytic use is disproportionately associated with mortality among patients with H1N1, non-H1N1/COVID-19, and COVID-19 ARDS.

Methods

The Korean National Health Insurance Service database was utilized to construct (1) H1N1 cohort (May 2009–Apr 2010), (2) ARDS cohort (Jan 2015–Apr 2019), and (3) COVID-19 cohort (Jan 2020–Dec 2020). We only analyzed patients who received mechanical ventilation. Adjusted odds ratios were used to compare the risks of mortality between three cohorts.

Results

Among 18,840 patients (mean [SD] age, 67.3 [14.8] years; males, 63%), 3,461 (18.4%), 7,596 (40.3%), and 7,783 (41.3%) were diagnosed with H1N1, non-H1N1/COVID-19, and COVID-19 ARDS, respectively. Corticosteroids were used in 67% and paralytics in 21% of patients. 30-day mortality was 29.4% for H1N1 ARDS, 42.7% for non-H1N1/COVID-19 ARDS, and 28.0% for COVID-19 ARDS ($p < 0.001$). In non-H1N1/COVID-19 ARDS, multivariate analyses revealed that corticosteroid or paralytic use was associated with both decreased 30-day and 180-day mortality. In H1N1 and COVID-19 ARDS, however, corticosteroid use was associated with decreased 30-day mortality but not with decreased 180-day mortality. Moreover, corticosteroid use with higher doses or longer duration was associated with increased 180-day mortality in COVID-19 ARDS. Paralytic use was associated with both decreased 30-day and 180-day mortality for COVID-19 ARDS but only with decreased 30-day mortality for H1N1 ARDS.

Conclusion

We observed variation in association between corticosteroid use and mortality among patients with ARDS due to different etiologies.

Acknowledgements

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AO11-7

Treatment outcomes and healthcare resource use in critically ill COVID-19 patients in Korea: a nationwide multi-center cohort study

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Background

COVID-19 pandemic accompanied many healthcare related issues. No concrete national data regarding the care performance of severe cases of COVID-19 exists in Korea. In this context, we aimed to describe the treatment outcome and healthcare resource use of critically ill COVID-19 patients

Methods

A multicenter, retrospective cohort study was conducted on critically ill COVID-19 patients which were enrolled from 24 domestic institutions, between January 1, 2020 and August 31, 2021. Inclusion criteria is as follows; Patient aged over 19 years or more, laboratory-confirmed SARS-CoV-2 infection with at least one of following initial treatments such as high flow oxygen therapy(HFOT) or non-invasive (NIV) or invasive mechanical ventilation (IMV) or extracorporeal membrane oxygenation (ECMO).

Results

Overall, eligible 1358 were treated with severe COVID-19 pneumonia during the study period. Among those, data from 695 patients were available and analyzed. Initially, 572 (82.3%) were supported with HFNO or NIV and 122 (17.6%) were supported with IMV. Of 572, 243(42.5%) were recovered without IMV and 291(50.9%) required IMV, 26 patients with Do-not-resuscitate order died, respectively. Prone position was conducted on 116(28.1%) patients with IMV and 12 patients with HFOT. ECMO was supported in 82 (19.6%) patients with IMV. The overall survival rate was 73.3%. In detail, the survival rate was 59.2 % and 62.5% in patients required IMV initially and patients sequentially supported by HFOT and IMV, respectively ($p = 0.448$). The survival rate in the prone group on IMV was 62.1%. Of the patients supported by ECMO, 53.7% discharged alive.

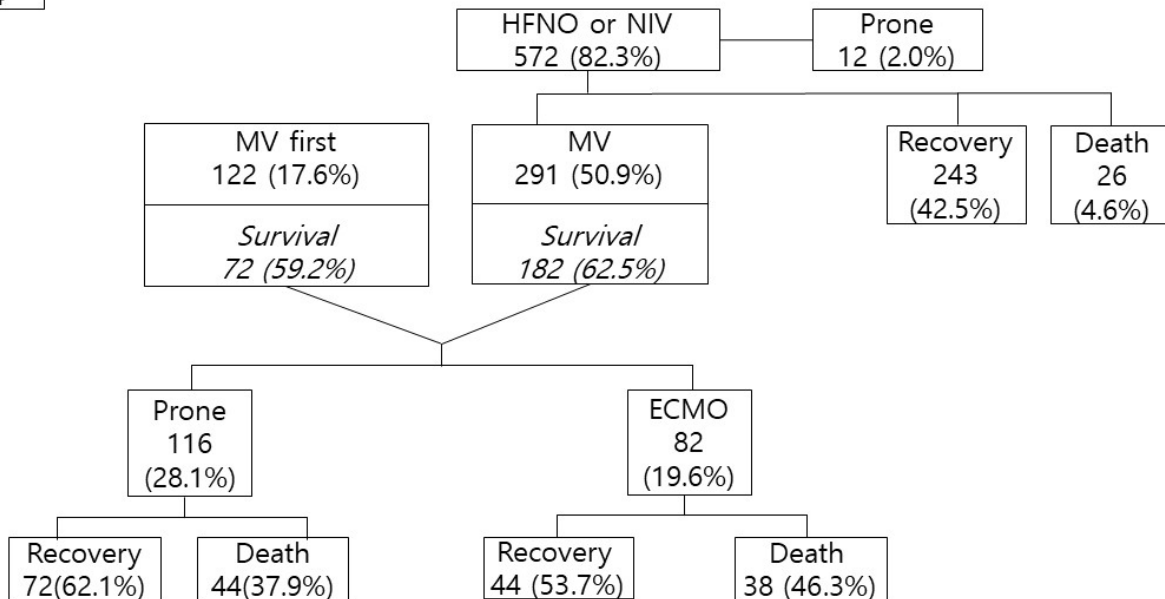
Conclusion

The critically ill COVID-19 pneumonia showed substantial fatality in Korea and NIV or HFNO were widely used. In extremely critically ill patients, ECMO were conducted frequently, which showed comparable survival with previous ARDS data.

Acknowledgement

This study was supported by The Korea Academy of Tuberculosis and Respiratory Diseases for academic research funds.

Total
694



AO12-1

CSN5 is involved in asthma via interaction with PD-L1

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Background and Aim

The COP9 signalosome (CSN) is a highly conserved protein complex composed of 8 subunits. The individual subunits of the CSN play essential roles in cell proliferation, modulating signal transduction, gene transcription, and angiogenesis, and microenvironmental homeostasis. However, the exact role of CSN5 in bronchial asthma remains elusive.

Methods

In mice sensitized and challenged with ovalbumin (OVA-OVA mice) and mice sensitized with saline and challenged with air (control mice), we investigated the potential links between CSN5 and bronchial asthma. Samples from HMVEC-L cells and asthmatic mice model were collected to determine the expression of NF- κ B, I κ B α , IKK β , PD-L1, and CSN5. Moreover, we also checked CSN5 levels in plasma from asthmatic patients (stable and exacerbated states).

Results

CSN5 level had higher concentrations in plasma from patients with exacerbated asthma (n = 19) than that of healthy controls (n = 10) and controlled asthmatic patients. CSN5 was correlated with lung function in patients with asthma. CSN5 silencing in HMVEC-L cells reduced PD-L1, NF- κ B, p-I κ B α , p-IKK β , IL-13, IFN- γ protein at 24h following house dust mite treatment. Lung CSN5 protein increased in 33d and 80d of OVA-OVA mice compared to control mice. Lung PD-L1, NF- κ B, p-I κ B α and p-IKK β protein increased in 33d and 80d of OVA-OVA mice compared to control mice. PD-L1 inhibitor treatment decreased IL-13, PD-L1, NF- κ B, p-I κ B α , p-IKK β and CSN5 in OVA-OVA mice compared to control mice.

Conclusion

These results indicate that CSN5 involved in asthma with PD-L1 and may be a potential target for asthma.

This research was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Science and ICT (NRF-2020R1A2C1006506).

AO12-2

Effects of human adipose tissue- and bone marrow-derived mesenchymal stem cells on airway inflammation and remodeling in a murine model of chronic asthma

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Introduction

: It is challenging to overcome difficult-to-treat asthma, and cell-based therapies are attracting increasing interest. We assessed the effects of mesenchymal stem cell (MSC) treatments using a murine model of chronic ovalbumin (OVA)-challenged asthma.

Methods

We developed a murine model of chronic allergic asthma using OVA sensitization and challenge. Human adipose-derived MSCs (hADSCs) or human bone marrow-derived MSCs (hBMSCs) were administered. We measured the levels of resistin-like molecule- β (RELM- β). We also measured RELM- β in asthma patients and normal controls.

Results

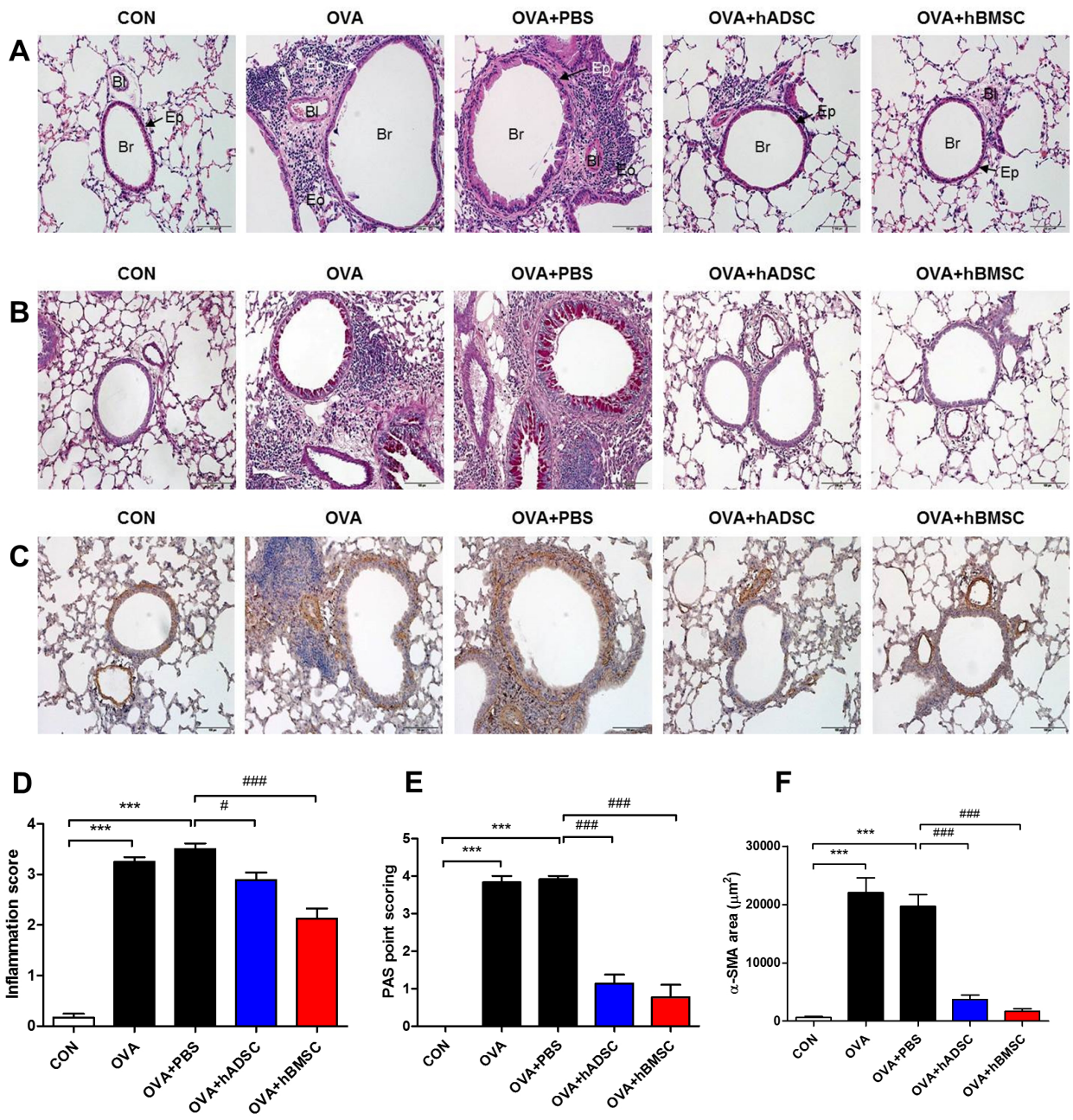
OVA-challenged mice exhibited increased airway hyper-responsiveness, inflammation, and remodeling. hBMSC treatment remarkably decreased airway hyper-responsiveness but hADSC treatment did not. Both MSCs alleviated airway inflammation, but hBMSCs tended to have a more significant effect. hBMSC treatment reduced Th2-cytokine levels but hADSC treatment did not. Both treatments reduced airway remodeling. The RELM- β level decreased in the OVA-challenged control group, but increased in both treatment groups. We found that the serum level of RELM- β was lower in asthma patients than controls

Conclusion

MSC treatments alleviated the airway inflammation, hyper-responsiveness, and remodeling associated with chronic asthma. hBMSCs were more effective than hADSCs. The RELM- β levels increased in both treatment groups; the RELM- β level may serve as a biomarker of MSC treatment efficacy.

Acknowledgment

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AO12-3

Candidate miRNA genes as biomarker in allergic asthma disease

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Background and Aim

Asthma is a complex disease characterized by inflammation of the airways, involving epigenetic changes in which genetic and environmental factors act together. Currently, no screening panel for asthma is used (1-3). Our aim in this study is to identify miRNAs that are thought to be effective in the pathogenesis of allergic asthma and to reveal candidate biomarkers associated with the disease.

Methods

52 patients aged 19-75 years and 21 healthy volunteers diagnosed in the chest diseases department were included in the study. After total blood collection from individuals, RNA isolation and cDNA synthesis were performed. For miRNA profile screening, expression analysis was performed by real-time PCR method using miScript miRNA PCR Array. The GeneGlobe Data Analysis Center was used to evaluate dysregulated miRNAs.

Results

As a result of miRNA expression analysis, miR-142-5p, miR-376c-3p and miR-22-3p expression levels were down-regulated, while miR-27b-3p, miR-26b-5p, miR-15b-5p and miR-29c-3p detected as up-regulated (Table). It will be possible to find new biomarkers for the disease by validating which genetic pathways interact with which genes in miRNAs with varying expression levels.

Conclusion

As a result of the research, it is thought that the up- and down-regulation of miRNAs may be a risk factor associated with the disease and may also be effective in elucidating the pathophysiology of the disease.

Acknowledgments

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Disclosure statement

Ethical approval was taken from Clinical Research Ethics Committee (Decision Number: 435, 10.11.2017). All procedures were followed in accordance with Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all individual participants included in the study. The authors declare that they have no conflicts of interest.

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TABLE Expression analysis results of deregulated miRNAs.

miRNA ID	Fold Regulation	P value
miR-142-5p	-51,95	0,031
miR-376-3p	-10,05	0,058
miR-22-3p	-8,38	0,046
miR-27b-3p	7,35	0,053
miR-26b-5p	4,79	0,013
miR-15b-5p	23,60	0,060
miR-29c-3p	2,88	0,049

* Statistically significant value was evaluated as $p < 0.05$. fold-regulation values greater than 2 are estimated as up-regulated, and less than 2 were estimated as down-regulated.

AO12-4

Septal deviation could be associated with the development of bronchial asthma: a nationwide cohort study

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Background and Aim

It is not known whether specific pathologic conditions of the upper respiratory tract can influence asthmatic symptoms and inflammation; however, potential causal relationships between them have been suggested.

Methods

Herein, we investigated the potential impact of SD on the incidence of asthma. Furthermore, we examined whether surgical correction of SD (septoplasty) affects the incidence of asthma in SD. The National Health Insurance Service – National Sample Cohort (NHIS-NSC) database is anonymized and contains data on about 1 million people, representing about 2% of all Koreans. (NHIS-2021-1-689)

Results

The result shows that the aHR for asthma in the SD group was 2.43 (95% confidence interval (CI), 2.31–2.56), i.e. the incidence of asthma was 2.43 times higher in the SD group compared with the control group. The 9951 patients diagnosed with SD between 2002 and 2004 were divided into two subgroups with 1526 patients in the subgroup who received septoplasty, and 8425 patients in the subgroup who did not receive septoplasty. As a result of follow-up until 2013, in the SD group, the aHR for asthma after septoplasty was 0.83(95%CI: 0.75–0.93).

Conclusion

In this study, through analysis of the NHIS-NSC database, it was confirmed that SD, with consequent structural alteration of the upper airway, has an effect on the development of asthma. In addition, subgroup analysis confirmed that, in individuals with SD, the incidence of asthma decreased with younger age and male sex and increased with HTN. Interestingly, in this paper, septoplasty was associated with a reduced incidence of asthma, which provides evidence for surgical correction to control the development of this condition in SD patients.

AO12-5

Montelukast and pranlukast related neuropsychiatric events in adults with asthma and rhinitis

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Background and Aim

There have been concerns about the risk of neuropsychiatric events (NE) in using montelukast, one of leukotriene receptor antagonists (LTRA). We investigated the occurrence of NE according to usage of LTRA (montelukast or pranlukast).

Methods

A 12-year population cohort comprising about 1 million subjects collected from the Korean claims database were used. Adult patients with asthma or rhinitis were enrolled. The temporal relationship between diagnosis of NE and the last prescription of LTRA before NE diagnosis was evaluated. A nested case-control study was performed with 1:1 matching for age and sex.

Results

There were 505,054 adults with asthma or rhinitis including 196,315 patients diagnosed as NE during study period. In the 1:1 nested case-control study, NE was related with low income, high comorbidity score, residence in rural area, and diagnosis of asthma during cohort period. NE happened more within 21 months after last LTRA prescription. After adjustments for covariates, higher prevalence of NE still persisted within 6 months after last LTRA prescription. LTRA-related NE, defined as NE happened within 6 months after LTRA prescription, were higher in subjects with older age, low income, high comorbidity burden, and asthma, and happened in younger age compared with LTRA-unrelated NE. The attempts to suicide showed no relations with LTRA usage.

Conclusion

An increased risk for diagnosis of NEs may persist for almost 2 years after LTRA prescription and the risk was higher in patients with low income and higher comorbidity burden regardless of the type of LTRA prescribed.

AO12-6

Improvements of Clinical Symptoms and Lung Function in Asthma Patients After Montelukast Therapy at Harum Melati Clinic, Pringsewu Regency, Lampung Province, Indonesia 2017 – 2020

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Background and Aim

According to the Global Asthma Report, the prevalence of asthma continues to increase, it is estimated that 339 million people worldwide have asthma. Corticosteroid inhalation such as LABACs is the main treatment for asthma despite not every patient getting the benefit. The alternative for the initial stage of long-term treatment is montelukast, yet the effectiveness of montelukast as a controller therapy has not been investigated further. This study aims to investigate the effect of montelukast therapy in reducing symptoms and improving pulmonary function in asthma patients.

Methods

This research was conducted using cross-sectional method using secondary data from medical records before and after the treatment with montelukast. The total subjects included were 130 patients, the comparison were examined based on clinical symptoms and lung function examination.

Results

The test showed a significant difference ($p < 0.05$) in the 6 months - 5 years old age group assessed based on clinical symptoms of cough, wheezing and breathlessness. The Paired T-test showed significant differences with each value ($p < 0.05$) in the 12+ year age group assessed based on lung function of FEV1/FVC, FEV1, PEF and FEF25.

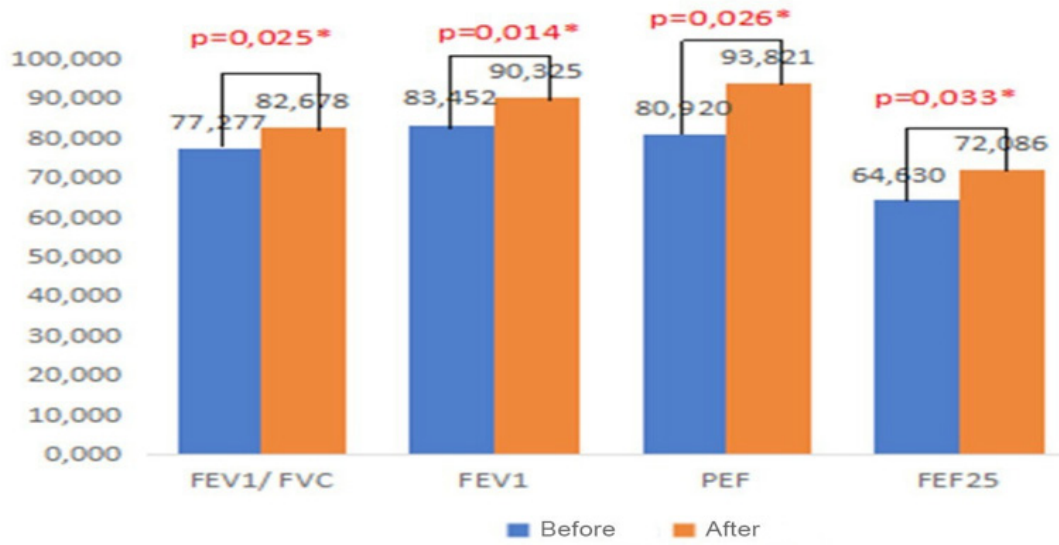
Conclusion

Our study showed significant improvement in clinical status and lung function after montelukast treatment in asthma patients at Harum Melati Clinic, Pringsewu District, Lampung, Indonesia.

Key words

Montelukast, Asthma symptoms, Pulmonary function.

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Note: *there is a difference

Figure 4. Graph of Differences Analysis Results
Before and After Montelukast Therapy in Asthma Patients Age 6-60 Years

AO12-7

Selecting representative questions in Asthma Control Test

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Asthma is a disease that needs to keep it under control rather than cure. And using digital healthcare systems can help in this regard. However, the conventional assessment methods of asthma control used in practical field were not suitable for digital healthcare system. This study is sought to make questionnaires suitable for digital healthcare system and to provide evidence for such studies in the future.

To achieve this goal, we analyzed the Asthma Control Test (ACT), a tool for assessing asthma control status. From January 1, 2020 to 31 December 2020, all ACT results collected from patients over the age of 18 who visited Wonju Severance Christian Hospital with principal diagnosis of asthma were analyzed. A total of 2,019 ACT results were analyzed, by using Pearson Correlation and ROC curve. Also, sensitivity and specificity were checked respectively using suitable methods.

Three questions, 1)how much of the time did your asthma keep you from getting as much done at work, school or at home, 2)how often have you had shortness of breath, 3)how often did your asthma symptoms wake you up at night or earlier than usual in the morning, showed highest values in Pearson correlation and ROC curve. By using these three questions, it could explain the ACT by result by sensitivity 97%, specificity 91%.

Based on such result, even though there are statistical limitations, these three questions might have chance to represent ACT and provide clue for developing asthma control assessment questionnaires using digital healthcare systems.

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AO13-1

Culin5/TRAF6/NF-kb/VEGF-mediated endothelial dysfunction aggravates hypoxic pulmonary hypertension

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Background and Aim

Hypoxic pulmonary hypertension (HPH) lacks effective pharmacologic treatments. In silico analysis of microarray-based gene expression indicates the crucial role of Cullin 5 (Cul 5) in HPH which need to be clarified, this study was designed to explore the role of Cul 5 played in pathogenesis of HPH firstly.

Methods

cDNAs of endothelial cell from normoxia and hypoxia group were hybridized to microarrays and global signal transduction network was conducted. Lung tissues were collected from patients undergoing lung transplant. HPH mouse model was established by maintaining C57BL/6 mice in 10% O₂ chamber for 4 weeks, indices such as right ventricular systolic pressure (RVSP), right ventricular hypertrophy index (RVHI), and pulmonary arteriolar remodeling which indicating by percent media thickness (%MT) were evaluated to compare with mice in normoxia. Mice were treated with Pevonedistat to inactivate Cul 5 for 4 weeks, RVSP, RVHI and %MT was compared with mice treated with vehicles in normoxia and hypoxia. The angiogenesis and adhesion functions of pulmonary arterial endothelial cells (PAECs) were measured by tube formation assay and cell adhesion assay respectively. The protein expression was detected by western blot analysis, immunohistochemical analysis and immunofluorescent analysis.

Results

In silico analysis of microarray-based gene expression showed that Cul 5 was an important driven-gene in HPH pathogenesis. Cul 5 was upregulated in both HPH patients and murine model of HPH. In vitro, Cul 5 promoted angiogenesis and adhesion capacity of human PAECs, which could be mitigated by Cul 5 inactivation mediated by Pevonedistat. In vivo, Cul 5 inactivation by Pevonedistat also could alleviate hypoxic vascular remodeling. Mechanism research showed that Cul 5 participated in HPH pathogenesis via TRAF6/NF-kb/VEGF pathway.

Conclusion

These findings demonstrate Cul 5 as an important mediator of HPH via TRAF6/NF-kb/VEGF pathway, which could be considered as a potential novel therapeutic target in clinical treatment of HPH.

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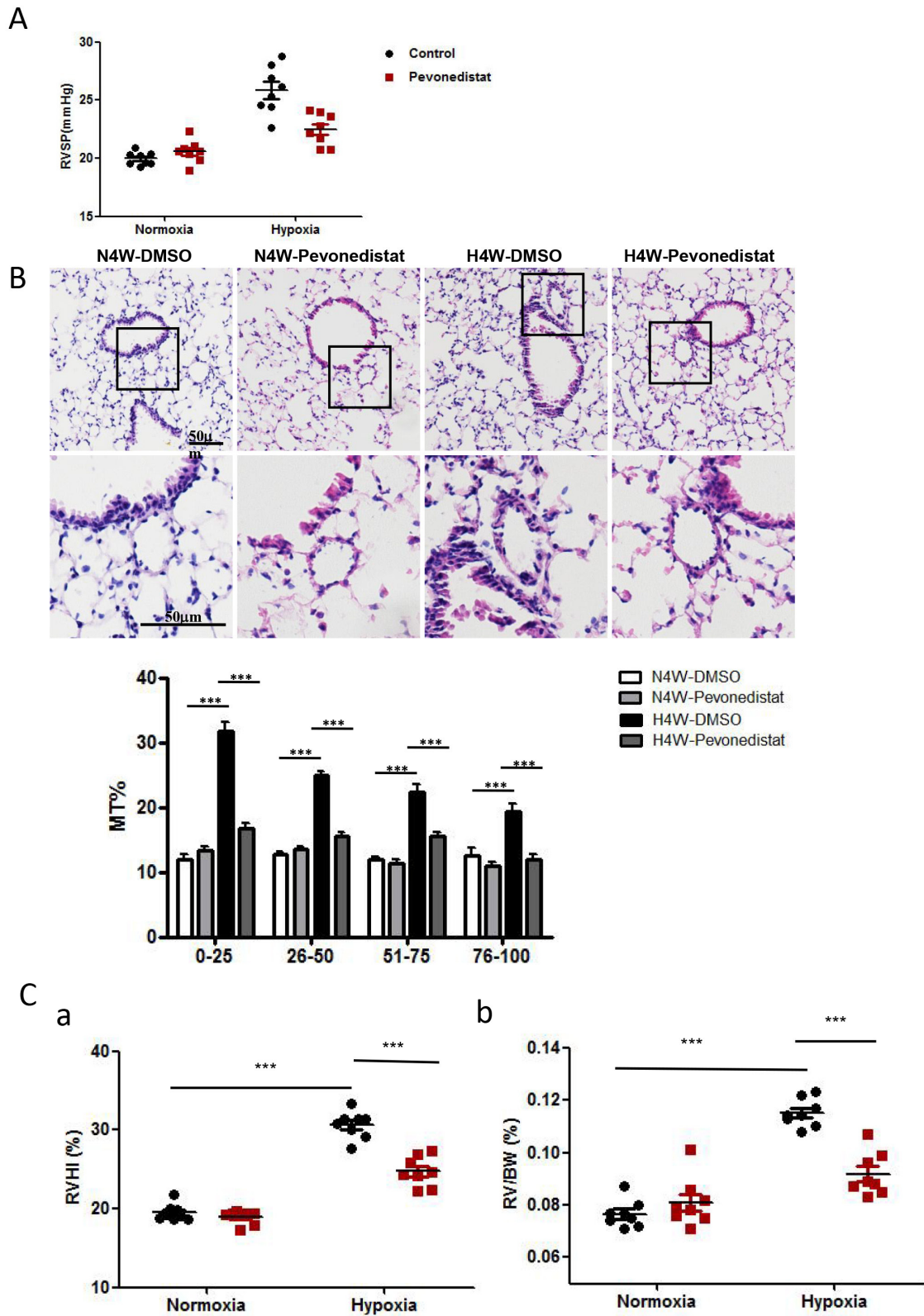
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Disclosure statement

No conflicts of interest, financial or otherwise, are declared.



AO13-2

Combination of CARSKNKDC(CAR) peptide with sildenafil in the treatment of pulmonary hypertension associated with emphysema induced by SU5416 in rats

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Background and Aims

Pulmonary hypertension (PH) associated with lung diseases (group 3 PH) has a poor prognosis due to the lack of effective medications. Chronic treatment of rats with VEGF receptor blocker (SU5416) exposed to hypoxia leads to PH associated with emphysema in which the air spaces are enlarged. The study demonstrated that CARSKNKDC(CAR), a homing peptide, enhanced pulmonary vasodilation in pulmonary arterial hypertension by increasing the absorption of vasodilators to pulmonary arteries. In the present study, we examined the effects of CAR on PH associated with emphysema in rats.

Methods

Male Sprague-Dawley rats (n = 15) were divided into SU5416+Sildenafil+CAR; SU5416+Sildenafil; SU5416; and sham control group. Rats were injected subcutaneously with SU5416 on days 1, 8, and 15 of the experiment and exposed to hypoxia (15% O₂) for 6 weeks. Sildenafil and CAR were orally administered to rats every day for 5 days before dissection. On day 42, the rats were sacrificed for lung tissue samplings. In histological examination, the airspace size was quantified by the mean linear intercept (MLI) and the destructive index (DI) was calculated to identify emphysema. The p38MAPK levels in the lung tissues were measured by Western blotting

Results

The air spaces were significantly larger in the SU5416-treated group than in the control group. The mean pulmonary arterial pressure was significantly lower in the CAR-treated group than in other groups. The p38MAPK was significantly depressed in the CAR-treated group compared to the groups without CAR treatment.

Conclusion

The combination of CAR with sildenafil improved the treatment of pulmonary hypertension associated with emphysema.

AO13-3

Clinical experiences of high-risk pulmonary thromboembolism receiving extracorporeal membrane oxygenation in single institution

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Background

The main cause of death in pulmonary embolism (PE) is right-heart failure due to acute pressure overload. In this sense, extracorporeal membrane oxygenation (ECMO) might be useful in maintaining hemodynamic stability and improving organ perfusion. Some previous studies have reported ECMO as a bridge to reperfusion therapy of PE. However, little is known about which patient will benefit from ECMO.

Methods

Patients who underwent ECMO due to pulmonary thromboembolism at a single university-affiliated hospital between January 2010 and December 2018 were retrospectively reviewed.

Results

During the study period, nine patients were receiving ECMO in high-risk PE. The median age of the patients was 60 years (range, 22 to 76 years), and six (66.7%) were male. All nine patients had cardiac arrests, of which three occurred outside the hospital. All patients received mechanical support with veno-arterial (V-A) ECMO, and the median ECMO duration was 1.1 days (Range, 0.2 to 14.0 days). ECMO with anticoagulation alone was performed in six (66.7%), and ECMO with reperfusion therapy was done in three (33.3%). The 30-day mortality rate was 77.8%. The median time taken from the first cardiac arrest to initiation of ECMO was 31 minutes (range, 30 to 32 minutes) in survivors (n=2) and 65 minutes (range, 33 to 482 minutes) in non-survivors (n=7).

Conclusion

High-risk PE with cardiac arrest has a high mortality rate despite aggressive management with ECMO and reperfusion therapy. Early decision to start ECMO and its rapid initiation might help save those with cardiac arrest in high-risk PE.

Individualized management and outcome in patients with high-risk pulmonary embolism.

Patient	Age	Sex	Location of Cardiac arrest	The time interval between recognition and diagnosis of PE* (minute)	The time interval between hospital arrival and cardiac arrest (minute)	The time taken from the first cardiac arrest to initiation of ECMO (minute)	The time taken from the first cardiac arrest to initiation of anticoagulation (minute)	Duration of CPR (minute)	Outcome	Reperfusion therapy
1	76	M	Out-of-hospital	90	-	85	88	85	Died	No
2	60	F	In-hospital	321	249	52	62	18	Died	No
3	46	M	In-hospital	118	11	32	55	13	Survived	No
4	65	F	Out-of-hospital	104	-	65	57	35	Died	Systemic thrombolysis
5	22	M	Out-of-hospital	133	-	82	237	22	Died	No
6	68	M	In-hospital	85	15	30	117	3	Survived	No
7	59	M	In-hospital	180	6547	49	229	31	Died	No
8	63	F	In-hospital	94	1	33	33	15	Died	Catheter thrombectomy
9	25	M	In-hospital	55	191	482	-33	87	Died	Systemic thrombolysis + Surgical embolectomy

*Time interval between recognition and diagnosis of PE: The time taken from identification of the first symptom to diagnosis using computed tomography angiography for patients who were already admitted to the hospital for other reasons. For patients visiting the emergency department, the time interval between the hospital arrival to CT diagnosis.

AO13-4

Anticoagulation in Patients with Antiphospholipid Syndrome-associated Venous Thromboembolism: A Nationwide Study

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Background

Direct oral anticoagulants (DOAC) are used for prevention of arterial thrombosis and the treatment and secondary prevention of venous thromboembolism (VTE), but the efficacy and safety of DOACs for antiphospholipid syndrome-related (APS) VTE are uncertain.

Aims

This study examined the efficacy and safety of DOAC versus warfarin for APS-VTE.

Method

APS-VTE is defined as both VTE code and APS code being detected twice 12 weeks apart within 180 days of index initial VTE event.

Result

APS-VTE patients (n=462) accounted for 0.54% of all VTE cases (n=84,916). Among 410 individuals with APS-VTE (210 female, 51.2%), 209 patients received DOACs, and 201 patients received warfarin (n=201). The recurrent VTE occurred in 8 of 209 patients (3.8%) who received DOACs and in 7 of 201 (3.5%) who received warfarin (relative risk [RR], 1.099; 95% CI, 0.41–2.98; P = 1). The arterial thrombosis occurred in 8 of 209 patients (3.8%) who received DOAC and in 20 of 201 (10%) who received warfarin (RR, 0.385; 95% CI, 0.17–0.85; P = 0.024). The composite outcome was significantly lower in patients (9.1%) on DOAC than patients (16.3%) on warfarin (RR, 0.537; 95% CI, 0.32–0.91; P = 0.028). The safety outcome occurred in 7 of 209 (3.4%) in DOAC and 7 of 201 (3.5%) in warfarin (RR, 0.96; 95% CI, 0.34–2.69; P=0.84).

Conclusion

The VTE recurrence and bleeding on DOAC are comparable, but the arterial thrombosis and composite outcomes patients treated with DOAC are significantly lower than those treated with warfarin.

AO13-5

Correlation of pulmonary artery enlargement in chest CT with Mortality of COVID-19 patients admitted at Manila Doctors Hospital from March-August 2020: A Retrospective Cohort

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Background and Aims

Prompt diagnosis and stratification of Severe Acute Respiratory Syndrome Coronavirus-2 (SARS CoV-2) infection during the early course of the disease is pivotal in the clinical outcome of the patient. The extensive use of chest computed tomography (CT) to visualize not just the parenchyma but the pulmonary vessels could help in identifying specific features that can be used as a marker to improve patient outcomes.

Methods

This was a retrospective cohort study on the presence of pulmonary artery enlargement of all SARS CoV-2 reverse transcription-polymerase chain reaction (RT-PCR) patients with chest CT done within 48 hours of admission admitted at MDH from March 2020 to August 2020.

Results

The population (N=173) had the mean age of 57, mostly males and diabetic. Elevated hemoglobin, white blood cells (WBC), creatinine, blood urea nitrogen (BUN), high sensitivity C-reactive protein (hs-CRP), lactate dehydrogenase (LDH), ferritin, and D-dimer were more common in the non-survivors. On admission, those who presented with hypoxemia on admission, severe degree of hypoxemia, and WHO severe disease state were seen on the non-survivors. Main pulmonary artery diameter (MPAD), right pulmonary artery diameter (RPAD), and left pulmonary artery (LPAD) were larger in the expired group, especially in the severe and critical form of disease. Only the MPAD showed significant relationship to the level of hypoxemia on admission.

Conclusion

Pulmonary artery enlargement, particularly the MPAD, is frequently seen in severely hypoxemic, severe to critical state of illness and in non-survivors.

AO13-6

Independent Predictors of Pulmonary Embolism in Severe SARS-CoV-2

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Background and Aim

COVID-19 have been a global pandemic since 2020. COVID-19 had many acute complications and pulmonary embolism (PE) is one of the main life-threatening complications. We aim to review COVID-19 patients with PE to assess factors associated.

Method

This is a retrospective study of 194 severe COVID-19 patients who had CTPA done in 2 tertiary centres in 2020. Demographic and clinical data were recorded. Statistical analysis were done using SPSS to identify predictors of PE.

Results

Majority of the patients were male (67.5%), Malay race (70.6%) with a mean age of 55.1±14.5 year old. 41.8% were category 5. Mean absolute lymphocyte count 1.00±0.68x10⁹/L, CRP 11.3±30.82, LDH 481.4±403.6U/L, ferritin 1159.0±1667.5ng/mL, procalcitonin 28.4±91.8µg/L, D-dimer 5.2±14.8µg/mL and CT value 23.7±6.2. 30.4% had PE. 6.8% were main pulmonary artery (right or left), 16.9% were lobar artery, 55.9% were segmental artery and 47.5% were subsegmental artery PE.

There were significantly higher proportion of category 5 with PE (55.9% vs 44.1%, p-value=0.008). PE was significantly associated with higher mean D-dimer level (10.5±25.0 vs 2.9±5.0µg/mL, p-value=0.001) and higher mean LDH level (594.2±651.3 vs 432.9±212.5 U/L, p-value=0.011). In multiple logistic regression (Table 1), only D-dimer and category 5 remained as significant predictors of PE. Those in category 5 had more than 2 times risk of getting PE compared to category 4. Every increment of 1µg/ml of D-dimer will increase the risk of getting PE by 6.3%.

Conclusion

This study highlights the importance of quantitative D-dimer level and identification of severity category as factors predicting PE.

No disclosure

Table 1: Results of univariate and multivariate analysis

	No PE	With PE	Univariate p-value	Multiple Logistic Regression Odds Ratio (95% CI), p-value
Category 4	87 (64.4%)	26 (44.1%)	0.08	Ref
5	48 (35.6%)	33 (55.9%)		
LDH (U/L)	432.9±212.5	594.2±651.3	0.011	Not significant
D-dimer (µg/mL)	2.9±5.0	10.5±25.0	0.001	1.063 (1.010 – 1.119)

AO13-7

Submassive Pulmonary Embolism Case Series - A Single Tertiary Centre Experience

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Introduction

Submassive pulmonary embolism (sPE) poses a conundrum due to discrepancies in definition & management across guidelines. Those with severe sPE may stand to benefit more from treatment intensification. We aim to provide some insight on the safety and efficacy of interventions made for submassive PE in our tertiary centre.

Case Report

We present 6 patients (Table 1) with acute intermediate-high risk PE and right ventricular dysfunction with raised cardiac biomarkers. All 6 patients presented with dyspnea and amongst them 2 presented with hemoptysis. The identified risk factors amongst patients were recent Covid infections, malignancy, heart failure and immobility. 2 patients had saddle PE and 4 patients had thrombus involving either side of main pulmonary trunk. Upon presentation, 4 patients required mechanical ventilations whilst the other 2 needed oxygen supplementation only.

Treatment instituted were

2 systemic thrombolysis, 1 thrombectomy, 1 catheter-directed thrombolysis, and 2 heparin-based treatment. Both systemic thrombolysis patients had complications. 1st patient had epistaxis and impending compartment syndrome from haematoma and 2nd patient died from obstructive shock. 5 patients were successfully discharged with oral anticoagulants (2 warfarin, 3 direct oral anticoagulants).

Discussion

These case series suggest that patients with moderate to severe respiratory compromise would benefit from either systemic thrombolysis or endovascular therapy, with the latter giving a lower complication rate. The 'wait and watch' approach with heparin-based therapy may be suitable for those requiring lower supplemental oxygen. Further larger scale studies are needed in optimising treatment for sPE particularly in the selection of systemic thrombolysis and catheter-based interventions.

Case	Age	Oxygen Requirement	Intervention	Outcome
1	43	High flow Nasal Cannula	Alteplase infusion	Well
2	36	Nasal Prong 3L/min	Unfractionated heparin infusion	Well
3	74	Face Mask 5L/min	Streptokinase infusion	Passed Away
4	74	Invasive Mechanical Ventilation	Low molecular weight Heparin	Well
5	59	High flow Nasal Cannula	Catheter-directed thrombolysis with Alteplase	Well
6	24	Invasive Mechanical Ventilation	Thrombectomy	Well

AO13-8

Clinical characteristics and outcomes of pulmonary hypertension patients who underwent right heart catheterization in Thailand: 5-year retrospective single-center study

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Background and Aims

Pulmonary arterial hypertension (PAH) is an uncommon, progressive, life-threatening condition without timely treatment. Its clinical manifestations are non-specific and difficultly recognize. There is still limited evidence in Asian populations. This study aimed to clarify the clinical characteristics of pulmonary hypertension (PH) patients undergone right heart catheterization (RHC).

Methods

Conducting a single-center retrospective observational analysis of adult patients diagnosed with PH by RHC from January 2015 to September 2019, clinical characteristics and investigations were recorded and compared between PAH and non-PAH. The correlations between maximal tricuspid regurgitation velocity (TRVmax) and mean pulmonary arterial pressure (mPAP) were estimated.

Results

From 243 RHC patients, 79 PH patients were enrolled which 63 (79.8%) was female. The mean (standard deviation) age was 55.6 (18.9) years. Dyspnea on exertion (DOE) was the most common clinical manifestation; 70 (88.6%). The majority was in functional class II; 58 (73.4%). PAH was the most prevalent PH group; 46 (58.0%) which congenital heart disease-associated PAH was the most common etiology; 25 (54.4%). Comparing with the non-PAH group, PAH patients were younger and had fewer comorbidities. There were strong correlations between TRVmax and mPAP (Figure 1) ($r = 0.62$, $p < 0.01$) and between TAPSE and cardiac index ($r = 0.60$ $p < 0.01$).

Conclusion

The most common presentation of PH patients was DOE. There were strong correlations between parameters from echocardiography and from RHC (TRVmax and mPAP, TAPSE and cardiac index). Screening for PAH by echocardiography in unexplained dyspnea or high-risk patients should be encouraged.

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Disclosures

There is no conflict of interest.

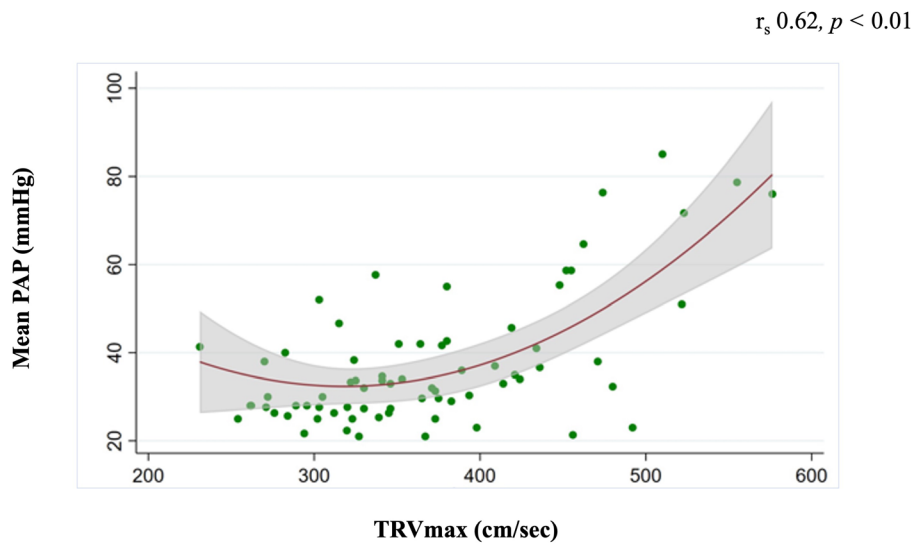


Figure 1. Correlation between TRVmax and mPAP

CI; cardiac index, mPAP; mean pulmonary artery pressure, TAPSE; tricuspid annular plane systolic excursion, TRVmax; the maximal tricuspid regurgitation velocity

AO14-1

Association of Clonal Hematopoiesis of Indeterminate Potential with Increased Risk of Acute Respiratory Distress Syndrome

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Background and Aims

Recent studies revealed that clonal hematopoiesis of indeterminate potential (CHIP) is not only a precursor to hematologic malignancy, but is particularly related to immune and inflammatory responses. Acute respiratory distress syndrome (ARDS) develops from diffuse inflammatory response of the lung due to various causes. This study aimed to evaluate whether CHIP is associated with the risk of development and clinical outcomes of ARDS.

Methods

We performed a retrospective case-control study comparing 96 patients with ARDS and 5004 controls over 40 years old without ARDS. We used next generation sequencing to detect genes associated with CHIP in peripheral blood cell. The primary objective was to analyze the association between the presence of CHIP and the occurrence of ARDS. Furthermore, we elucidate whether the clinical outcome of ARDS differs according to the CHIP.

Results

When analyzing all genes related to CHIP, the prevalence of CHIP was higher in patients with ARDS (33 (34.4%)) than control (650 (13.0%)) (P-value

Conclusion

The presence of CHIP was associated with the development of ARDS. However larger cohort study is needed to study the association with clinical outcomes of ARDS and CHIP.

AO14-2

Diaphragm thickening fraction for predicting weaning success in COPD patients

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Background and Aims

Weaning failure in mechanically ventilated chronic obstructive pulmonary disease (COPD) patients is a major concern in clinical practice.¹ Rapid shallow breathing index (RSBI), a well-known weaning index, has some limitations in predicting weaning outcomes.² Diaphragmatic thickening fraction (DTF) has potential benefits for improving the accuracy of weaning success prediction.³ The aim of this study was to evaluate the effectiveness of DTF compared to RSBI for predicting weaning success in COPD patients.

Methods

This prospective study enrolled COPD patients who were ready for weaning from mechanical ventilator. Patients underwent a spontaneous breathing trial (SBT) for 1 h, and then, both hemi-diaphragms were visualized using a 10-MHz linear probe. Diaphragm thickness was recorded at the end of inspiration and expiration. The DTF was calculated as a percentage. In addition, RSBI was calculated at 1 minute and 1 hour after SBT.

Results

Of the 24 patients enrolled, the mean (\pm SD) age was 80 (\pm 8.78) years. Twenty-two patients succeeded in weaning and the others failed. DTF in both sides was not significantly different between patients whose weaning succeeded and failed (right DTF: success group 67.22 \pm 41.65%, failure group 44.84 \pm 47.7%, $p = 0.478$). The ROC curves of right and the RSBI for the prediction of successful weaning were 0.636, and 0.607, respectively, but not statistically significant.

Conclusions

DTF appears not to help in predicting weaning success in COPD patients. However, there was a trend toward higher right DTF in the weaning success group.

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AO14-3

Association between mechanical power and intensive care unit mortality according to the use of neuromuscular blockade in patients under pressure-controlled ventilation

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Background and Aims

Mechanical power (MP), which integrates ventilator variables affecting ventilator-induced lung injury, is reported to be associated with clinical outcomes. Because original MP equation is derived from paralyzed patient under volume-controlled ventilation, its application to practice could be limited. Recently, simplified equation for patients under pressure-controlled ventilation (PCV) is developed. We investigated association between MP and intensive care unit (ICU) mortality, and cut-off value according to the use of neuromuscular blockade (NMB) in patients under PCV.

Methods

We conducted a post-hoc analysis of Korean data from the fourth International Study on Mechanical Ventilation. We extracted data of patients under PCV on day 1 and calculated MP using following equation: $MP_{PCV} = 0.098 \cdot RR \cdot VT \cdot (\Delta P_{insp} + PEEP)$. Multivariate logistic regression and receiver operating characteristic curve were used for analysis.

Results

Of 160 patients under PCV on day 1, MP_{PCV} can be obtained from 125 patients. Nineteen patients were treated with NMB, and 9 died in ICU. MP_{PCV} was 16.0 J/min in survivor and 22.2 J/min in non-survivors ($p = 0.013$). Cut-off value

for mortality was 20.4 J/min. Of 106 patients without NMB, 29 died in ICU. MP_{PCV} was 17.6 J/min in survivors and 26.3 J/min in non-survivors ($p < 0.001$). MP_{PCV} was independently associated with ICU mortality (odds ratio, 1.108; 95% confidence interval, 1.048-1.171; $p < 0.001$). Cut-off value was 23.5 J/min.

Conclusion

MP_{PCV} was associated with ICU mortality in patients under PCV, and the cut-off value was similar in both NMB users and non-users.

We appreciate all members of the Korean Study Group on Respiratory Failure (KOSREF).

AO14-4

Influences of do-not-resuscitate orders and physician orders for life-sustaining treatment of patients in the medical intensive care unit

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Background and Aims

In the intensive care unit(ICU), we meet patients who have do-not-resuscitate(DNR) orders or physician orders for life-sustaining treatment(POLST). However, it is not well-known about the influences of DNR or POLST in critically ill patients.

Methods

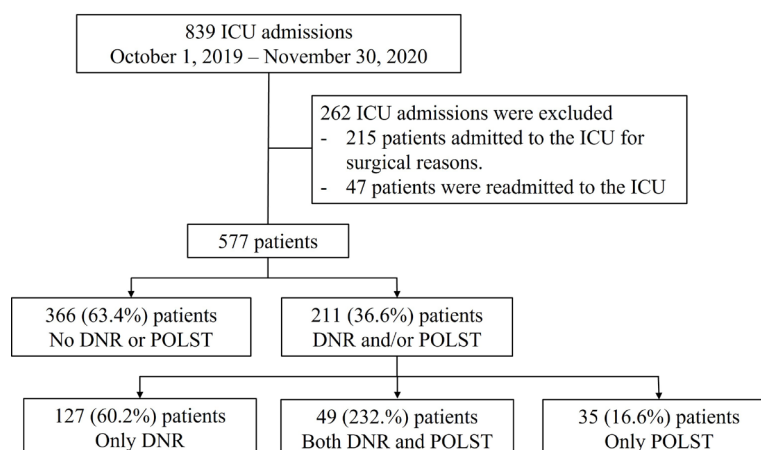
We retrospectively reviewed patients who admitted to the ICU medically between November, 2019 and November, 2020. The Cox regression analyses were performed to identify the predictors of in-hospital mortality.

Results

A total of 577 patients were admitted to the ICU medically. Among them, 211 patients had DNR and/or POLST records, and 366 patients did not. DNR and/or POLST were completed before admission to the ICU in 48 patients (22.7%). The DNR and/or POLST group was older (72.9 ± 13.5 vs. 67.6 ± 13.8 , years, $p < 0.001$), and the APACHE II score (26.1 ± 9.2 vs. 20.3 ± 7.7 , $p < 0.001$) and clinical frailty scale (5.1 ± 1.4 vs. 4.4 ± 1.4 , $p < 0.001$) were higher than the other groups. Solid tumor, hematologic malignancy, and chronic lung disease were more common comorbidities in the DNR and/or POLST group. In the DNR and/or POLST group, ICU mortality and in-hospital mortality were higher, and more invasive treatment (arterial line, central line, renal replacement therapy, invasive mechanical ventilation) was applied compared to other groups. BMI, APACHE II score, hematologic malignancy, DNR and/or POLST were factors associated with in-hospital mortality.

Conclusions

36.6% of patients admitted to the ICU received DNR and/or POLST, but more patients received invasive treatment in the DNR and/or POLST group. We believe that more efforts will be needed to help initiate end-of-life cares in critically ill patients.



AO14-5

Mechanical ventilation in idiopathic pulmonary fibrosis patients in Korea: a nationwide population-based study

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Background and Aims

The prognosis of idiopathic pulmonary fibrosis (IPF) patients with respiratory failure requiring mechanical ventilation is known to be dismal. International guideline suggests not to use mechanical ventilation in majority of IPF patients. However, it is reported that the outcome of mechanically ventilated patients, even IPF patients, has improved. We investigated the use of mechanical ventilation in IPF patients and their outcome according to time in Korea.

Methods

Using National Health Insurance Service database, we identified IPF patients from 2011 to 2019. We investigated annual number of IPF patients treated with mechanical ventilation and their mortality of each year. We analyzed the change in mortality over time using Cochran-Armitage test.

Results

During study period, total 1,227 patients were mechanically ventilated. The annual number of IPF patients and IPF patients with mechanical ventilation has increased over time, but the ratio was relatively stable around 3.5%. During study period, the overall 30-day mortality of IPF patients with mechanical ventilation was 68.7%. The annual 30-day mortality has not improved over time ($p = 0.821$). The overall 90-day mortality was 85.3%, and the annual 90-day mortality has improved over time ($p = 0.028$)

Conclusion

The 30-day mortality has not improved in recent years, but it was better than previous reports. The 90-day mortality was still high, but it has improved over time.

AO14-6

The impact of early sedation depth on clinical outcomes in mechanically ventilated patients in Korean intensive care units

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Background and Aims

It is largely unknown about the impact of real-practice of sedation on clinical outcomes in Korean intensive care unit (ICU). We aimed to investigate the association between early deep sedation within the first 48 hours of mechanical ventilation and clinical outcomes.

Methods

We performed an analysis of a multicenter, prospective, longitudinal, non-interventional cohort study in 20 ICUs in Korea between April, 2020 and July, 2021. The depth of sedation was divided into light and deep sedation by a median Richmond Agitation Sedation Scale value within the first 48 hours. Outcomes were compared between the two groups.

Results

A total of 631 patients consisted of 418 (66.2%) in deep sedation and 213 (33.8%) in light sedation. Mortality was 14.1% in the early deep sedation group and 8.4% in the early light sedation group (p-value = 0.039). The success of extubation was 88 %, 95 %, respectively (p = 0.003). ICU discharge rate was 87%, 89%, respectively (p = 0.492). In Kaplan-Meier estimates, compared with the early deep sedation group, the early light sedation group showed better outcomes with regards to time to extubation (p-value < 0.001), ICU discharge (p-value = 0.005) and death (p-value = 0.041). After adjusting for confounders, however, early deep sedation was only associated with delayed time to extubation (hazard ratio, 0.66, 95% confidence interval 0.55-0.80; p-value < 0.001).

Conclusion

Deep sedation in the first 48 hours of mechanical ventilation was associated with an increase of time to extubation, but not time to ICU discharge and mortality.

Disclosure statement

This study is sponsored by Pfizer Korea Pharmaceuticals Ltd.

AO14-7

Endothelial Fgfr1 deficiency worsen LPS induced ALI/ARDS.

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Background and Aims

Vascular permeability and inflammation are pathological hallmarks of acute lung injury (ALI)/ acute respiratory distress syndrome (ARDS). Endothelial cells (ECs) serve as a semipermeable barrier and play a key role in the disease progression. Fibroblast growth factor receptor 1 (Fgfr1) is a requirement for maintaining the vascular integrity. However, whether endothelial Fgfr1 functions in ALI/ARDS still remains obscure. In this study, we investigated whether deletion of endothelial Fgfr1 aggravated LPS induced lung injury.

Methods

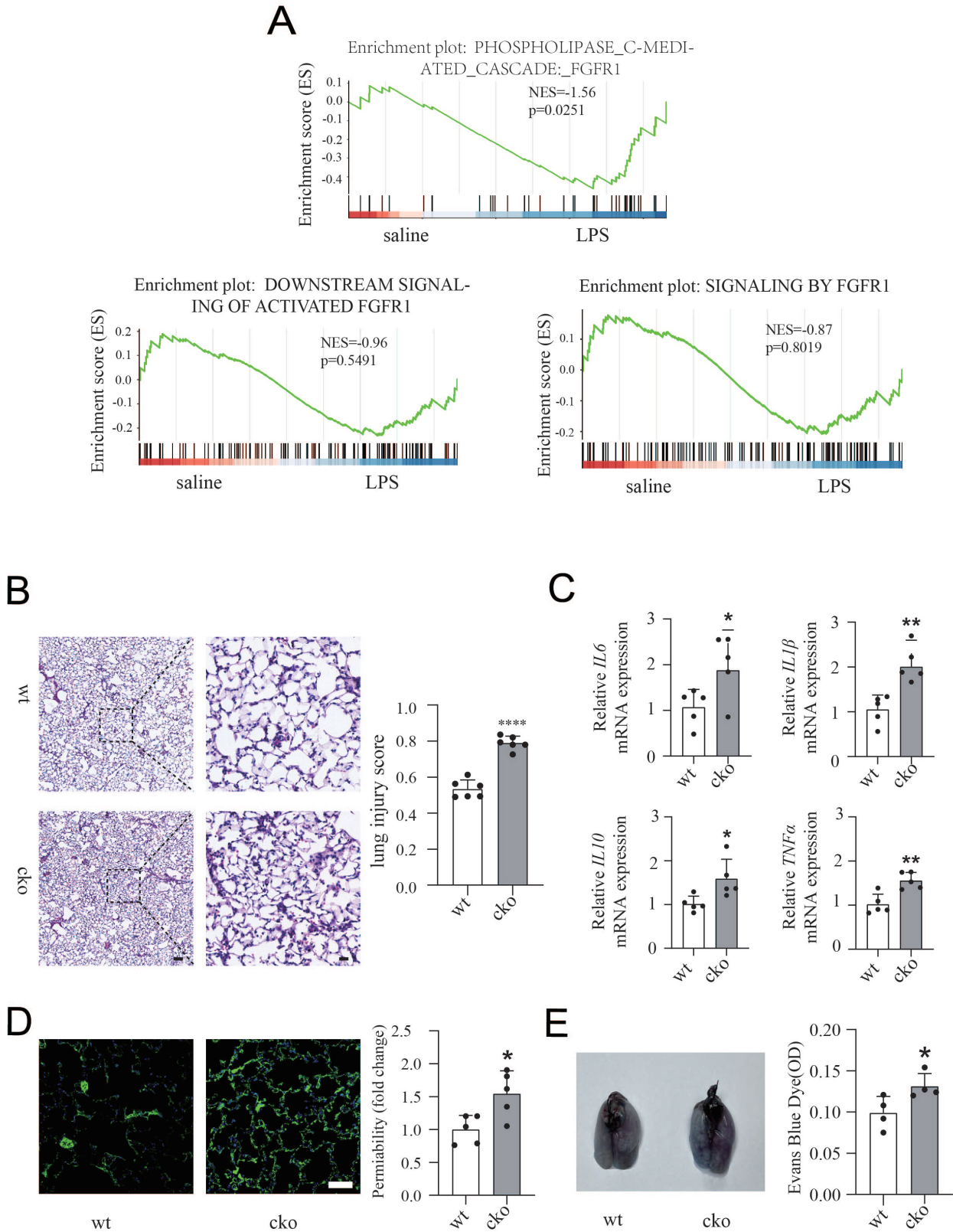
C57/BL6J wild-type mice were randomly divided into saline and LPS group. WT mice were intratracheally injected with saline or LPS (10 mg/kg). After 24h, CD31+CD45- cells (ECs) were isolated and performed with RNA-seq analysis. VE-cadherin-Cre^{ERT2} Fgfr1^{loxP/loxP} (Fgfr1^{ΔEC/ΔEC}) mice were constructed and injected with LPS (2mg/kg). Histological changes were examined by hematoxylin-eosin staining and scored. Relative mRNA expression of proinflammatory cytokines was examined. Vascular permeability was tested by quantification of FITC-dextran and EBD extravasating from pulmonary vessels.

Results

RNA-seq analysis of endothelial cells showed that Fgfr1 associated signalings in ECs were obviously decreased in LPS treated WT mouse lung. Furthermore, we found that conditional specific deletion of endothelial Fgfr1 worsen the lung injury with escalated inflammatory response and more severe vascular permeability.

Conclusion

Endothelial Fgfr1 was decreased in LPS induced ALI/ARDS mouse model and played a key role in preserving vascular homeostasis and preventing inflammatory response. Deficiency of endothelial Fgfr1 contributed to pulmonary vascular barrier disruption and augmented inflammation. Targeting endothelial Fgfr1 signaling may provide a promising target for therapy.



AO14-8

A survey of the awareness and understanding of healthcare staff on rehabilitation for critically ill patients

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Background and Aims

Early rehabilitation begun in the intensive care unit (ICU) is emerging as an important strategy both to prevent and treat ICU-acquired weakness, in an effort to facilitate and improve the quality of life of post-intensive care. This study aimed to identify unbiased information about ICU rehabilitation perception of healthcare staff, current status, and implementation.

Method

A multicenter, prospective survey study was conducted on the healthcare staff who work in ICUs from 4 tertiary hospitals, between October and December 2021. We investigated the status of intensive care rehabilitation and the awareness of healthcare staff about intensive care rehabilitation.

Results

A total of 189 healthcare staff were analyzed. Their ICU working periods were 5.09 years. Only 42.3% of the respondents had experienced participation in ICU rehabilitation treatment. The most frequently performed rehabilitation methods were a passive range of motion (33.9%), followed by an active range of motion (28.0%), dangling (20.6%), and electrical muscle stimulation (19.6%). The average number of rehabilitation times for the patients was 4.4 times per week. Among the rehabilitation tools, bicycles (19.0%) and Hillrom beds (19.0%) were used the most, followed by electrical muscle stimulation (16.9%) and walking aids (15.9%). Only 25.9% of respondents answered that their hospitals had a multidisciplinary round team for critical care rehabilitation. As the biggest barrier to rehabilitation, 175 (92.6%) individuals answered lack of nursing staff. In addition, 145 (76.7%) of who had never experienced education on rehabilitation for critically ill patients.

Conclusion

The present study findings show that education is needed to improve the awareness of critically ill medical staff on intensive care rehabilitation. In parallel, organizational efforts such as manpower reinforcement should be made to overcome barriers that prevent the successful implementation of the intervention.

AO15-1

A community-base pulmonary rehabilitation programme for the elderly recovered from Coronavirus 2019 (COVID-19)

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Background and Aims

Coronavirus Disease 2019 (COVID-19) is an infectious disease that affects patients' lung function and thus exercise tolerance. Elderly patients have shown to have more severe and long-term symptoms after contracting COVID-19. Limited evidence has been published on the effectiveness of rehabilitation programme for elderly patients recovered from COVID-19. The aim of this study was to evaluate the effectiveness of a community-based rehabilitation programme on them.

Methods

Elderly participants recovered from COVID-19 were first screened and then followed a 8-week structured community-based rehabilitation programme. They were given a consultation session for an educational talk about staying physically active during and after the pandemic then face to face 1-hour exercise class once a week. A water dumbbell home exercise video, a smart watch with pedometer and a resistance band were provided for continuing different types of exercise at home. Before and after the programme, lung function, physical performance and functional outcomes were evaluated.

Results

Improving trends were observed in all outcome measures e.g. six-minute walk distance (6MWD), forced expiratory volume in one second (FEV1), forced vital capacity (FVC), handgrip, deltoid and gluteal strength and Short Physical Performance Battery (SPPB) scores. However, no statistical significance was found between pre- and post-rehabilitation outcome measures.

Conclusion

Although improvement trends were observed, no significant improvement was found on functional capacity, lung function or muscle strength in elderly recovered from COVID-19. Further studies with larger sample size are warranted to confirm the effectiveness of community-based rehabilitation programme on elderly patients recovered from COVID-19.

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AO15-2

Steroid and/or Antifibrotic Treatment on Improvement of Post Covid Lung Function

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Background and Aims

Coronavirus disease 2019 (COVID-19) survivors are reporting respiratory system complaints after discharge [SB1] from the hospital as evidenced by two lung function tests, the partial pressure of oxygen (SPO₂), and 6 minutes walking distance (6MWD). This study is aimed to assess the effects of steroid and antifibrotics on the changes of SPO₂ and 6MWD in patients recovering from COVID-19.

Methods

We conducted this quasi-experimental study on 76 moderate to severe COVID-19 patients admitted to Sher-E-Bangla Medical College Hospital, Barishal, Bangladesh, from January 2020 to June 2021. After recording the SPO₂ and 6MWD, we gave steroid to 57 patients while the rest 19 patients received steroid and antifibrotic depending on severity. We followed the patients at 6 weeks, 12 weeks, and 6 months after discharge to determine their SPO₂ and 6MWD change as outcome variables through measures and change from initial to final assessment.

Results

We recorded nearly 83% improvement (n=63) of post-Covid respiratory complaints as evidenced by improved SPO₂ of 74.2%, 93.8%, 95.4%, and 96.3% from admission, 1st follow up, 2nd follow-up, and 3rd follow up respectively (p0.001). and improved 6MWD (p0.001). Similarly, there was a significant improvement of 6MWD test from 53.1, 125.0, and 133.4 meters in the 1st follow-up, 2nd follow-up, and 3rd follow up respectively (p0.001). On further analysis, we found that the antifibrotic treatment improved SPO₂ and 6MWD tests better than steroid only treatment group.

Conclusion

Antifibrotic treatment with steroid improves pulmonary function better than steroid only in terms of SPO₂ and 6MWD.

AO15-3

Remdesivir Efficacy in Coronavirus Disease: A Randomized trial

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Background

Coronavirus disease 2019 (COVID-19) has been recorded as one of the most contagious viruses that spread worldwide in a pandemic form. After about 14 days from exposure to the virus, patients usually experience severe respiratory syndromes with other variable symptoms, such as general fatigue, fever, cough, loss of smell and taste and breathing difficulties [1]. Of those people who develop noticeable symptoms, most (81%) develop mild to moderate symptoms (up to mild pneumonia), while 14% develop severe symptoms (dyspnea, hypoxia, or more than 50% lung affection on imaging), and a minority about 5% may suffer critical symptoms (respiratory failure, shock, or multiorgan dysfunction),

Patients and method

In the present study, hospitalized patients with confirmed COVID-19 infection who agreed to be enrolled in the study were randomized into 2 groups: the first group (group I) (Remdesivir group) included 100 patients received a 10-day course of Remdesivir (mg200 intravenously in the first day and 100 mg daily for the next 9 days with infusion over 30-60 minutes) ; While 100 patients received standard treatment alone. Patients with abnormal elevation of liver enzymes more than 5 times the normal level or with creatinine clearance below 50 ml/min were excluded from the study.

Results

Remdesivir group had significantly shorter duration of hospital stay (p value 0.001). However; there was no significant difference regarding the need for mechanical ventilation or mortality (p 0.469 and 0.602 respectively).

Conclusion

Remdesivir did not achieve significance for any of the endpoints (mortality and the need to mechanical ventilation). However; it significantly improved hospital stay in hospitalized patients with COVID-19

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AO15-4

Combining Fluvoxamine with Bromhexine prevents clinical deterioration in outpatients with mild to moderate symptomatic SARS-CoV-2, A Randomized Clinical Trial

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Background and Aims

We conducted an open label, randomized, controlled trial to assess whether fluvoxamine combined with bromhexine, given during mild to moderate SARS-CoV-2 illness, prevented clinical deterioration due to their proposed immune modulatory effects.

Methods

Participants had confirmed SARS-CoV-2 infection, experiencing mild to moderate symptoms and oxygen saturation of $\geq 92\%$. Participants were randomly assigned to receive fluvoxamine (100 mg days 1 and 2, followed by 150 mg daily till day 14) with bromhexine (FLU/BRO) (16 mg daily till day 10) or favipiravir alone (FAV) (3600 mg day 1 followed by 1600 mg daily till day 5). Primary outcome was clinical deterioration within 30 days of randomization defined as shortness of breath or hospitalization for shortness of breath or pneumonia and oxygen saturation $\leq 92\%$, on room air or need for supplemental oxygen to achieve oxygen saturation of $\geq 92\%$.

Results

158 participants were randomized (average age 50 years (range 18–68 years); 68 [43%] women), and 142 (89%) completed the trial. 0/78 participants experience clinical deterioration with FLU/BRO and 18/64 patients with FAV. TNF- α , IL-6, IL-8 and IL-1 β levels were significantly ($p < 0.005$) reduced with FLU/BRO compared to FAV at day 3, 5, 7 and 14. 0/78 participants had long Covid symptoms with FLU/BRO compared to 32/64 (50%) with FAV ($p < 0.005$). One serious and 4 other adverse events were reported with FLU/BRO compared to 5 serious and 12 other adverse events with FAV.

Conclusions

Results suggest there was less clinical deterioration in symptomatic COVID-19 participants treated with FLU/BRO.

AO15-5

Different treatment response to systemic corticosteroids according to white blood cell counts in severe COVID-19 patients

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Background and Aims

Limited data are available in COVID-19 patients on the prediction of treatment response to systemic corticosteroid therapy based on systemic inflammatory markers. There is a concern whether systemic corticosteroids are still beneficial in COVID-19 patients with leukopenia. We aimed to assess whether leukopenia is related with poor response to systemic corticosteroids.

Methods

We conducted a retrospective cohort study and analyzed the patients who were hospitalized for severe COVID-19 and received systemic corticosteroids between July 2020 and June 2021. The primary outcome was to compare the composite poor outcome of mechanical ventilation, extracorporeal membrane oxygenation, and mortality among the patients with different WBC counts.

Results

Of the 585 COVID-19 patients who required oxygen supplementation and systemic corticosteroids, 145 (24.8%) belonged to the leukopenia group, 375 (64.1%) belonged to the normal WBC group, and 65 (11.1%) belonged to the leukocytosis group. In Kaplan-Meier curve, the composite poor outcome was significantly reduced in leukopenia group compared to leukocytosis group (log-rank P-value=0.004). In the multivariable Cox regression analysis, leukopenia group was significantly associated with a lower risk of the composite poor outcome compared to normal WBC group (adjusted hazard ratio=0.32, 95% CI 0.14-0.76, P-value=0.009). There was no significant difference in composite poor outcome between leukocytosis group and normal WBC group.

Conclusion

Leukopenia was not associated with poor response to systemic corticosteroid therapy in COVID-19 patients requiring oxygen supplementation. Systemic corticosteroid therapy can be continued without concern of drug-related poor outcomes in COVID-19 patients with leukopenia.

AO15-6

The effect of nintedanib in post-COVID-19 lung fibrosis: an observational study

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Background and Aims

Lung fibrosis is a sequela of COVID-19 among patients with severe pneumonia^{1,2}. There are limited data on effects of antifibrotic treatment of infection-related lung fibrosis. This study aimed to evaluate the effect of nintedanib on patients' post-COVID-19 lung fibrosis.

Methods

A retrospective, matched case-control study was conducted on hospitalized patients aged ≥ 18 years with COVID-19 pneumonia. Patients who received nintedanib treatment for COVID-19 pulmonary fibrosis (nintedanib group) were recruited. Patients with standard treatment (control group) were selected as the comparison group. The primary outcome was oxygen improvement. The secondary outcomes were chest x-ray improvement, SpO₂/FiO₂ ratio improvement, mortality rates at 60 days, and adverse events.

Results

A total of 42 patients with COVID-19 pneumonia were included (21 in each group). At baseline, SpO₂/FiO₂ ratio before treatment was 200.57 ± 105.77 in the nintedanib group and 326.9 ± 137.1 in the control group ($P=0.002$). Oxygen and chest x-ray improvement were found in 71.4% and 71.4% in the nintedanib group, and in 66.7% and 66.7% in the control group ($P=0.739$). The nintedanib group had more improvement in SpO₂/FiO₂ ratio than in the control group had (144.38 ± 118.05 vs 55.67 ± 75.09 , $P=0.006$). The 60-day mortality rates of the nintedanib and the control groups were 38.1% vs 23.8%, $P=0.317$. Hepatitis and loss of appetite were common adverse events 9.5% and 9.5%, while diarrhea was 4.76%.

Conclusion

Nintedanib as add-on treatment in post-COVID-19 lung fibrosis did not improve oxygenation, chest x-ray findings or the 60-day mortality. However, this antifibrotic drug improved SpO₂/FiO₂ ratio in our patients.

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Keywords

antifibrotic, COVID-19, lung fibrosis, nintedanib, post-COVID-19

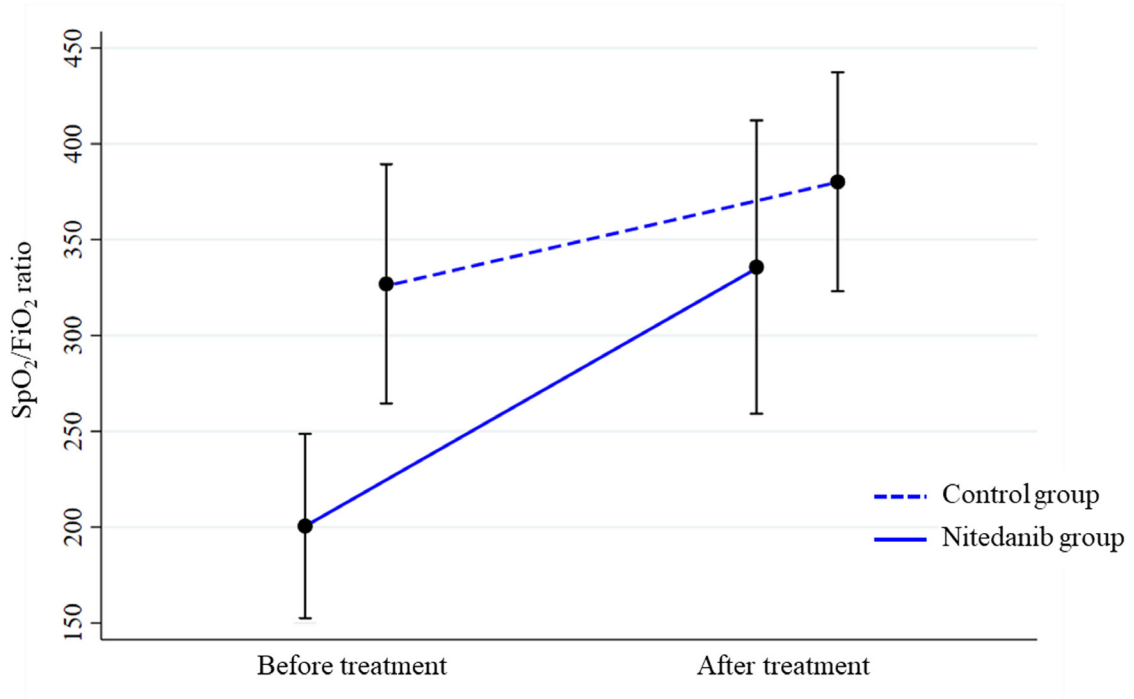
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Disclosure statement

The authors declare no conflict of interest.



AO15-7

Short Term Effects in Pulmonary Function and Chest High Resolution Computed Tomography Scan Among COVID-19 Recovered Adult Patients in a Tertiary Hospital in Davao City

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Background and Aims

There has been limited data regarding COVID-19's pulmonary sequelae. It is important to assess short term pulmonary effects and chest HRCT to help redesign early follow up and management. The study determined the short term effects of COVID-19 in the pulmonary function and chest HRCT among adult COVID-19 recovered patients in a tertiary hospital

Methods

The study utilized a retrospective research design where patients who underwent pulmonary function test, dyspnea scale interview, and chest HRCT as part of their post-COVID recovery follow-up three months after discharge were reviewed.

Results

Three months after recovery, among 81 patients, 5 (6%) had decreased FEV1, 14 (17%) had decreased FVC, and none had impairment in FEV1/FVC. Restrictive lung disease was noted in 17.3%. Thirty six (44%) patients still had persistent dyspnea. Majority (58%) had HRCT score less than 5 with a mean score of 1.86. The lower lung fields were the most commonly affected. Radiograph findings included ground glass opacities (37%) and parenchymal bands (33%) with a total of 43 patients (53%) with fibrosis-like pattern in HRCT.

Conclusion

In summary, the study revealed the following short term effects in pulmonary function among COVID-19 patients three months after recovery: (1) restrictive lung function (2) persistent dyspnea, (3) and fibrosis pattern on chest HRCT. It is recommended that a longer diagnostic follow-up and management of COVID-19 recovered patients should be done to determine whether the sequelae are persistent or improves over time.

AO15-8

Characteristics, Management, and Outcomes of COVID-19 Patients Admitted in a Tertiary Private Hospital in Naga City, Camarines Sur: A Retrospective Cohort Study

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Introduction:

The COVID-19 pandemic prompted researchers and clinicians to provide empirical data that will enable successful treatment outcome for infected individuals. The goal of this study is to determine the characteristics such as age, gender, comorbidities, and management of COVID-19 patients admitted in USI-HSD and its association with clinical outcomes

Methods:

This retrospective cohort research involved 260 adult patients with moderate to critical COVID-19. Data were collected via review of medical charts. A comparison of characteristics and management as to severity and in-house mortality was done. Further, the factors associated with severity, in-house mortality, and length of hospital stay were determined.

Results:

Demographic characteristics revealed the age of the study participants ranged from 20 to 94 years old with median age of 66 years old with majority being female gender, hypertension as the most common comorbidity and presented with high baseline respiratory rate with low oxygen saturation. Laboratory data showed majority had elevated AST, LDH, CRP, D-dimer, ferritin, and lung infiltrates. Those with higher levels of creatinine and with malignancy have higher odds of severe/critical COVID-19. Lymphocytopenia, and elevated LDH, CRP, D-dimer and ferritin were associated with disease severity. In-hospital mortality is increased in patients with chronic kidney disease and those with severe or critical COVID-19 upon admission. Those with diabetes mellitus and with severe form of COVID-19 had longer duration of stay.

Conclusion:

It is concluded that the study participants presented varying demographic and clinical characteristics which are associated with COVID-19 severity, mortality and length of hospital stay

AO15-9

Methyprednisolone versus Dexamethasone for severe COVID-19 infection: A retrospective comparative analysis of our early experience.

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Background and aims

During the COVID-19 pandemic, Dexamethasone (DXM) remained the mainstay of treatment with various reports begin to surface describing the use of Methyprednisolone (MTP). The objectives of this study sort to determine treatment response and complications of both treatments.

Methods

This is a retrospective review on subjects treated with MTP compared to those treated with DXM alone. Subjects' characteristics, laboratory and ventilatory parameters, length of mechanical ventilation, length of stay and mortality were evaluated.

Results

A total of 100 patients (50 for each cohort) were evaluated. Patients treated with MTP presented later (9.96 (±4.43) versus 6.10 (±3.30) day of illness (P0.01)). Median dose of MTP used was 500 (IQR 408) in divided doses. The all-cause mortality was higher for MTP group versus DXM group (29(58%) versus 17(34%); P=0.016), longer length of stay in the MTP group (19.71 (±14.23) versus 10.86 (±5.36) days; P 0.01) due to more severe patients and longer weaning time for patients mechanically ventilated. However, the use of MTP demonstrated significant improvement in ventilation for patients with SpO₂/Fio₂ (SF) ratio below 235 (pre-treatment of 143.20 (±43.00) to post treatment of 196.65 (± 92.95); P 0.01). Nosocomial infection was more prevalent in the MTP group versus DXM group (30 (60%) versus 10 (20%); P;0.01). Improvement of ventilatory failure for patients with SF ratio above 235 was insignificant.

Conclusion

In conclusion, these results further strengthen the use of MTP in patients with severe COVID-19 as reported previously; especially in patients with SF ratio below 235.

All authors: No conflict of interest

AO16-1

Comparison between phenotypic and whole-genome sequencing drug susceptibility testing in multi-drug resistant *Mycobacterium tuberculosis* isolates from South Korea

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Background

Whole genome sequencing (WGS) has been applied to solve the public concerns of tuberculosis (TB). TB is one of the serious infectious diseases in South Korea, reporting 49 new cases per 100,000 people and 629 multi-drug resistant (MDR) TB in 2020. We aimed to investigate the genetic differences between isolates using WGS combined with clinical data.

Methods

WGS using the Illumina HiSeq platform was performed for MDR-TB strains isolated from 80 TB patients treated in seven hospitals of southern metropolitan area, retrospectively. The WGS analysis was performed with bioinformatics platforms using TB profiler. Phylogenetic trees were created, and phenotypic susceptibilities test (pDST) were compared with molecular DST (mDST) of WGS.

Results

Among 80 MDR-TB strains including 18 pre-XDR TB, 44 patients were primary MDR-TB. Fifty-seven strains were from Native Koreans, 16 strains from Korean-Chinese, and 7 strains from Central Asians, among which some clusters were identified. For first line anti-TB drugs concordant with phenotypic DST for Rifampicin, Isoniazid, Pyrazinamide, Ethambutol were 100.0%, 100.0%, 85.0% and 85.0% respectively. The sensitivity of mDST compared with pDST for rifampicin, isoniazid, pyrazinamide and ethambutol, fluoroquinolones were 100.0%, 100.0%, 84.0%, 92.0%, and 100.0%, respectively. The concordance rate for second line drugs varied from 75.0 % to 99.0 %. The sensitivity and specificity ranged from 47.0% to 100.0%, and from 76.0% to 99.0%, respectively.

Conclusions

The role of WGS for first line anti-TB drugs as well as fluoroquinolones are quite promising in South Korea, and further larger studies for second line drugs are needed.

AO16-2

False positive rifampicin resistant results by Xpert MTB/RIF point-of-care testing at the Singapore Tuberculosis Control Unit

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Background and Aims

Xpert MTB/RIF allows for early diagnosis of tuberculosis (TB) disease and rifampicin (RIF)-resistance. However, false positive RIF-resistant results have been reported particularly in paucibacillary sputum samples¹.

Methods

All sputum specimens subjected to Xpert MTB/RIF point-of-care testing at the Singapore Tuberculosis Control Unit between December 2018 to March 2022 were reviewed.

Results

Of the 15,427 sputum specimens tested, 1,786 (11.6%) were positive for MTB and 33 (1.8%) showed RIF-resistance. The proportion of specimens with RIF-resistance according to the test semi-quantitative bacillary load categories were 1.3% (2/160), 0.5% (3/546), 1.7% (11/624) and 3.7% (17/456) for high, medium, low and very low loads respectively.

All 16 RIF-resistant specimens in the high, medium and low load Xpert categories and 6/17 (35%) in the very low load category had mutations in the *rpoB* gene detected on whole genome sequencing (WGS). 2 specimens did not have WGS data available. 9/17 (53%) specimens in the very low load category belonging to 9 unique patients were RIF-susceptible by phenotypic DST with no *rpoB* gene mutations detected on WGS: of these, 5 patients whose other samples did not show genotypic RIF-resistance received first-line treatment, 3 who were initiated on second-line treatment were converted to first-line treatment when phenotypic DST showed RIF-susceptibility, and 1 patient left the country before treatment could be instituted. 5 had absent or delayed binding of probe E, 4 to probe D.

Conclusion

We found a disproportionately high proportion of false positive RIF-resistant results among sputum specimens with very low bacillary load as determined by the Xpert MTB/RIF test.

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AO16-3

Frequency and probe distribution of *rpoB* mutations detected by Xpert MTB/RIF in Tuberculosis Control Unit Singapore

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Background and Aims

Xpert MTB/RIF (Xpert) uses molecular beacons in 5 overlapping regions (probes A-E) of the rifampicin (RIF)-resistance determining region of the *rpoB* gene of *Mycobacterium tuberculosis* complex (MTBC) to detect MTBC and RIF-resistance. We reviewed the Xpert probe distribution of RIF-resistance and their associated *rpoB* mutations on whole genome sequencing (WGS).

Methods

Sputum specimens with Xpert done in the Tuberculosis Control Unit, Singapore between December 2018 to March 2022 were reviewed.

Results

15,427 sputum specimens had Xpert testing. Of the 1,786 (11.6%) MTBC-positive specimens, 33 (1.8%) showed RIF-resistance and 28 (1.5%) were indeterminate for resistance due to very low load.

WGS from culture isolates were available for 26 of the 33 Xpert RIF-resistant specimens, each belonging to a unique patient. WGS detected *rpoB* mutations in 16 specimens (true RIF-resistance) and no *rpoB* mutations in 9 specimens with paucibacillary load (false positive RIF-resistance). 1 was false-positive due to silent mutation (*rpoB* T444T).

12/16 (75%) and 4/16 (25%) of the true RIF-resistant cases had multi-drug resistant (MDR)-TB and RIF without Isoniazid (INH)-resistant TB respectively. The *rpoB* mutation S450L corresponding to absent Xpert probe E occurred in 7 MDR-TB and 2 Rif without INH-resistant TB cases. The H445Y mutation corresponding to absent probe D occurred in 3 MDR-TB and 1 Rif without INH-resistant TB case. Other mutations and patients' countries of origin are shown in table 1.

Conclusion

rpoB S450L mutation (absent Xpert probe E) was the most common *rpoB* mutation in our population, followed by H445Y (absent probe D).

Table 1: Xpert true RIF-resistant specimens with WGS *rpoB* mutations

	Xpert probe affected	WGS mutations (number of cases)	Country of origin (number of cases)
MDR-TB N=12	E	S450L (7)	Singapore (3) China (2) Myanmar (2)
	D	H445Y (3)	Philippines (1) Indonesia (1) Malaysia (1)
	D and B	H445D (1)	Philippines (1)
	C	N438- (1)	Philippines (1)
RIF without Isoniazid - resistant TB N=4	E	S450L (1) L452P (1)	Singapore (2)
	D	H445Y (1) H445D (1)	Singapore (2)

AO16-4

Minimum Inhibitory Concentration of Bedaquiline and Clofazimine in Drug resistant Mycobacterium Tuberculosis clinical isolates in Korea

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Background

Bedaquiline (BDQ) and clofazimine (CFZ) have been recognized as important anti-TB agents based on new tuberculosis treatment guidelines. Furthermore BDQ and CFZ are known as cross-resistance anti-TB agents. We retrospectively analyzed Minimum Inhibitory Concentration (MIC) of BDQ and CFZ using 7H9 broth microdilution method. The aim of this study is to evaluate the degree of cross resistance between the two drugs.

Methods

In this study we have analyzed 752 drug resistant M. tuberculosis strains for BDQ and CFZ from June 2021 to April 2022. MICs for BDQ and CFZ were determined by 7H9 broth microdilution method. H37Rv was used as a control.

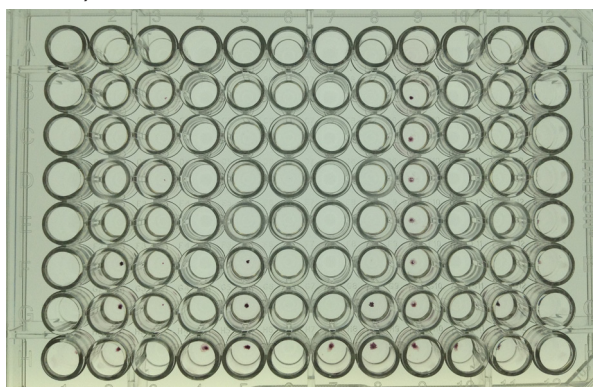
Results

BDQ showed a large distribution (96.94%) of $\leq 0.03125 \sim 0.25$ ug/mL area and a small distribution (3.06%) of $0.5 \sim >4.0$ ug/mL area. CFZ showed a large distribution (94.14%) of $\leq 0.0625 \sim 1.0$ ug/mL area and a small distribution (5.85%) of $2.0 \sim >8.0$ ug/mL area. The interim breakpoint for BDQ is 0.25 ug/mL and for CFZ 1.0 ug/mL. Seven hundred six strains (93.88%) among 752 were ≤ 0.25 ug/mL for BDQ and ≤ 1.0 ug/mL for CFZ. Twenty three strains (3.06%) were ≤ 0.25 ug/mL for BDQ and ≥ 2.0 ug/mL for CFZ. And 21 strains (2.79%) were ≥ 0.5 ug/mL for BDQ and ≥ 2.0 ug/mL for CFZ. Two strains (0.27%) were ≥ 0.5 ug/mL for BDQ and ≤ 1.0 ug/mL for CFZ.

Conclusions

In this study We found 727 case (96.67%) were correlated with BDQ and CFZ. There are 21 cross resistant cases between BDQ and CFZ. Further molecular genetic study is needed to analyze the target genes like Rv0678, atpE and mmpL5 using sequencing method among cross resistant and discrepant cases.

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AO16-5

Isoniazid-resistant tuberculosis is associated with hepatotoxicity: a prospective multicenter cohort study of pulmonary tuberculosis

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Background

The recent guideline of the World Health Organization recommends to 6-month treatment regimen of rifampin, ethambutol, pyrazinamide, and levofloxacin for isoniazid-resistant tuberculosis (Hr-TB). However, there are concerns of drug-induced hepatotoxicity because of prolonged use of pyrazinamide. We investigated associations between Hr-TB and hepatotoxicity.

Methods

This study used a prospective cohort of pulmonary TB at the Catholic Medical Center between August 2019 and December 2020. Of 470 patients diagnosed as pulmonary TB, 6 patients who were diagnosed with rifampin-resistant TB and 11 patients who did not take initial 6-month standard regimen of isoniazid, rifampin, ethambutol, and pyrazinamide were excluded. Hepatotoxicity was defined by symptomatic elevation of alanine transaminase ≥ 3 times the upper limit of normal, or ≥ 5 times with asymptomatic elevation.

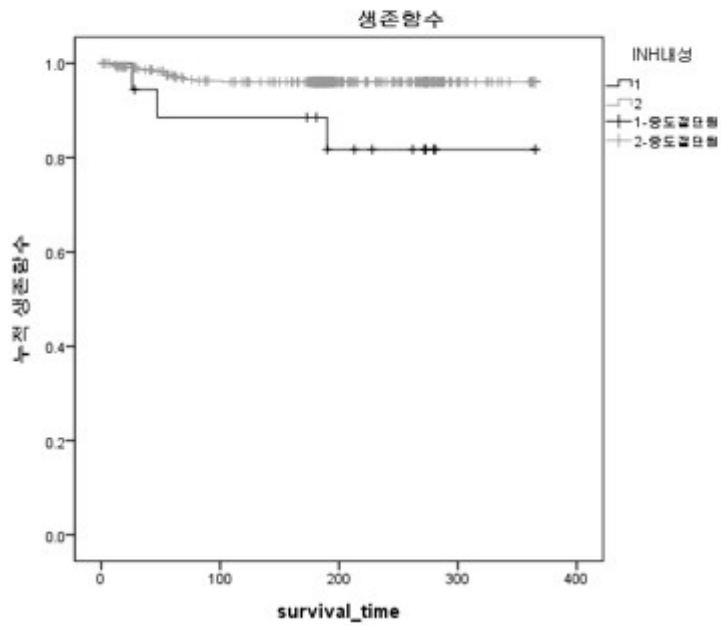
Results

A total of 453 patients were included in analysis, and 19 (4.2%) patients developed hepatotoxicity during treatment. Incidence of hepatotoxicity in the Hr-Tb group was significantly greater than in the non-Hr-TB group (16.7% vs. 3.7; p-value = 0.007). The cumulative hepatotoxicity was significantly higher in the Hr-TB group (p-value = 0.008; log rank test). In Cox proportional hazards model, Hr-TB was an independent predictive factor for hepatotoxicity among pulmonary TB patients (Hazard ratio [HR], 4.53; 95% confidence interval [CI], 1.32-15.56). Multivariable model adjusted by sex, age, prior TB history, disease severity, and other risk factors of hepatotoxicity revealed the similar result (Adjusted HR, 4.96; 95% CI, 1.41-17.41).

Conclusion

Hr-TB was significantly associated with hepatotoxicity. The treatment regimen for Hr-TB should be carefully selected, taking into account individual's risk of hepatotoxicity.

Figure. Cumulative incidence of hepatotoxicity during treatment between Hr-TB and non-Hr-TB groups.



AO16-6

The proportion of latent tuberculosis infection using interferon gamma release assay in household contact with drug-resistant tuberculosis patients at persahabatan hospital: Preliminary report

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Background and Aim

Close household contact with drugs resistance tuberculosis has high risk of tuberculosis infection. Latent tuberculosis infection is a condition infected tuberculosis but asymptomatic. The purpose of this study is to determine the proportion of latent tuberculosis infection in people who have household contact with drug-resistant tuberculosis patients and to determine the characteristics of people infected with latent tuberculosis.

Methods

Subjects are those who meet the inclusion and exclusion criteria. The inclusion criteria is subject who are more than 18 years old and the exclusion criteria is subject who are not diagnosed as active tuberculosis, history with tuberculosis and immunocompromised. This is a descriptive observational study with a cross-sectional design with a sampling period carried out between April to June 2022. Blood samples were taken and total lymphocytes, interferon gamma release assay, where evaluated Chest X-ray was also taken to rule out radiological evidence.

Results

A total 46 subjects met the inclusion and exclusion criteria consisting of 11 men and 35 women. The results of the interferon gamma release assay were positive in 28 subjects, the results of a Chest X-ray with the impression of active tuberculosis is one person, pneumonia in two people, and the other is normal. Total lymphocyte count more than 400.

Conclusion

The proportion of latent tuberculosis infection in people who have household contact with drug-resistant tuberculosis patients is 60.8%. It is necessary to provide tuberculosis preventive therapy in people with latent tuberculosis infection to prevent active tuberculosis.

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AO16-7

Cardiac dysfunction in Active Pulmonary Tuberculosis: Prospective, Observational and Interventional study in tertiary care setting in India

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Introduction

Although cardiac involvement is extremely rare in tuberculosis, cardiac dysfunction is not uncommon.

Methods

Prospective observational and interventional study conducted during July 2014 to December 2021. Included 800 case of active pulmonary tuberculosis confirmed microscopically or with Gene Xpert MTB/RIF documented MTB genome in respiratory specimens like sputum/induced sputum and bronchoscopy guided bronchial wash or bronchoalveolar lavage whenever necessary. Cases with known risk factor for cardiac disease and taking cardiac medicines, and cases with pericardial effusion were excluded from study. Disproportionate tachycardia and tachypnea with or without shock and hypoxemia were key entry point criteria in this study. Chest radiograph, pulse oximetry, ECG, Sputum examination, cardiac enzymes, serum cortisol and Echocardiography is done in all study cases during enrollment, at 2 months and 6 months of treatment with Anti-tuberculosis medicines. Statistical analysis was carried out by chi-square test.

Observations and analysis

In 800 cases with active pulmonary TB, cardiac dysfunction was documented in 26% cases, females were 44%; and 56% cases were having age>50 years. Echocardiography abnormality were documented as global hypokinesia in 62% cases, depressed left ventricular systolic and diastolic function in 44% & 28 % cases respectively, dilated right atrium and right ventricle in 32% cases, and pulmonary hypertension in 6% cases. Serum cortisol level is significantly lower in cases with cardiac dysfunction (p0.00001). Hypoxemia has significant association with right and left heart dysfunction (p0.00001). Cachexia, anemia and Hypoalbuminemia was documented to have significant association with cardiac dysfunction (p0.00001). Treatment outcome shows significant improvement in cardiac function (p0.00001) Coronary angiography is not showing significant coronary artery lesions and CT pulmonary angiography not showing pulmonary embolism.

Conclusion

Cardiac dysfunction in active pulmonary tuberculosis is underestimated and less evaluated routinely; disproportionate tachycardia and tachypnea with or without shock are the earliest clinical indicators. 'Global hypokinesia' as a predominant cardiac dysfunction, and right or left heart dysfunction depends on with or without hypoxemia respectively.

AO16-8

Nutritional Status of Hospitalized Tuberculosis Patients In South Kalimantan, Indonesia

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Introduction

In Indonesia, the burden of tuberculosis infection is significant, and there is likely a substantial link between TB incidence and the prevalence of malnutrition. Anemia, which is linked to TB patient outcomes and length of hospital stay, is another issue that might aggravate the disease. The goal of this study is to find out how common undernutrition and anemia are among tuberculosis patients at the Ulin Regional Hospital in South Kalimantan.

Methods

A cross sectional observational study was conducted using medical record data from 31 hospitalized tuberculosis patients at Ulin Regional Hospital during the period September to December 2021. Data of weight, height, BMI (Body Mass Index), hemoglobin (Hb) results at admission and albumin at admission were analyzed.

Results

TB cases is mostly found in male sex (61.3%) with the age of 20-60 years (83.9%). Patients with undernutrition (BMI

Conclusions

Undernutrition is closely related to tuberculosis and likely to be the common cause for anemia in TB. Therefore, screening, early diagnosis, and treatment for undernutrition and anemia should be encouraged to lower the burden of tuberculosis.

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AO16-9

Clinical Profile and Outcomes of Covid 19 Patients with Concomitant Pulmonary Tuberculosis: A Cross Sectional Study at Veterans Memorial Medical Center

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Background and Aims

COVID-19 and Tuberculosis are both infectious diseases that poses an increased risk of morbidity and mortality. This study aims to determine the clinical profile and outcomes of adult patients with Pulmonary tuberculosis and Covid 19 coinfection admitted at Veterans Memorial Medical Center between March 1, 2021 to February 28, 2022.

Methods

A retrospective cross sectional study was employed in this study. Clinicodemographic profile including age, sex, clinical signs and symptoms, co-morbidities, smoking history, BMI, PTB classification, Covid 19 severity, PTB Treatment received, radiologic and laboratory investigations were recorded. Clinical outcome including length of hospital stay, intubation/ mechanical ventilation, ICU admission and mortality of patients with Covid 19 and PTB coinfection were also recorded.

Results

A total of 166 patients were included. All the p-values such as length of hospital stay, intubation/ mechanical ventilation, ICU admission and mortality are less than 0.05 level of significance. This means that the null hypothesis was Rejected for every in-hospital outcome. There was sufficient evidence to conclude that patients with Covid 19 and PTB infection significantly differ to those without PTB infection in terms of mortality, length of hospital stay, ICU admission and need for mechanical ventilation or intubation.

Conclusion

Covid 19 with PTB Coinfection showed worse outcome than those without, more likely to expire, more likely to stay longer and admitted in the ICU and more likely to have the need for mechanical ventilation or intubation.

AO17-1

Identification of predictive factors for early relapse in patients with unresectable stage III NSCLC receiving consolidation durvalumab after concurrent chemoradiation

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Background and aims

Patients with locally advanced, unresectable, non-small cell lung cancer (NSCLC) receiving definitive chemoradiotherapy benefit from durvalumab consolidation therapy. However, predictive factors for early relapse during durvalumab maintenance were not identified.

Patients and methods

The present study used the lung cancer cohort of the Catholic Medical Centers at the Catholic University of Korea from 2018 to 2021. In all, 51 NSCLC patients that were treated with durvalumab consolidation therapy after concurrent chemoradiation. Early relapse was considered if it occurred within 6 months of starting initial durvalumab therapy.

Results

During study period, 15 (29.4%) relapsed among 51 included patients. Median time from initial therapy of durvalumab to progression was 107.73 ± 47.69 days in early relapse group. In multivariate analysis, younger age (HR 0.713, 95% CI 0.572-0.888, $P=0.003$), higher pack years (HR 1.311, 95% CI 1.109-1.549, $P=0.001$), non-COPD (HR 0.030, 95% CI 0.001-0.677, $P=0.027$), anemia (HR 23.30, 95% CI 2.030-267.48, $P=0.011$) and stage IIIC (HR 17.890, 95% CI 1.997-160.243, $P=0.010$) were independent predictive factors for early relapse during durvalumab consolidation therapy.

Conclusion

Younger age, higher pack years, non-COPD, anemia and stage IIIC were independent predictive factors for early relapse during durvalumab consolidation therapy in patients with unresectable stage III NSCLC after concurrent chemoradiation. Careful patient selection and clinical attention are needed for high-risk individuals.

AO17-2

Evaluation of Blood Tumor Mutation Burden for Efficacy of Second-Line Atezolizumab Treatment in Non-small Cell Lung Cancer: BUDDY trial

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Background and Aims

We aimed to investigate the feasibility of blood tumor mutation burden (bTMB) as biomarker of atezolizumab efficacy in relapsed/advanced non-small cell lung cancer (NSCLC).

Methods

We recruited relapsed/advanced NSCLC patients with previous 1-2 platinum-doublet chemotherapy. Patients received atezolizumab 1200 mg every 3 weeks. Blood was collected to obtain plasma cell-free DNA (cfDNA) before first cycle (C0) and at fourth cycle (C4) or end-of-treatment (EOT) visit. bTMB was measured in patients with cfDNA>10ng using CT-ULTRA, a targeted NGS panel specifically designed for ctDNA analysis. Primary endpoint was to evaluate objective response rate (ORR) in bTMB-high (bTMBhi) and -low (bTMBlo) population.

Results

A total of 100 patients were enrolled. bTMB was measured in 89 samples at C0 and paired 64 samples at C4/EOT. ORR was 10% and there was no difference in ORR according to bTMB (cutoff: 7.7muts/Mb) at C0 (bTMBhi 9.3% vs. bTMBlo 11.4%). At a median follow-up of 12.3 months, median PFS was 2.1 months. Patients with high PD-L1 (≥50%), low cfDNA at C0 (cutoff: 8.6ng/mL) or decreased bTMB from C0 to C4/EOT showed significant PFS benefit, and median PFS was significantly different between patients with high PD-L1/bTMBhi and with low or negative PD-L1/bTMBlo (not reached vs. 2.0; hazard ratio [HR] 3.32). In multivariable analysis, EGFR mutation and increased bTMB from C0 to C4/EOT were significant risk factors for PFS.

Conclusion

In previously treated NSCLC patients, improvement in treatment efficacy of atezolizumab was correlated with high PD-L1 expression and serial decrease in bTMB after treatment.

AO17-3

Soluble PD-L1 levels correlate with efficacy of PD-1/PD-L1 inhibitors in lung cancer

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Background and Aims

Circulating soluble programmed death-1 ligand (sPD-L1) is known to be associated with poor prognosis in lung cancer. In this study, we investigated circulating sPD-L1 and its role as a predictive marker in patients with advanced non-small cell lung cancer (NSCLC) treated with PD-1/PD-L1 inhibitors.

Methods

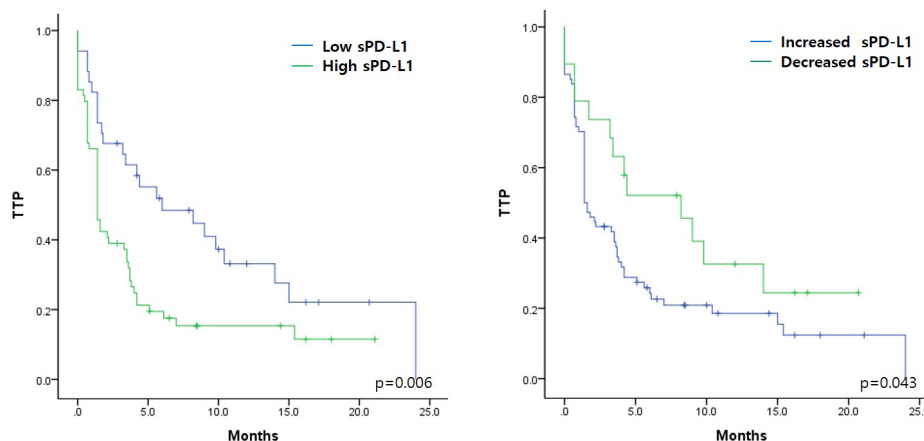
This study included patients who were diagnosed with NSCLC and treated with PD-1/PD-L1 inhibitors at Chungnam National University Hospital from May 2019 to August 2021. Blood samples were obtained baseline and post 7 days after PD-1/PD-L1 inhibitors.

Results

A total of 97 patient samples were analyzed. The mean baseline sPD-L1 level was 50.85 pg/mL. Post-treatment sPD-L1 was significantly lower in the responder group than in the non-responder group (201.42 pg/mL vs. 506.49 pg/mL, $p=0.001$). We used a ROC curve to determine the optimal sPD-L1 cutoff level for the prediction of response. We found that a cutoff value of 74.42 pg/mL distinguished best between patients who showed response area under the curve value was 0.744 ($p=0.001$). Time-to-progression (TTP) was significantly longer in the low sPD-L1 group than in the high sPD-L1 group (6.0 months vs. 1.4 months, $p=0.006$). We analyzed the changes in sPD-L1 concentrations. The objective response rate (ORR) and disease control rate (DCR) were significantly higher in patients with decreased sPD-L1 levels compared to those with increased follow up sPD-L1 levels (ORR 52.6% vs. 13.5%, $p=0.001$; DCR 78.9% vs. 45.9%, $p=0.011$).

Conclusion

Plasma sPD-L1 levels could be a potential biomarker for predicting the efficacy in NSCLC patients treated with PD-1/PD-L1 inhibitors.



AO17-4

Real-world analysis of the EGFR T790M mutation in plasma and tissue biopsy from advanced non-small cell lung cancer

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Background and Aims

Third-generation epidermal growth factor receptor (EGFR) tyrosine kinase inhibitor (TKI) is standard treatment for patients with advanced EGFR T790M-mutated non-small-cell lung cancer (NSCLC) who have been pre-treated with first or second-generation EGFR-TKIs. This study investigated the frequency and detection method of T790M mutation in clinical practice

Methods

From January 2018 to December 2021, Total 590 Patients with advanced EGFR-mutated NSCLC who had progressed during at least one first- or second-generation EGFR-TKI were included at three referral hospitals in South Korea. The T790M mutation status was assessed in plasma circulating tumor DNA (ctDNA) in all patients and by tissue analyses in selected patients.

Results

T790M mutations were detected in 278 patients (47.1%) with either plasma ctDNA or tissue biopsy. Of the total 278 patients, 122 patients were positive for T790M mutation in plasma ctDNA, and 42 of them, additional tissue biopsy was not performed. Of the 80 patients who performed the tissue biopsy, only 32 patients were positive for T790M mutation in both plasma ctDNA and tissue biopsy. Among plasma ctDNA T790M mutation-negative patients, tissue biopsy additionally confirmed T790M mutation in 123 patients.

Conclusion

This study showed that plasma ctDNA and tissue biopsy are complementary for detecting T790M mutation. A significant number of patients who were negative for T790M mutation in plasma ctDNA showed positive results in tissue biopsy. However, it is also possible to obtain positive T790M mutation in plasma ctDNA with negative tissue biopsy. For effective detection of T790M mutation, a strategy for combination of plasma ctDNA test and tissue biopsy is necessary.

AO17-5

Clinicopathologic characteristics of NSCLC patients with uncommon EGFR mutations in Korea

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Introduction

Limited clinicopathologic data are available in patients with non-small cell lung cancer (NSCLC) harboring uncommon epidermal growth factor receptor (EGFR) mutations.

Methods

We retrospectively analyzed the NSCLC patients who had uncommon EGFR mutations, which were categorized as follows: exon 20 insertions, "major" uncommon mutations (G719X, L861Q, and S768I, with or without any other mutation except T790M or an exon 20 insertion), compound mutations and other uncommon mutations.

Results

This study used a lung cancer cohort of the Catholic Medical Center of Korea between January 2018 and December 2021. In 589 EGFR harboring NSCLC mutations, 76 (12.9%) were patients with uncommon mutations. In uncommon mutations, the composition was as follows: "major" uncommon mutations (50.7%), compound mutations (13.7%) and other mutations (35.6%). Exon 20 ins mutations were 15 (19.7%). The progression free survival (PFS) was shorter in patients with uncommon EGFR mutations compared to patients with common mutations (843.9±58.6 vs. 517.4±118.1, P=0.001). The PFS was not different among major uncommon, compound and other uncommon mutations (except exon 20 ins). The proportion of male (38.6% vs. 53.9%, P=0.011), squamous cell type (2.5% vs. 11.8%, P=0.001), COPD (16.6% vs. 33.3%, P=0.003) were higher, but that of never smoker (63.0% vs. 43.4%, P=0.005) was lower in patients with uncommon EGFR mutations. The mean values of SP263 (10.7 vs. 16.5, P=0.015), total lung capacity (94.9±16.4 vs. 102.4±47.9, P=0.015), residual volume (85.9±28.5 vs. 99.8±107.9, P=0.001) were higher, but that of DLco (86.9±20.2 vs. 85.3±19.9, P=0.027) was lower in patients with uncommon EGFR mutations. In metastatic pattern, pleural metastasis (82.7% vs. 92.1%, P = 0.036), pericardial effusion (0.0% vs. 1.3%, P=0.009) were frequent in patients with uncommon EGFR mutations.

Conclusion

The uncommon EGFR mutations had different clinico-pathologic characteristics compared to common EGFR mutations in NSCLC patients. Further investigations are needed to confirm the responsiveness of immunotherapy in this subgroup.

AO17-6

The clinical outcomes of different first-line treatment strategies in advanced non-small cell lung cancer patients with EGFR exon 20 insertion mutation

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Background and Aims

In recent years, new treatment strategies have been developed for advanced non-small cell lung cancer (NSCLC) patients with epidermal growth factor receptor exon 20 insertion mutation. However, the clinical efficacies of conventional treatment for these patients were not clear. Thus, we conducted this study to investigate the issue in real-world practice.

Methods

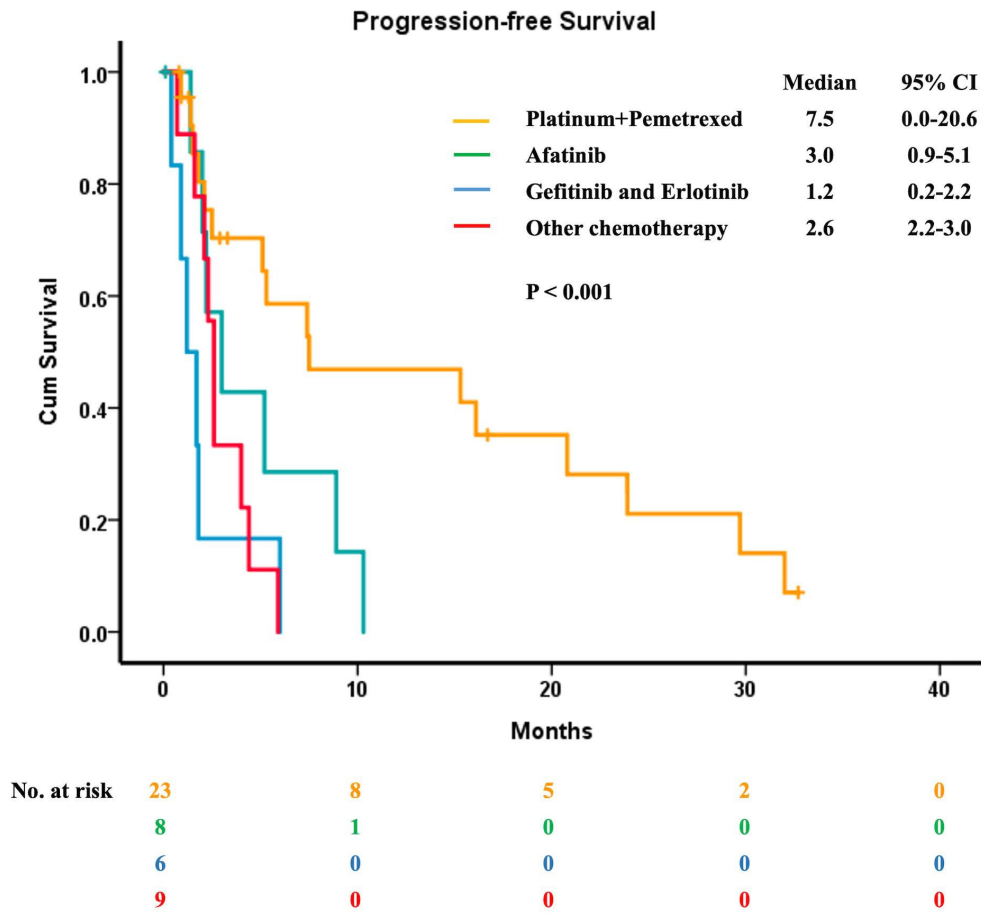
From October 2010 to March 2022, we retrospectively included advanced NSCLC patients who harbored exon 20 insertion for analysis in Taichung Veterans General Hospital, Taiwan.

Results

A total of 46 patients were enrolled in this study. Six (13%) patients received gefitinib or erlotinib as first-line therapy, and 8 (17.4%) patients took afatinib. Twenty-three (50.0%) patients underwent first-line platinum plus pemetrexed treatment. The median progression-free survival (PFS) was 4.0 months, and the median overall survival was 29.3 months. Regarding different treatment strategies, the median PFS was 1.2 months in the gefitinib and erlotinib group, and the median PFS was 3.0 months in the afatinib group. The median PFS was 7.5 months in the platinum plus pemetrexed group, and the median PFS was 2.6 months in the other chemotherapy group. The Kaplan–Meier estimates are provided in Figure 1. Based on Cox regression analysis, patients receiving platinum plus pemetrexed as first-line treatment experienced significantly longer median PFS than other treatment strategies.

Conclusion

Our research demonstrated the clinical outcomes of different treatment strategies as first-line therapy in advanced NSCLC patients harboring exon 20 insertion. We also highlight the importance of chemotherapy, especially platinum plus pemetrexed, in the population.



AO17-7

Never-smoker small cell lung cancer had better chemotherapeutic response than smoker

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Background and Aims

Small cell lung cancer (SCLC) is strongly associated with tobacco consumption and infrequent in never-smokers. This study compared the clinical characteristics and treatment outcomes between never-smokers and smokers in Korean SCLC patients.

Methods

We performed a retrospective chart review of the SCLC patients who received chemotherapy from 2002 to 2021 in one academic hospital. The clinical characteristics and treatment outcomes of the two groups were collected and compared.

Results

Of the total 1643 patients, 162 (11.4%) patients were never-smokers. They showed higher proportion of female (80.2% vs. 6.3%, $p=0.001$), higher body mass index (23.6 vs. 22.8, $p=0.005$), fewer ischemic heart disease (2.5% vs. 6.6%, $p=0.036$), and less symptoms at diagnosis (80.9% vs. 87.2%, $p=0.037$) than smokers. The objective response rate to first-line chemotherapy of never-smokers was significantly higher than that of smokers (74.1% vs. 59.6%, $p=0.000$). The incidence of toxicity was also higher (61.7% vs. 47.8%, $p=0.001$). There was no difference in the progression-free survival (32.9 vs. 157.0 months, $p=0.379$) and overall survival (170.0 vs. 141.5 months, $p=0.122$) between the two groups.

Conclusion

Never-smokers with SCLC were prevalent in females and showed better chemotherapeutic responses than smokers. The further genomic study is warranted for this distinct disease.

AO17-8

Prognostic values of baseline pulmonary functions in patients with non-small cell lung cancer under immunotherapy

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Background

Many patients with lung cancer have underlying chronic lung diseases. We assume that baseline lung functions may also affect prognosis of NSCLC patients under immunotherapy.

Methods

Study subjects were consecutively selected from a multicenter cohort of lung cancer patients with NSCLC enrolled from the seven university hospital affiliated to the Catholic Medical Center. Patients were selected regardless of initial cancer stage. Primary outcome was immunotherapy-related overall survival (iOS), defined as duration since initiation of immunotherapy to time patients were censored.

Results

A total of 289 patients were selected for evaluation. Median iOS was 10.9 months (95% CI 7.5-14.3). PD-L1 expression tested by Sp263 were

Conclusion

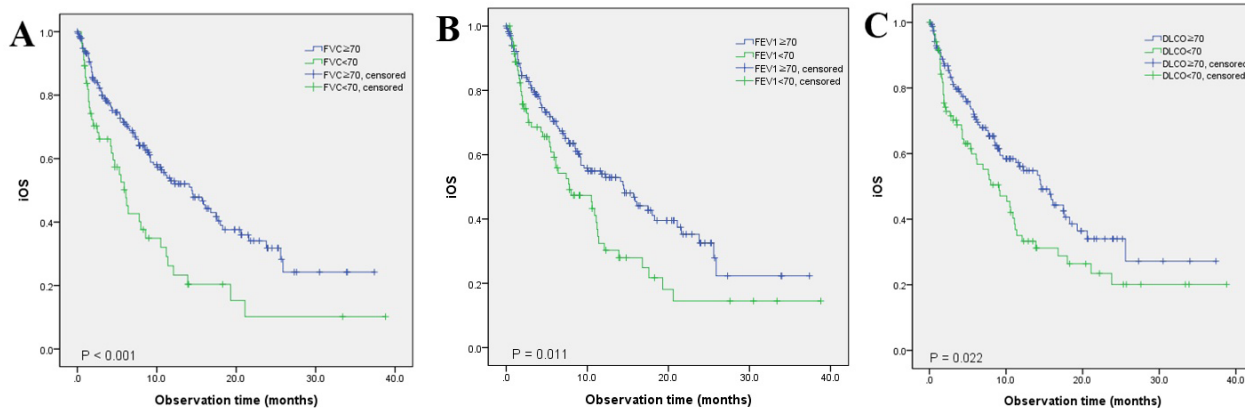
Baseline pulmonary functions measured by FVC (%), FEV1 (%), DLCO (%) and DLCO (absolute) showed independent association with iOS in patient with NSCLC under ICI.

Acknowledgement

No acknowledgement to mention.

Disclosure statement

All authors have no conflict of interest to disclose.



AO18-1

Clinical Profile of COVID-19 Vaccinated Individuals who Developed Breakthrough Infections: A Systematic Review

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Background

Breakthrough infections are defined as the detection of SARS-CoV-2 RNA or antigen in a respiratory specimen collected from a person 14 days after receipt of all recommended doses of an authorized antinovel coronavirus disease 2019 (COVID-19) vaccine [1-3]. The aim study is to systematically evaluate the clinical profile of breakthrough infections among COVID-19 vaccinated individuals.

Methods

This systematic review was conducted through searching three databases including PubMed, Scopus, and Embase. Eligibility criteria included studies clearly reporting the breakthrough COVID-19 infections among vaccinated individuals published from January to September 2021 and were written in English language. Two reviewers independently assessed search results, extracted data, and assessed the quality of the included studies. Quality assessment was based on the Johanna Briggs Institute's Critical Appraisal Tool Checklist.

Results

Seventeen studies carried out in 8 countries met the inclusion out of the 156 search results. All eligible studies included healthcare workers, general population, and vulnerable populations. Most studies described the fully vaccinated individuals with breakthrough infections having mild to moderate COVID-19 symptoms. Fully vaccinated individuals who developed a breakthrough infection were significantly less likely to experience severe disease or death compared with unvaccinated or partially vaccinated persons who developed the infection. Presence of comorbidities, increasing age, and substance abuse were reported to be risk factors for breakthrough infection. Delta variant was the most associated variant with Pfizer-vaccinated individuals after genomic analysis.

Conclusions

Emerging variants with increasing transmissibility increase breakthrough infections. Immunization campaigns targeting unvaccinated populations will likely increase the reduction of COVID-19 cases.

Registration

This study is registered in PROSPERO (International Prospective Register for Systematic Reviews) as CRD42022329358.

Competing interests

None declared.

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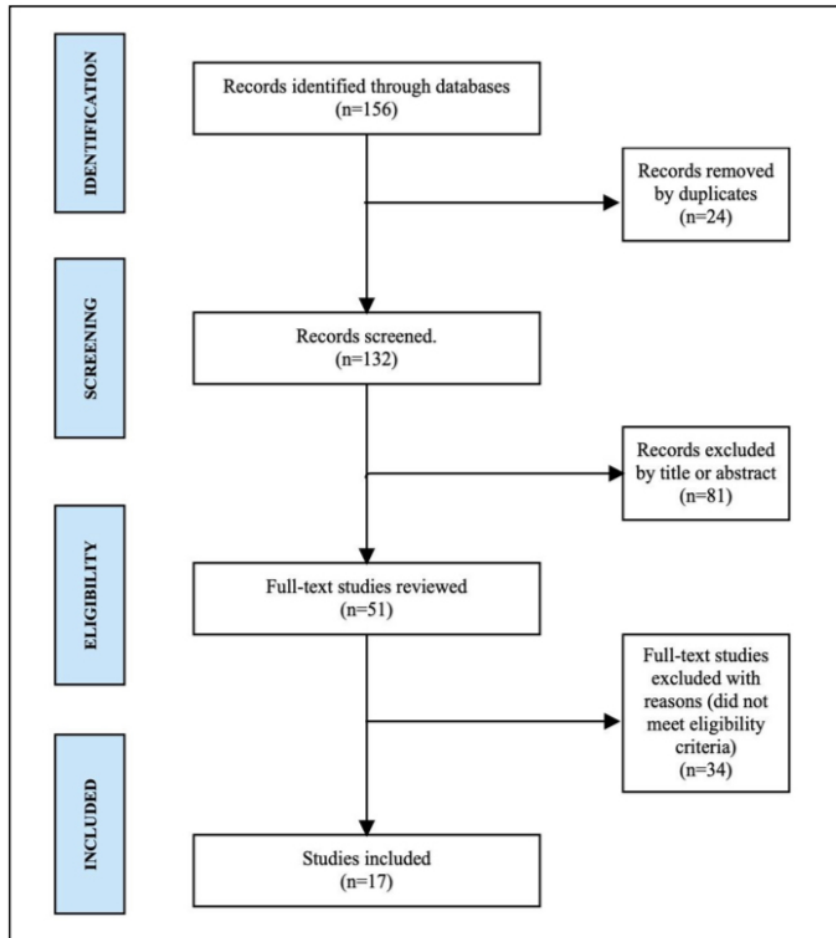


Figure 1. PRISMA flow diagram illustrating study selection.

AO18-2

Involvement of RAGE and oxidative stress in chronic inflammation

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Background and Aims

Sustained inflammation-derived chronic obstructive pulmonary disease (COPD) is a lung disease with gradual airflow restriction, emphysema, and chronic bronchitis. Environmental pollutants, mainly, cigarettes contain a lot of oxidizing agents and various harmful substances that cause oxidative stress, which can contribute to the induction and deterioration of COPD. Recently, it has been reported that receptor for advanced glycation endproducts (RAGE) in the lung is related to the production of ROS. In previous studies, we confirmed inhibition of inflammation and RAGE and repair of PPE-induced mouse emphysema using the RAGE antagonist FPS-ZM1. However, FPS-ZM1 is a chemical drug, it has a high possibility of side effects. Therefore, we utilized peptide-derived Compound A (CA) instead of a chemical drug.

Methods

Injury to the chronic inflammatory model and lung epithelial cells was confirmed using peptide-derived CA. Elastase and CA were intratracheally injected into mice, and inflammatory cells and cytokines were evaluated by ELISA and Giemsa staining. Expression of RAGE was evaluated through immunofluorescence staining. Injury mechanism of the emphysema model was confirmed through Western blot. In vitro, cigarette smoke extract (CSE) and CA were treated on A549 which is a lung epithelial cell line.

Results

Treatment of CA ameliorates PPE-induced emphysema, and RAGE KO mice also showed a lower injury and inflammation than WT. CA improved the survival rate of A549 exposed to CSE and inhibited the production of ROS and RNS in vitro.

Conclusion

Our data suggest that treatment of CA can suppress damage to lung epithelial cells exposed to CSE and recover PPE-induced chronic inflammation.

This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Korea government (NRF-2020R1A2C2010712 and NRF-2020R1A5A8019180).

AO18-3

Combined association of climatic change, air pollution, and green space exposure with risk of respiratory diseases in 6-month-old infants

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Background and Aims

Prenatal exposure to climatic change, air pollution, and green space has been associated with respiratory diseases (RD). However, few studies have examined the combined effects of these environmental factors on RD in children. We aimed to clarify the joint association of prenatal exposure to climatic change, air pollution, and green space with RD in children.

Methods

We included 650 participants in the Mothers and Children's Environmental Health (MOCHE) Study, an ongoing prospective birth cohort. Climate change factors were geocoded using data from the Korea Meteorological Administration, and air pollution data were analyzed using Community Multiscale Air Quality Modeling System. We applied the Bayesian kernel machine and multivariate logistic regression and stratified analysis to estimate the association of climate factors, air pollution, and greenness with RD.

Results

The joint exposure to climate change and air pollution was associated with an increased risk of RD in 6-month-old infants (adjusted OR=1.15, 95% CI: 1.03-2.01). The stratified analysis of residential green space showed an increased risk between infantile RD and climate change and air pollution during pregnancy in lower quartiles compared to areas with higher green space. The adjusted OR in the lower quartiles of green space was 1.19 (95% CI: 1.05-2.18).

Conclusion

This study indicated that the joint association of climate change and air pollution during pregnancy on the risk of RD was greater than of each exposure. Fewer residential green spaces may strengthen the link between climate and air pollution exposure and RD.

AO18-4

Priming with cytokine B enhances therapeutic capacities of mesenchymal stem cells in acute lung injury (ALI)

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Background and Aims

Acute lung injury (ALI) is a syndrome characterized by acute local and systemic inflammation associated with high morbidity and mortality rates. A promising new approach for treatment of ALI/ARDS has evolved from preclinical studies of mesenchymal stem cells (MSCs). Despite potential evidence of MSC therapy, a few limitations (e.g., embolism issue, variation according to cell sources, poor yield from tissue) still remain. To solve some such limitations, we used ES-MSCs derived from single stem cell as an unlimited cell source. These ES-MSCs were produced in current Good Manufacturing Practices production facilities where it is possible to produce cells of uniform quality. In addition, we used cytokine B as a priming factor to enhance ability of MSCs.

Methods

ES-MSCs were pre-conditioned with cytokine B (100ng/mL) for 24 hours. Cytokine B effectively increased cell viability and migration ability, which is valuable as a therapy in context of homing process and survival rate after cell injection.

Results

Cytokine B also increased paracrine effects and immunomodulatory capacity of MSCs. To validate therapeutic potential of cytokine B-primed MSCs in ALI animal model, we established ALI mice model by intratracheally administration of LPS (1mg/kg). At 4 hours after LPS exposure, we intravenously injected cells into mice. LPS induced severe inflammation in mice; however, cytokine B-primed MSCs were more therapeutic than naïve cells. cytokine B-primed MSCs reduced inflammation with enhanced immune-modulatory function via increase of IDO1.

Conclusion

Our findings suggested that cytokine B is a key factor to improve efficiency of MSC therapy in ARDS/ALI.

This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Korea government (NRF-2020R1A2C2010712 and NRF-2020R1A5A8019180)

AO18-5

Trends of five year ambient air pollutant levels and hospitalization rate due to respiratory viral infection in Korean children

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Background

Air pollution can be a risk factor for respiratory viral transmission. This study aimed to investigate 5-year trends of ambient air pollutant levels and hospitalization rate in children with respiratory viral infections.

Methods

The daily mean temperature and concentrations of air pollutants (PM_{2.5}, PM₁₀, O₃, NO₂, CO, and SO₂) in observation center nearby hospital were collected from Jan. 2015 to Dec. 2019. Trends of respiratory viral infections and air pollutant levels were evaluated and relationships between respiratory tract infections and ambient air pollutant levels were assessed.

Results

A total of 1,615 patients (male 53.8%) were hospitalized due to respiratory viral infection during the study period. Mean age was 4.8 years old. Respiratory viruses were isolated in 1,343 cases and showed seasonal pattern: respiratory syncytial virus from Nov. to Jan., metapneumovirus in Apr. and May, rhinovirus was Mar., Apr, and Sep., adenovirus in Aug., bocavirus from Apr. to Jul., influenza B from Feb. to Apr., influenza B from Dec. to Feb., parainfluenza 1 in Aug., parainfluenza 2 in Sep., parainfluenza 3 in May and Jun., and coronavirus from Nov. to Feb. The levels of air pollutants demonstrated seasonal difference: PM₁₀, PM_{2.5}, NO, CO and SO₂ levels were high in winter and spring and low in summer and autumn, while O₃ level was high in spring and summer and low in autumn and winter. Levels of PM₁₀, PM_{2.5}, NO, CO, and SO₂ levels showed decreased trends by year, while O₃ levels were lowest in 2016 and highest in 2019. There was no association between ambient air pollutant levels and hospitalization rate due to respiratory virus infection.

Conclusions

Ambient air pollution levels were high in winter and spring and showed decreasing trends from 2015 to 2019 except for O₃. There were seasonal variations of respiratory viral infection. Ambient air pollution levels did not affect hospitalization rate due to respiratory viral infection in children.

I have nothing to disclose.

AO18-6

Effects of PM_{2.5} exposure on early alveolar development and DNA methylation using human pluripotent stem cell-derived alveolar organoid system

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Background

Particulate Matter (PM) 2.5 induces changes in DNA methylation during pregnancy, which is consistently related with high risk of pulmonary diseases after birth. However, there are only retrospective studies that investigate the effect of PM_{2.5} exposure during human lung development. In this study, we aim to evaluate the relationship between DNA methylation and respiratory disease by PM_{2.5} exposure during early alveolar development using our human pluripotent stem cell (hPSC)-derived 3D alveolar organoid (AO) system.

Methods

Undifferentiated hPSCs were cultured in the presence of PM_{2.5} (50 mg/ml) for the initial 4 days of AO development. At day 25 days of AO development, AOs were harvested and their methylation status of cytosine in CpGs was performed by Agilent sureselectXT human methyl-sequencing. qPCR was performed to estimate the expression levels of DNA methyltransferase (DNMT)- and definitive endoderm (DE)-related genes.

Results

We found that PM_{2.5} exposure during early AO development affected expression patterns of DNMT1, DNMT3 α and DNMT3 β as well as decreased expression levels of early DE-related genes (SOX17, CXCR4, FOXA2 and GATA6). Methylome analysis revealed a set of genes related with pathological development of idiopathic pulmonary fibrosis (IPF) and chronic obstructive pulmonary disease.

Conclusions

Our study found that PM 2.5 exposure during early human alveolar development influences DNA methylation patterns, which are significantly associated with the expression level of genes related to respiratory diseases.

This study emphasizes the risk of exposure to PM_{2.5} during human pregnancy and provides a robust 3D AO platform to facilitate the evaluation of environmental pollutants potentially affecting the lungs (This research was supported by Ministry of Environment as “the Graduate School of Particulate Matter Specialization”).

AO18-7

Incidence of silicosis and dust exposure among small-scale gold miners in Mongolia

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Background

Comprehensive occupational health programs for artisanal and small-scale mining are insufficient.¹ Silicosis is preventable but poor treatment,² one of occupational respiratory diseases most commonly encountered in Mongolia.³ The study investigated the incidence of silicosis and dust exposure assess of small-scale gold miners (SGM).

Methods

A cross-sectional medical examination, including questionnaires, spirometry and chest fluorography was conducted among SGM of Tsagaan Tsakhir of Bayankhongor province. The total dust, respirable dust samples (n=10) were carried out from underground-exploration, outdoor-grinding in working day of mining.

Results

The incidence of silicosis was 19.4% (24) of which 58% (14) was in the second and third stage among SGM. The age was 35.9±10.2 and working years were 5.7±3.5 with no difference among age groups. In underground quarrying with depth water the total dust was low, however the amount of respirable silica was high. Total dust and respirable silica were very high in dry underground quarrying (n=2) as well as the Grinding (n=4) package (n=2) was high. Multi variety analysis shows that mining work years (per 5 years) 2.6 OR (CI 95%: 1.35-5.26), work positions, specifically underground drilling and assistance 6.23 OR (1.00-121.39), packaging 5.25 OR (0.43-125.88), heading, roping and others 4.83 OR 0.77-94.78), and proper mask usage 0.98 OR (0.23-3.44) affecting the development of the disease.

Conclusions

The SGM silicosis was a high incidence which was severe stage in half of them. The exposure to respirable crystalline silica was higher during underground small-scale mining.

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AO19-1

Features of radiological signs in patients with multidrug-resistant extensively drug-resistant pulmonary tuberculosis

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Background and Aims

The aim of our study was to identify the features of radiological signs in patients with multidrug-resistant extensively drug-resistant pulmonary tuberculosis (MDRXDR-TB).

Methods

Under our study, there were 168 patients with pulmonary TB. Patients were divided into two groups: 1st group of 90 patients with MDR/pre-XDR/XDR-TB and 2nd group-78 patients with susceptible TB. All cases of TB were confirmed by the presence of Mycobacterium tuberculosis by cultural and molecular genetic methods. The characteristic and location of the pathological process was determined by chest X-ray in direct and lateral projections. Aiming tomography was performed to characterize the caverns.

Results

Lung changes were observed in 14(15.5%) patients with chemoresistant TB and in 32(41.5%) with susceptible TB(p

Conclusions

Chemoresistant TB is characterized by a more common specific process with multiple, large, and medium cavities than by susceptible TB, which is more characterized by limited TB changes in tissues, often with no destructive effects, and single and small in their presence.

AO19-2

Infiltrate lesion area as a predictor of the likelihood of drug resistance tuberculosis in Indonesia South Sumatera

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Background and Aims

Indonesia is in the third world rank for drug-susceptible TB (DS-TB) and multi-drug resistant TB (MDR-TB). The problem that arises due to delay in predicting TB to become drug-resistant is because of the unavailable sputum samples or the unavailable GeneXpert MTB/RIF machine. Lung tissue damage shows a variety of radiological features, namely infiltrates, consolidations, cavities, calcifications, fibrosis, atelectasis, and pleural effusions. The more Mtb that remains, the greater the lung damage and the likelihood of Mtb to mutate and become resistant to anti-TB agents will increase. The aim of this study was to determine the infiltrated lesion area on chest X-ray imaging to predict the likelihood of MDR-TB at Mohammad Hoesin Hospital Palembang.

Methods

A comparative study with a case-control design was used to analyze the comparison of chest x-ray characteristics of MDR-TB with DS-TB and assess the accuracy of the radiological findings in the form of infiltrates lesion area that can predict MDR-TB in the internal medicine ward of Mohammad Hoesin Palembang from January to July 2020. The number of research subjects was 138, consisting of cases of DS-TB and MDR-TB obtained from medical records that met the inclusion criteria. Radiological analysis was performed by a radiologist without knowing the sample diagnosis. Data is obtained qualitatively and quantitatively and analyzed using SPSS.

Results

The groups were divided into 69 MDR-TB and 69 DS-TB. Large / medium lesions were found in MDR-TB. From the morphology of the lesions, it was found that MDR-TB and DS-TB infiltrates lesion area had a significant difference of $p = 0.025$; OR 2.6 (95% CI 1.1-6.0) 85.5% in sensitivity, 30.4% in specificity, the infiltrates lesion area was 107.4cm² ($p = 0.000$).

Conclusion

The infiltrate lesion area in MDR-TB has a significant difference. An infiltrated lesion area more than 107,4cm² can predict the likelihood of drug resistance tuberculosis.

AO19-3

Effectiveness of the WHO short treatment (STR) Regimen of MDR-TB

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Background and Aims

The short treatment regimen of WHO, based on as Bangladesh regimen), to treat multidrug-resistant and extensively drug-resistant tuberculosis (MDR- and XDR-TB), was the backbone which preceded all oral short treatment regimen and still reserved for complicated cases.

The objectives of the study were to identify the effectiveness of second tier of STREAM TRIAL- phase 2 of WHO recommended short treatment regimen of MDR-TB in Bangladesh setting by assessing the outcome and side effects of the regimen on mortality and morbidity.

Methods

Prospective Observational Study: purposive consecutive sampling.

Study population: Patients getting STR regimen in NIDCH, Dhaka

Period: June, 2017 to September, 2019

Data collection: Structured questionnaire with face-to-face interview

Statistical analysis: SPSS version 22.0

Results

A total of 390 patients were included initially. At the end of the study, 140 patients did not fulfill the criteria. The mean age of the patients was 36.2 ± 16 . Male to female ratio was 2.14: 1.

At the end of the treatment regimen, 140 patients dropped out due to loss to follow up (42 cases) and shifted to other regimens (98) and cured patients were found 207(82.8%), died 25(10.0%), failed 5(2.0%) and treatment completed 13(5.2%). Including the number of Loss to follow up, cure rate 207 (71%). Important side effect was seen in audiometry which was normal in 81.8% initially and reduced to 72.4% at last follow-up (statistically significant ($p < 0.05$))

CONCLUSION

The WHO shorter MDR-TB regimen is safer and has less side-effects than the conventional longer MDR-TB regimen.

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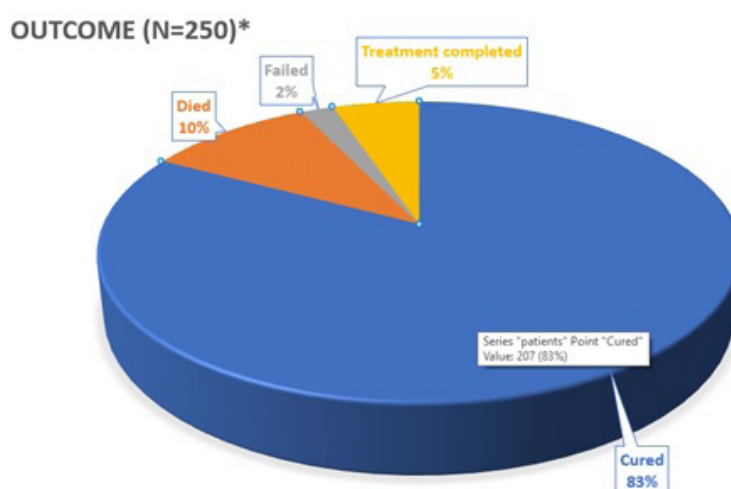
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AO19-4

Treatment outcomes of multidrug-resistant tuberculosis with selective use of bedaquiline/delamanid guided by an expert committee: a nationwide cohort study in South Korea

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Background

The World Health Organization suggests that managements of multidrug-resistant tuberculosis (MDR-TB) should be supervised by multidisciplinary advisory committees. The aim of this study was to assess the treatment outcomes in patients with MDR-TB who underwent treatment guided by a national TB expert review committee in South Korea.

Method

This was a nationwide retrospective cohort study of all patients with MDR-TB submitted for approval for the use of new TB drugs, including bedaquiline and delamanid, from September 2016 to December 2019. Patients were classified into the with new TB drugs and without new TB drugs groups. We compared the final treatment outcomes between the groups and analyzed the prognostic factors.

Results

Of all 785 patients, 754 (96.1%) and 31 (3.9%) were classified into the with new TB drugs group and without new TB drugs group, respectively. The new TB drugs group demonstrated a higher acid-fast bacilli smear positivity rate and higher resistance rate to second-line injectable drugs or fluoroquinolones. Of all the patients, 97.8% achieved culture conversion (97.7% and 100% in the with new TB drugs group and without new TB drugs group, respectively) and 80.4% achieved treatment success (80.2% and 86.7% in the with new TB drugs group and without new TB drugs group, respectively), and there was no difference between the two groups.

Conclusion

New drugs are currently recommended for use in all MDR-TB treatments, and the use of new drugs as determined by an expert committee, in mainly quinolone-susceptible MDR-TB, did not compromise the treatment success rate.

No conflicts of interest

AO19-5

Effectiveness and safety of Bedaquiline-based, modified shorter treatment regimen for Rifampicin resistant Tuberculosis in Vietnam

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Background and Aims

Vietnam has a high rifampicin-resistant TB (RR-TB) burden. WHO recommends a 7-drug standardized all-oral shorter treatment regimen (STR), including bedaquiline for RR-TB treatment. To reduce the pill burden, the safety and effectiveness of a novel 5-drug modified STR (mSTR) was assessed in Vietnam under operational research condition.

Methods

A prospective cohort study of a mSTR (comprising bedaquiline, levofloxacin, linezolid, clofazimine and/or pyrazinamide) for RR-TB patients without confirmed resistance to fluoroquinolone, in Vietnam from July 2020 to February 2021.

Results

Among 106 RR-TB patients enrolled, 66 (62%) were new cases. About 40% had cavities and/or expanded lesions on chest X-ray. Culture conversion at 2 months was achieved in 63 of 74 (85%) patients with a positive baseline culture. Of 106: 95 (90%) were successfully treated, 6 (6%) were lost-to-follow-up, 1 (1%) died and 4 (4%) were reported as treatment failure, including 3 because of permanent regimen change due to adverse events (AE) and 1 because of culture reversion.

Thirty-two (30%) patients encountered at least one AE. In total, 45 AEs were recorded. Of those, 13 (29%) were serious (hospitalization, life threatening (grade 4) or death). The median time to AE was 3 months (IQR:2-5). Twenty-six AEs led to regimen adaptation: either dose reduction (N=1), drug interruption (N=19), or drug withdrawal (N=6, 4 due to linezolid).

Conclusion

The mSTR resulted in high 2-month culture-conversion and high treatment success in Vietnam. AEs were frequent, but manageable in most patients. Active drug safety monitoring and management (aDSM) is essential, particularly when linezolid is used throughout treatment.

AO19-6

The myelosuppressive effect of linezolid among drug-resistant tuberculosis patients in Mongolia

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Background and Aims

Linezolid is one of the main drugs to treat drug-resistant tuberculosis (DR-TB). Prolong use of linezolid is commonly associated with toxicity, mainly myelosuppression that is persistent and require special management. Mongolian MDR/XDR-TB patients use linezolid in the treatment regimen since 2017, but the extent of anemia has never been evaluated. We aimed to evaluate the risk factors of myelosuppressive anemia in DR-TB patients treated with the linezolid-containing regimen to inform the National TB program.

Methods

Retrospective analysis of DR-TB cases notified to the Tuberculosis Surveillance & Research Department between 2018-2021 was undertaken. 95 cases were selected with ≥ 28 days of drug exposure and no obvious factors lead to anemia from 273 treatment ongoing cases. The myelosuppressive effect was evaluated as recommendation of the endTB Clinical Guideline 4.0.

Results

44(46.3%) cases were linezolid-containing, 51(53.7%) cases were regimen without linezolid. In comparison between the two groups, 39 (88%) in the linezolid group, and 30 (58.8%) in the non-linezolid group had chronic anemia ($p=0.001$). In the linezolid group, mild (23 cases, 52.2%), moderate (8 cases, 18.9%), severe (1 case, 2.2%) anemia were observed differently from the comparison group ($p=0.009$), thrombocytopenia 4(9%) ($p = 0.411$), and 4(9%) cases of neutropenia ($p=0.042$) was occurred. Regimen with linezolid resulted in higher incidence of myelosuppressive anemia (OR 5.46, 95% CI 1.84–16.16, $p=0.002$), adjusted ratio reduced the effect slightly, but remain statistically significant (OR 3.737, 95% CI 1.143–12.223; $p=0.029$).

Conclusion

The myelosuppressive effect was common among patients treated with linezolid-containing regimen with changes in hemoglobin and neutrophil counts in mild and moderate severity. Thrombocytopenia was rare and did not different from the comparison group.

AO19-7

Ethionamide-induced hypothyroidism in drug-resistance tuberculosis children: how frequently does it happen?

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Background

Ethionamide's administration was mainly carried out before 2020 as a second-line anti-tuberculosis drug used to manage multidrug-resistant tuberculosis (MDR-TB). Poor tolerability and hypothyroidism as an adverse effect prohibits this drug from being used as first-line therapy. No report in Indonesia is available for ethionamide use for treating MDR-TB in children, besides rates of hypothyroidism varying according to multiple studies.

Aims

To determine the adverse effect of ethionamide and the characteristics MDR-TB children receiving ethionamide in Hasan Sadikin Hospital, Bandung.

Methods

A retrospective cross-sectional study was conducted using MDR-TB children registry of the respiratory division in the Department of Child Health Hasan Sadikin Hospital from 2016 to May 2022. Data collected include gender, age, nutritional status, drug-resistance tuberculosis type, MDR-TB regimen, bacteriological evidence, the index case, thyroid screening tests, and outcomes.

Results

27 of 57 children received ethionamide, and 1 of 57 children received prothionamide for the MDR-TB regimen for the study period. Females (57.1%), adolescents (67.8%), and severe malnutrition (60.7%) were preponderance among children in the study. Most subjects were diagnosed with MDR-TB (89.2%), positive MTB culture (57.1%), and most subjects were given a long-term injectable MDR-TB regimen (75%). Index cases mainly were unknown (46.4%). TSHs were most common for thyroid screening (57.1%). No hypothyroidism and HIV-positive patients were found; five subjects are still on treatment monitoring. Complete recovery was found in most of the patients in the study (60.7%).

Conclusion

This study reported no ethionamide-induced hypothyroidism among MDR-TB children, even though five children are currently under monitoring.

The Author(s) declare(s) that there is no conflict of interest.

AO19-8

Sad TB lung: screening of anxiety and depression among multi drug resistant tuberculosis in a tertiary hospital

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INTRODUCTION

The most recent national TB disease prevalence survey revealed that more than 1% of the Filipino population has tuberculosis, with MDR-TB being documented in all regions of the Philippines. Treatment adverse events, pill burden, psychosocial support and interaction with health personnel pose major challenges to adherence for anti-TB treatments. At present, there is under-recognition of anxiety and depression among MDR-TB patients.

OBJECTIVE

This study determined the prevalence of anxiety and depression symptoms in MDR-TB patients at Baguio General Hospital Medical Center TB.

METHODOLOGY

This study utilized cross-sectional study design to be conducted prospectively in MDR-TB patients enrolled at Baguio General Hospital and Medical Center TB-DOTS from November – December 2021. The study used total enumeration sampling to achieve a sample size of 21. All enrolled MDR-TB patients who passed the inclusion and exclusion criteria were screened and assessed using a validated Tagalog HADS-P questionnaire. Once data is gathered, it was collated, summarized and analyzed.

RESULTS

Of the 21 MDR-TB patients, 18 (85.7%) were included in the study. The prevalence of anxiety and depressive symptoms was found to be 27.8% (true prevalence – 4.9%) and 55.6% (true prevalence - 56.8%), respectively. Lower level of educational attainment, lower-income, and rural residence were significantly associated with more anxiety symptoms while respondents non-alcohol drinkers, rural residence and females were significantly associated with more depressive symptoms. None of the clinical variables were found to be significantly associated with anxiety or depressive symptoms.

CONCLUSION

This study concluded that anxiety, more than depression, is prevalent in patients undergoing MDR-TB therapy at the BGHMC-TB DOTS Center. However, several patient factors which include occupational risk, intake of other medications, socio-economic burdens, and psycho-social issues (lack of support, family/marital issues or a coinciding death or illness in the family) remain to be limitations of the study.

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AO19-9

Analysis of treatment success rates of drug resistant tuberculosis with all oral regimens in South Sulawesi

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Background/Aims

The drug resistance tuberculosis (DR-TB) treatment has changed dramatically in the last 10 years. Evidence on the composition and duration of regimens has grown, new oral drugs have become accessible including short and long term regimens. The all oral regimens were started in 2020 in South Sulawesi. The aim of this study was to determine the DR-TB treatment success rates with all oral regimens based on a previous history of TB.

Methods

The design of this study was a retrospective study of the medical records of DR TB patients at pulmonary outpatient of Labuang Baji Hospital Makassar, health facilities network, and SITB of the South Sulawesi Province Health Service between January 2020 to April 2022. The sampling used consecutive sampling of all DR-TB patients who met inclusion criteria. The data was analyzed using SPSS.

Results

The total sample of this study was 531 patients (320 male and 211 female). Based on the types of cases, the most cases were 237 new cases, 162 relapses, and 132 other cases. The DR-TB treatment success rates in South Sulawesi was 99 patients (18.6%), while in Labuang Baji Hospital was 72 patients (31.05%). There was a significant relationship between the type of new case and the treatment success rate of DR-TB ($p=0.002$; OR 1.755; 95% CI 1.233-2.519).

Conclusion

The DR-TB treatment success rates with all oral regimens in South Sulawesi was 18.6% and Labuang Baji Hospital was 31.05% with new case types have a significant relationship on the treatment success rates.

Key words: treatment success rates, DR-TB, oral regimens

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AO20-1

Correlation of COVID-19 vaccine history and the duration of negative conversion time of COVID-19 patients in Labuang haji hospital and Asrama haji field hospital

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Background/Aims

The current Covid-19 pandemic has urged the international scientific community to find answers in terms of therapies and vaccines to control SARS-CoV-2. One of the problems in handling Covid-19 is the negative conversion time of patients which often varies. The aim of this study was to determine the correlation between the previous history of Covid-19 vaccine and the duration of PCR negative conversion time in Covid-19 patients.

Methods

This study was conducted retrospectively of Covid-19 patients who were hospitalized at Labuang Haji Hospital and Asrama Haji Field Hospital. Data were taken by total sampling from patient medical records between February 2021 to February 2022. All samples in this study must meet the inclusion criteria.

Results

Total patients of this study were 1838 and only 797 patients who met the inclusion criteria. There were 417 (52.3%) patients who had Covid-19 vaccines history (1st vaccine 28.9%, 2nd vaccine 21.5%, and 3rd vaccine 2.01%). There was a significant correlation between Covid-19 vaccine history and the duration of PCR negative conversion time with p value = 0.001 (OR ≤ 10 days 8.043 (95%CI 6.131-10.555); OR > 10 days 0.030 (95%CI 0.017-0.054)).

Conclusion

Covid-19 patients who have received the Covid-19 vaccine have a faster negative PCR conversion than those who have not been vaccinated.

Key words: Covid-19, vaccine, PCR conversion

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AO20-2

Bronchial Thermoplasty or Biologics for Severe Asthma: A Systematic Review and Network Meta-Analysis

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Background

Bronchial thermoplasty (BT) has shown favorable safety and efficacy for patients with severe asthma in several randomized controlled trials (RCTs). These results have yet to be put into perspective by comparing BT to biologic therapies.

Methods

An electronic literature search was performed on PubMed, EMBASE, and the Cochrane Controlled Register of Trials for RCTs comparing BT or biologic therapies versus control in patients with uncontrolled asthma. Trials requiring participants to have minimum baseline biomarkers were excluded to reduce heterogeneity. Case reports, case series, cohort studies and reviews were also excluded. Primary outcomes were change in Asthma Control Questionnaire (ACQ) and Asthma Quality of Life Questionnaire (AQLQ) scores. Secondary outcomes were patients experiencing ≥ 1 exacerbations, annualized exacerbation rate ratio (AERR), oral corticosteroid dose reduction (OCDR), and morning peak expiratory flow rate (amPEF). Network meta-analyses (NMA) were performed for all outcomes, and treatments were ranked using P-scores. Sensitivity analyses were performed, restricting to patients with severe asthma or excluding trials investigating omalizumab. Results: The search strategy retrieved 27 RCTs and 15,547 patients. With respect to control, BT was associated with significant improvements in ACQ (mean difference [MD] -0.40, 95%CI -0.61 to -0.19), AQLQ (MD=0.53, 95%CI 0.30-0.75), amPEF and OCDR. Significantly less patients experienced ≥ 1 exacerbations (risk ratio (RR)=0.66, 95%CI 0.45-0.97) compared to control, and although AERR was not significant for the whole cohort, sensitivity analyses showed significant benefit over control. Dupilumab, omalizumab and tepezelumab also demonstrated significant improvements over control for most outcomes.

Conclusions

This NMA of subjective and objective measures of asthma control shows that outcomes for BT are as good as biologic therapies. Together with favorable BT ten-year safety and sustained efficacy data, it is conceivable that cost-effectiveness analyses would strongly support BT over biologics. BT is a promising first-line alternative to biologic therapies for severe asthma.

Keywords

bronchial thermoplasty, severe asthma, biologics, meta analysis

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AO20-3

The effectiveness of IL-6 and PD-1 antibody blockade combination therapy in a murine model of sepsis

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Background and Aims

Interleukin-6 (IL-6) affects early neutrophil activation and cytokine storms, and programmed death-1 (PD-1) is involved in lymphocyte apoptosis and plays an important role in sepsis-induced immunosuppression. Both are important in the management of sepsis. However, it is not well known about the effect of blockade of IL-6 and PD-1 together in a murine model of sepsis.

Methods

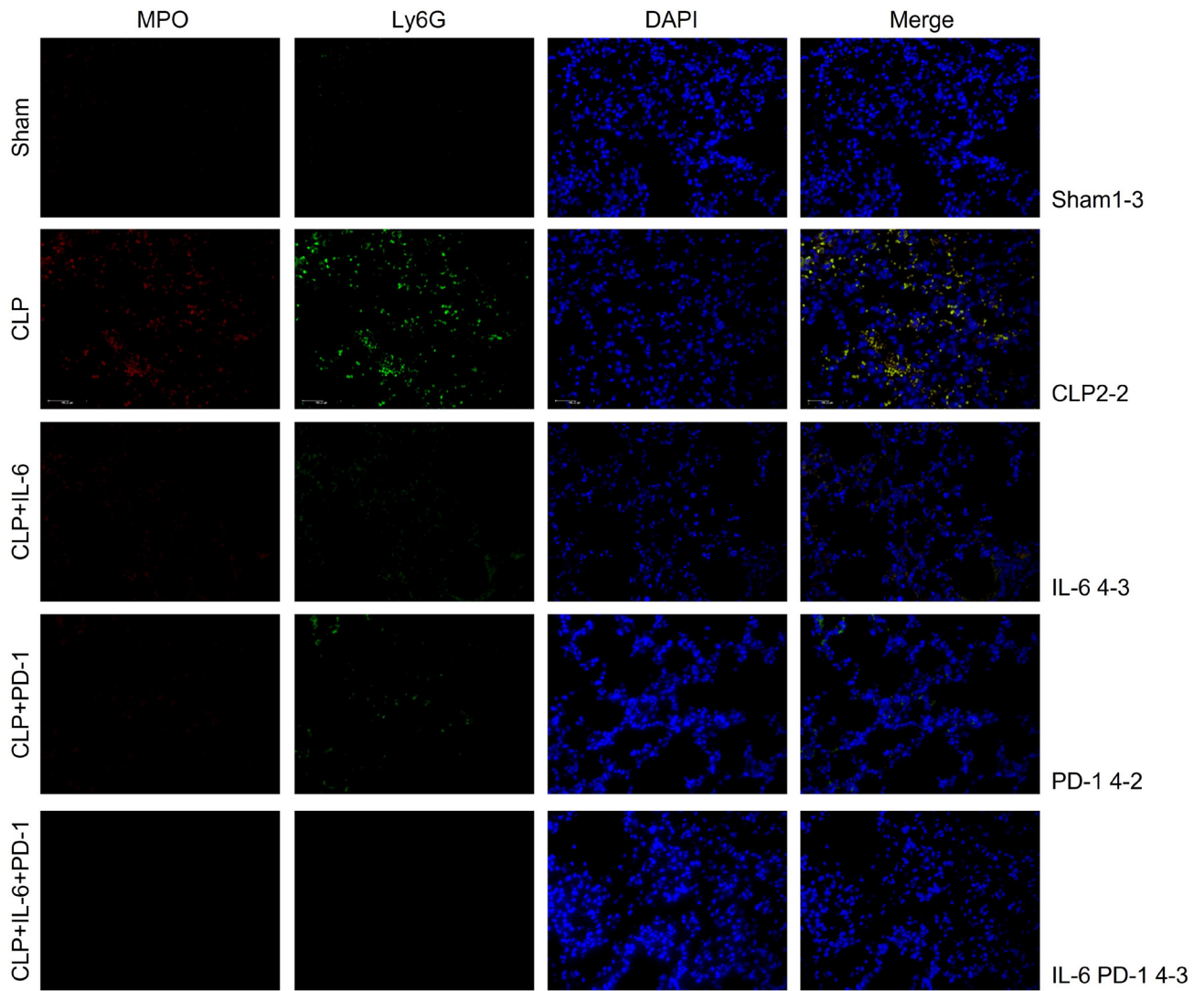
Sepsis was induced in adult C57BL/6 male mice via cecal ligation and puncture (CLP). IL-6 blockade, and/or PD-1 blockade were administered 24 hours after CLP. 24 hours after administration, peripheral blood count and cytokine level were measured. Additionally, lymphocyte apoptosis of spleen and neutrophil infiltration of lung, liver, and survival of mice were determined.

Results

The mortality of the IL-6/PD-1 dual blockade mice was lower than that of the CLP mice, but it did not show statistical significance. Neutrophil percentage and platelet count were lower in the IL-6/PD-1 dual blockade mice than in the CLP mice, but other cytokine levels (IL-1b, IL-6, tumor necrosis factor-a) did not show a significant difference. In the IL-6/PD-1 dual blockade mice, lymphocyte apoptosis was decreased in spleen, and neutrophil infiltration was decreased in liver and lung.

Conclusions

IL-6/PD-1 dual blockade did not reduce blood cytokine levels, but decreased lymphocyte apoptosis and neutrophil infiltration in the organs. IL-6/PD-1 dual blockade may be a promising therapeutic strategy for cytokine storm and sepsis-induced immunosuppression.



AO20-4

Severe asthma is associated with adverse COVID-19 outcomes

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Backgrounds

Asthma has not regarded as a major risk factor for SARS-CoV-2 (SCV2) infection. However, asthma is a heterogeneous disease and limited information exists concerning the impact of respiratory SCV2 infection on asthma subtypes.

Methods

We investigated the effects of respiratory SCV2 infection on severe asthma using a novel mouse model of COVID-19 in severe fungal allergic lung inflammation.

Results

Asthmatic patients who was dependent on systemic corticosteroids showed a significantly increased COVID-19 mortality rate in a large-scale national cohort. Based on these findings, we developed a novel mouse model of COVID-19 in severe fungal asthma using SCV2-susceptible transgenic mice. In Af-challenged mice, the levels of total inflammatory cells, eosinophils, and lymphocytes were significantly increased in the bronchoalveolar lavage fluids. Notably, SCV2 infection in mice led to significantly increased levels of neutrophils, lymphocytes, and eosinophils in the lungs. Histopathological examination revealed the similar phenomenon in the lungs. These findings were further verified using assays of inflammatory mediators involved in COVID-19 or asthmatic inflammation. The levels of hyperinflammatory response markers involved in COVID-19 in the lung tissues after SCV2 infection were significantly higher in Af-challenged mice than in Af-sensitized mice. Similarly, significant increases in the levels of cytokines involved in the pathogenesis of fungal asthma were noted after SCV2 infection in the lungs of Af-challenged mice.

Conclusion

SCV2 infection in severe asthma may lead to the aggravation of COVID-19 and/or asthma, which may lead to the adverse COVID-19 outcomes observed in our study.

AO21-1

Effects of chronic intermittent hypoxia on bleomycin induced interstitial pulmonary fibrosis elderly mouse model

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Background and Aims

Obstructive sleep apnea (OSA) is prevalent in older patients with idiopathic pulmonary fibrosis (IPF), however often it is under-recognized. OSA is characterized by intermittent hypoxia (IH) and sleep fragmentation. In this study, we evaluated the impact of intermittent hypoxia (IH) on elderly bleomycin induced IPF mouse model.

Methods

The mice were randomly divided into four groups: young + room air (RA) + bleomycin (YBC), elderly + RA + bleomycin (EBC), young + IH + bleomycin (YBI), and elderly + IH + bleomycin (EBI). Mice (C57BL/6, female) were exposed to RA or IH (20 cycles/h, FiO₂ nadir 7 ± 0.5%, 8 h/day) for 4 weeks. The mice were sacrificed at day 28 and blood, bronchoalveolar lavage (BAL) fluid and lung tissue samples were obtained.

Results

The EBI group showed a trend of more severe inflammation, fibrosis, and oxidative stress compared to other groups. Inflammatory cytokines such as IL12p70, TNF, IFN- γ , IL-10, IL-6 from serum increased in the EBI group compared to other groups. The hydroxyproline level in lung tissue were markedly increased in EBI group compared with other groups. The level of TGF- β in serum was also significantly increased in EBI group compared to other groups.

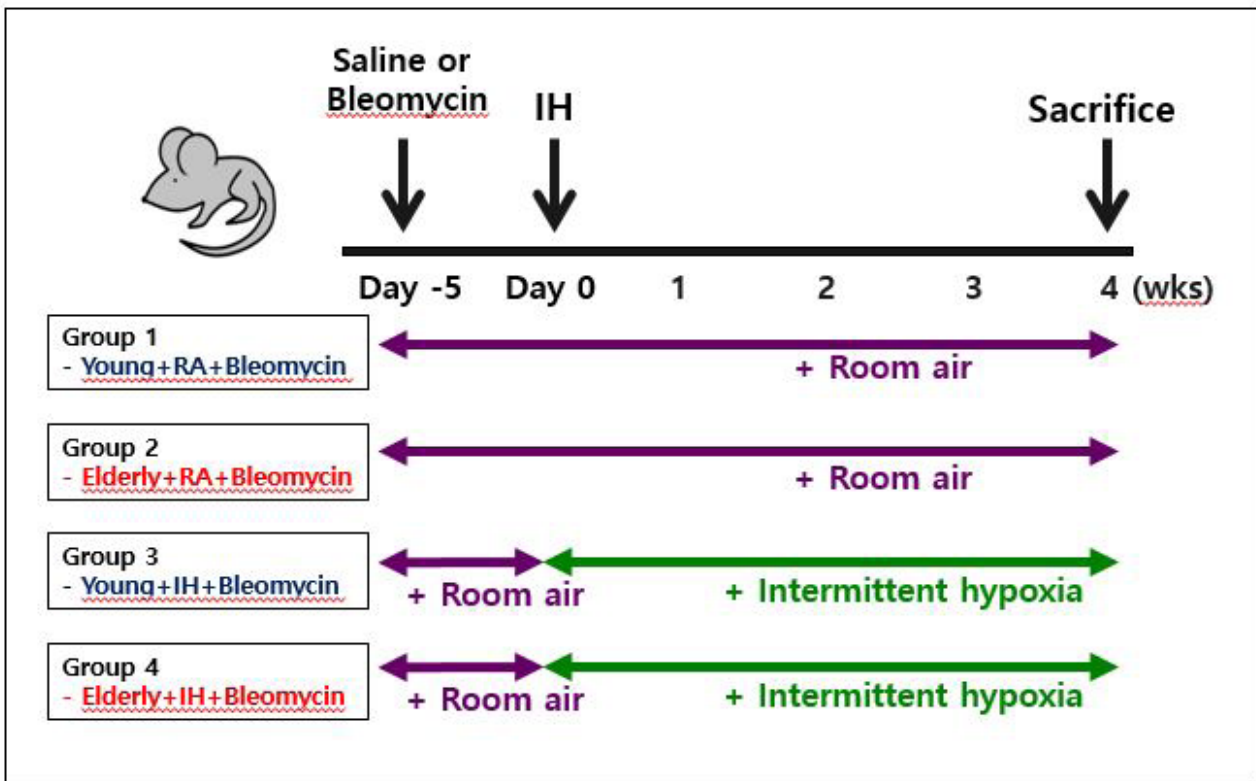
Conclusions

This study shows the possible harmful impact of OSA on elderly IPF mouse model. This study further suggests that older IPF patients with OSA may be more of a concern compared to younger IPF patients. Further research is needed.

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AO21-2

Prevalence of cognitive impairment and the effect of continuous positive airway pressure (CPAP) towards cognition among patients with obstructive sleep apnoea (OSA)

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Background and aim

It was reported OSA patients had higher risk to develop cognitive impairment. This study aimed to look for the prevalence of cognitive impairment and domains affected in OSA patient and to explore the effect of continuous positive airway pressure (CPAP) towards cognition among OSA patients with cognitive impairment.

Methods

A single-centre, cross sectional study was conducted among OSA patients attended Respiratory clinic, Universiti Teknologi MARA (UiTM). Selected patients had cognitive assessment done using Malay version Montreal Cognitive Assessment (MMoCA). Those with MMoCA < 22 were labelled to have cognitive assessment and were counselled for CPAP. We further explored the effect of CPAP in this particular groups after 3 months

Results

Out of 76 patients, 17 patients (22.4%) had cognitive impairment. The mean age (SD) of participants was 52.16 (8.438) years. Those with cognitive impairment had significantly higher apnoea-hypopnea index (AHI) [mean (SD) of 69.4 (19.81), p value < 0.001] and lower oxygen saturation (SPO2) nadir [median 62 (IQR 62-68), p value < 0.001]. The most affected cognitive domains affected among OSA patients with cognitive impairment were attention and memory. On exploratory analysis, the cognitive function improved significantly after CPAP treatment to median (IQR) MMoCA score of 25 (23-28) from 20.5 (19.8-21).

Conclusion

22.4% of OSA patients had cognitive impairment. SPO2 nadir was the only factor associated with cognitive impairment in OSA patient after multiple regression. The most affected cognitive domains involved were attention and memory. CPAP was found to improve cognitive function in OSA patients.

This project would not have been possible without the support of many people. Many thanks to the Respiratory Unit of Faculty of Medicine, Universiti Teknologi MARA (UiTM). Not to forget to all my supervisors, Associate Professor Dr Ahmad Izuanuddin Ismail, Associate Professor Dr Shalini Bhaskar, and Dr Noor Azleen Tarmizi.

AO21-3

Impact of change in CPAP initiation practice during COVID-19 pandemic on acceptance and short-term adherence.

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Background and Aims

The COVID-19 pandemic has prompted significant changes to Continuous Positive Airway Pressure (CPAP) initiation practice to mitigate the risk of transmission. Our study aims to investigate the clinical impact of these changes on acceptance and short-term adherence in patients who were newly diagnosed with obstructive sleep apnea (OSA).

Methods

We conducted a longitudinal observational study on 121 patients with newly diagnosed OSA who were referred for CPAP initiation counselling. Patients recruited in the pre-COVID-19 outbreak group underwent a short CPAP therapy simulation at 4 cmH₂O during the initiation counselling. Those who accepted the therapy underwent a one-month trial of CPAP therapy with humidification. Patients recruited during the COVID-19 outbreak did not receive CPAP therapy simulation during counselling and had no humidification during the one-month trial. The primary outcome was upfront CPAP therapy acceptance. Secondary outcome was objective CPAP therapy adherence at 1-month.

Results

Percentage of upfront acceptance was approximately 46% and similar in both groups ($p=0.619$). Target adherence was defined as CPAP usage for ≥ 4 hours per night on at least 70% of the nights. About a third of patients who accepted CPAP therapy achieved target adherence and proportion was similar in both groups ($p=0.842$).

Conclusion

Changes in CPAP initiation practice by omitting physical CPAP simulation did not affect upfront acceptance of CPAP therapy in patients with newly diagnosed OSA. Changes in counselling practice coupled with absence of humidification did not affect short-term adherence in patients who were newly initiated on CPAP therapy for OSA.

The author declares that she has no relevant or material financial interests that relate to the research described in this paper.

AO21-4

OSAHS can induce retinal microvascular abnormalities

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Background and Aim

To investigate the retinal vessel morphology and density abnormalities in obstructive sleep apnea-hypopnea syndrome (OSAHS) patients and explore the effect of OSAHS on the retinal microcirculation.

Methods

All participants accepted detailed ophthalmic examinations including best-corrected visual acuity, intraocular pressure, fundus examinations, and optical coherence tomography angiography (OCTA) scans. Polysomnography and blood sample tests were performed. Designed engineering programs were used for the OCTA imaging analysis to obtain retinal vascular morphology and vessel density parameters.

Results

(1)The vascular tortuosity in the superficial retinal layer showed statistical difference among groups ($P=0.020$). (2) Compared with the mild group, the vascular tortuosity in the moderate and severe OSAHS group was significantly higher ($P=0.020$), and the average vessel density in the superficial retinal layer was significantly lower ($P=0.025$). (3) AHI as the severity of the OSAHS, was positively correlated with the vascular tortuosity ($P=0.002$), and was negatively correlated with the blood flow density in the superficial retinal layer ($P=0.012$).

Conclusion

OSAHS can increase the vascular tortuosity and decrease the average vessel density in the superficial retinal layer, which may be potential indicators for early prediction of microcirculation abnormalities in OSAHS patients; As a convenient and non-invasive ophthalmic examination method, OCTA can be used to observe and follow up microvascular abnormalities in OSAHS patients.

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AO21-5

Factors affecting CPAP adherence in Thai patients with obstructive sleep apnea

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Background and Aims

Continuous positive airway pressure (CPAP) is an effective treatment for patients with obstructive sleep apnea (OSA). CPAP compliance affects short-term and long-term clinical outcomes. Data on factors associated with adherence to CPAP has been limited. This study aimed to determine the prevalence of CPAP adherence and factors affecting non-adherence in OSA patients.

Methods

A cross-sectional study was conducted in OSA patients aged 18 years or older with CPAP treatment. Demographics, clinical characteristics, and CPAP adherence (usage ≥ 4 hours/night for $\geq 70\%$ of nights) at 2 weeks, 4 weeks, 3 months, and 6 months were recorded. Patients were divided into 2 groups: adherence and non-adherence.

Results

A total of 210 participants (61% male) were included. Mean age was 53.5 ± 14.8 years. Body mass index was 30.7 ± 6.9 kg/m². Comorbidities included hypertension (63%), heart disease (18%), and cerebrovascular disease (5%). Polysomnographic data showed apnea-hypopnea index was 48.9 ± 32.0 events/hour, nadir saturation was $79.3 \pm 11.4\%$ and 3% oxygen desaturation index was 14.3 ± 16.9 events/hour. Severe OSA was 68%. The proportion of CPAP adherence in 2 weeks, 4 weeks, 3 months, and 6 months was 59.1%, 60.0%, 57.6%, and 56.8%, respectively. The factors associated with CPAP non-adherence were CPAP mask off at night, irregular sleep time, no time to use CPAP, dry month, and doctor follow-up schedule more than 6 months. Moreover, when patients had good compliance at 2 weeks, they had significantly good compliance at 4 weeks, 3 months, and 6 months.

Conclusion

Only about half of OSA patients had good adherence to CPAP. There were many factors affecting CPAP adherence. When patients had good compliance in a short-term period, they were likely to have good compliance in a long-term period.

Acknowledgements

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Disclosure statement

The authors declare no conflict of interest.

Table 3. Logistic regression of CPAP non-adherence in OSA patients

Parameters	Odds ratio (95%CI)	P-value
2 weeks		
Mask off at night	2.47 (1.21 to 5.04)	0.014
No time to use CPAP	5.78 (1.42 to 23.48)	0.014
Sick during CPAP use	2.43 (1.21 to 4.90)	0.013
Doctor follow-up schedule > 6 months	6.11 (1.77 to 21.12)	0.004
4 weeks		
Stroke	37.87 (1.32 to 1085.63)	0.034
Irregular sleep	5.93 (1.12 to 31.44)	0.037
Regular CPAP use in 2 weeks	0.002 (0.000 to 0.010)	<0.001
3 months		
Mask off at night	2.92 (1.12 to 7.61)	0.029
Irregular sleep	3.52 (1.45 to 8.55)	0.005
Sick during CPAP use	3.94 (1.37 to 11.31)	0.011
Dry month	18.15 (2.38 to 138.32)	0.005
Doctor follow-up schedule > 6 months	17.21 (3.05 to 97.12)	0.001
Doctor advise CPAP use	12.12 (1.224 to 120.07)	0.033
6 months		
Mild OSA	11.24 (1.22 to 103.37)	0.033
Irregular sleep	3.06 (1.12 to 8.36)	0.029
Dry month	13.22 (2.11 to 82.84)	0.006
Doctor follow-up schedule > 6 months	15.63 (1.71 to 142.88)	0.015

CPAP=continuous positive airway pressure, OSA=obstructive sleep apnea

AO21-6

Intermittent hypoxia up regulates mTOR expression in hepatic macrophages through CX3CL1/CX3CR1

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Background and Aim

mTOR pathway of hepatic macrophages (Kupffer cells) plays an important role in the development of MAFLD. The interaction between chemokine CX3CL1 secreted by hepatic stellate cells (HSC) and receptor CX3CR1 of hepatic macrophages may be the key link for these two cells to participate in liver injury. The aim of this study was to investigate whether intermittent hypoxia (IH), the main pathogenesis of OSA, is involved in liver injury through CX3CL1/CX3CR1 regulation of mTOR expression in macrophages.

Methods

Primary mouse HSCs and primary macrophages were extracted and co cultured for 72 hours under IH in vitro (8% oxygen concentration for 5 minutes, then 21% oxygen concentration for 5 minutes, cycling). The protein expression of CX3CL1, CX3CR1 and mTOR were detected with WB.

Results

It was found that IH simultaneously increased the protein expression of CX3CL1 in HSCs, and the protein expression of CX3CR1 and mTOR in macrophages. After blocking CX3CR1 on macrophages with antagonists, the increase of mTOR in macrophages was weakened by IH. It is suggested that IH stimulates HSCs to up regulate macrophage mTOR through CX3CL1/CX3CR1 (Fig. 1).

Conclusion

IH regulates mTOR expression in hepatic macrophages through CX3CL1/CX3CR1, which may be an important mechanism of MAFLD induced by OSA.

This work was supported by the Natural Science Foundation of Hunan Province (No.2021JJ30982, No.2020JJ4812, No.2021JJ31013); Scientific Research Project of Hunan Provincial Health Commission (No.202107020970); Science and Technology Innovation Project of Hunan Province (No.2018SK52505, No. 2020SK53603); Popular science project of Hunan Province (No.2021ZK4178)

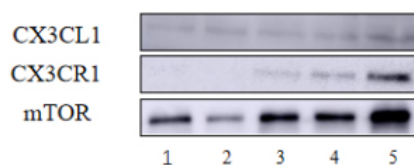


Figure 1. (1) normal air (control group)/24h, (2) normal air+CX3CR1 antagonists/72h, (3) IH+CX3CR1 antagonists/72h, (4) normal air /72h, (5) IH/72h.

AO21-7

IH can induce apoptosis of macrophage

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Background and Aim

OSA has been increasingly linked to MAFLD. Intermittent hypoxia (IH) is the main pathogenesis of OSA. The purpose of this study was to explore the effects of IH on apoptosis of macrophage which play an important role in MAFLD.

Methods

THP-1 cell (which are widely used in the study of macrophages) were randomly divided into 3 groups: control group (normal oxygen concentration), 15% IH group, 8% IH group. Apoptosis of cell was evaluated using flow cytometry after IH culture for 72 hours..

Results

IH caused significant increase of THP-1 apoptosis after 72 hours, which was related to the IH severity (figure 1).

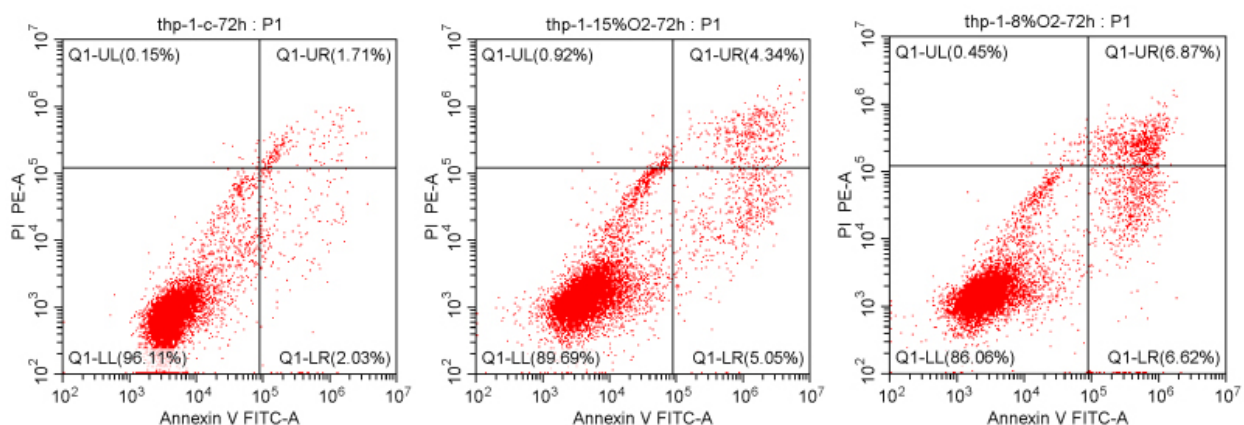
Conclusion

IH can induce apoptosis of macrophage, which may further clarify the mechanism of liver injury induced by OSA.

Figure 1. After IH cultured for 72 hours, the early apoptotic cells in the lower right quadrant (LR) and the late apoptotic and dead cells in the upper right quadrant (UR) in the 15% IH group and 8% IH group were significantly higher than those in the normal control group ($P < 0.001$), and the apoptosis in the 8% IH group was higher than that in the 15% IH group ($P < 0.001$).

Acknowledgement

This work was supported by the Natural Science Foundation of Hunan Province (No.2021JJ30982, No.2020JJ4812, No.2021JJ31013); Scientific Research Project of Hunan Provincial Health Commission (No.202107020970); Science and Technology Innovation Project of Hunan Province (No.2018SK52505, No. 2020SK53603); Popular science project of Hunan Province (No.2021ZK4178)



AO21-8

A systematic review and meta-analysis on the efficacy of telemedicine compared to face-to-face consultations in promoting CPAP compliance among OSA patients

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Background and Aims

The COVID pandemic saw a proliferation of telemedicine services. These were needed to ensure compliance to Continuous Positive Airway Pressure (CPAP) treatment of patients with Obstructive Sleep Apnea (OSA). There are various studies comparing the effectiveness of telemedicine with face-to-face consultations, but a review focused on the video-conferencing modality for teleconsultation in relation to OSA and CPAP compliance has not been done.

Methods

Literature search using PUBMED, Clinicaltrials.gov, and Cochrane Library databases was done for randomized controlled trials (RCTs) enrolling adult patients with OSA requiring CPAP. Outcome measures were: mean compliance to CPAP usage (mins/day), adherence to positive airway pressure (PAP) therapy, and discontinuation of PAP therapy. Risk of Bias assessments and GRADE rating of evidence strength were performed.

Results

3 RCTs were included (N = 351). No statistical significance noted in the pooled differences for mean CPAP compliance (mean difference -16.1 minutes, 95% CI -45.30, 13.27, P = 0.28), and pooled odds ratios (OR) for PAP discontinuation (OR 1.81, 95% CI 0.51, 6.51, P = 0.12) and CPAP adherence (OR 0.97, 95% CI 0.43, 2.21) P = 0.13) between telemedicine and face-to-face consultations. Sensitivity analysis showed no significant difference in the pooled treatment effect. Strength of evidences per GRADE methodology for Mean compliance to CPAP use was Very Low, and Moderate for Discontinuation of PAP therapy and Adherence to CPAP respectively.

Conclusion

Use of videoconferencing telemedicine platforms is comparable in efficacy to traditional face-to-face consultations in promoting CPAP compliance among OSA patients and presents an alternative to the classic patient-physician interaction.

Disclosure statement

The investigators have no conflicts of interest to declare

AO22-1

Risk factors for mortality and progressive disease of nontuberculous mycobacterial lung disease : a systematic review and meta-analysis

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Background and Aim

Studies on risk factors for mortality and progressive disease of nontuberculous mycobacterial lung disease (NTM-LD) are currently limited. This systematic review and meta-analysis aimed to comprehensively evaluate the risk factors for mortality and progressive disease in NTM-LD patients.

Methods

We conducted a literature search to identify eligible studies, dated between January 1, 2007, and April 12, 2021, using four electronic databases. A random-effects meta-analysis was performed to estimate the pooled effect sizes.

Results

Forty-two studies with a total of 10,557 patients, where the association was evaluated as a risk factor for progressive disease or mortality, were included. After adjusting for covariates, the older age, male sex, underlying comorbidities, fibrocavitary or consolidative radiologic features, acid-fast bacillus (AFB) smear positivity, and abnormal laboratory findings were significantly associated with increased risk of all-cause mortality; whereas increasing body mass index, hemoptysis, and treatment with rifamycin regimen were significantly associated with decreased risk of all-cause mortality. Underlying comorbidities, cough, increased sputum, weight loss, fibrocavitary or consolidative radiologic features, AFB smear positivity, and abnormal laboratory findings were significantly associated with increased risk of progressive disease after adjusting for covariates.

Conclusion

History of tuberculosis, fibrocavitary or consolidative radiologic features, AFB smear positivity, anemia, and high C-reactive protein levels were common significant risk factors for the all-cause mortality and progressive disease of NTM-LD.

AO22-2

Risk of Mycobacterium avium complex-lung disease and single nucleotide polymorphisms in programmed cell death-1 gene

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Background and Aim

Mycobacterium avium complex-lung disease (MAC-LD) preferentially occurs in women and may have immune exhaustion involving the programmed cell death-1 (PD-1) pathway. The gender-specific associations between MAC-LD and PD-1 gene polymorphisms is unclear. This case-control study aims to investigate the gender-specific associations between PD-1 gene polymorphisms and susceptibility to MAC-LD.

Methods

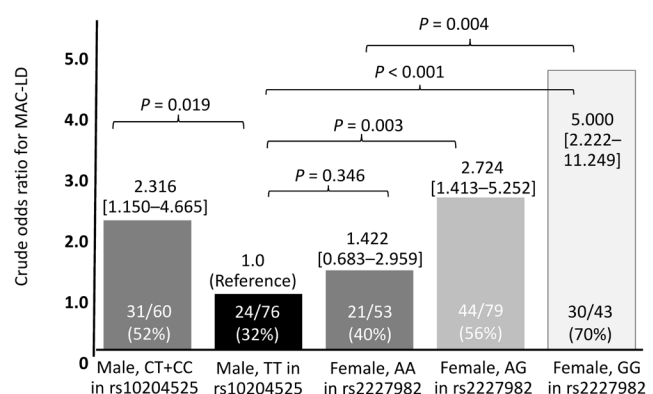
MAC-LD patients (n=152) and controls (n=167) were included at two medical centers in Taiwan. Five single nucleotide polymorphisms in PD-1 were genotyped and their associations with MAC-LD and soluble PD-1 (sPD-1) protein analyzed, especially in gender subgroups.

Results

Overall, PD1 rs7421861 GG genotype was correlated with decreased risk for MAC-LD ($p=0.015$). In logistic analysis, rs2227982 polymorphism was additively associated with increased risk of MAC-LD in females (AA vs AG vs GG, adjusted odds ratio (aOR) 1.849 [95% CI, 1.201–2.845], $p=0.005$) and the rs10204525 TT genotype was associated with low risk in males (TT vs CT/CC, aOR 0.443 [0.217–0.904], $p=0.025$). Compared with males with rs10204525 TT, females with rs2227982 AG and GG had 2.7- and 5.0-fold increased risks, respectively. Overall, sPD-1 levels were lower in the female subgroup with rs2227982 AG/GG than in the remainder (64.9 ± 61.1 vs 77.6 ± 45.8 pg/ml, $p<0.001$). Among patients with MAC-LD, lymphocyte counts were lower in males with rs10204525 CT/CC than in those with TT (1186.7 ± 551.2 vs 1827.5 ± 561.5 /mm³, $p=0.013$)

Conclusion

PD-1 genetic polymorphisms were associated with the risk of MAC-LD in a gender specific pattern, possibly through regulation of PD-1 expression and lymphocyte count. The pathogenesis of PD-1 polymorphism related to MAC-LD susceptibility deserves further study.



AO22-3

Spatial analysis and population genomics study of *Mycobacterium kansasii* in southern Taiwan

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Background and Aim

Mycobacterium kansasii (MK) is a highly virulent species among NTM to cause lung disease (LD). The incidence of MK-LD is 5-folds higher in southern Taiwan than in northern Taiwan, while the possible transmission route of MK-LD are uncertain. This study aimed to identify the transmission cluster by analyzing spatial distribution of MK isolates from MK-LD patients in southern Taiwan.

Methods

A total of 302 MK isolates and clinical information were retrospectively collected from 4 hospitals between 2015 to 2017. The disease status was determined by ATS/IDSA guidelines. Whole genome sequencing using IlluminaNovaSeq was performed for each isolate, and the phylogenetic analysis between isolates was determined by genetic distances based on single nucleotide polymorphisms (SNP). The incidence risk of cluster core was determined by Moran's I, under street level.

Results

A total of 213 MK isolates were recruited for final analysis. Among them, the mean age was 59.2-year, and 65% were male and old TB (27.6%) was the most common co-morbidity. MK subtype 1 accounts for the majority group (83.5%). There were two suspected geospatial hotspots with significant spatial relative risk ranged from 1.54 to 2.27. Phylogenetic analysis showed that 43 isolates were clustered with the ATCC 12478 strain (SNP-distance < 70), and 69 isolates formed 21 clusters (SNP-distance < 20). However, wide genetic diversity was observed, suggesting independent acquisition of infection in most cases.

Conclusion

Though we identify two potential geospatial hotspots in Kaohsiung, further analysis integrating environmental information is necessary to establish the mode of MK transmission in study area.

AO22-4

Another Step into the BACES: Validation of the Prognostic Score for Nontuberculous Mycobacterial Pulmonary Disease

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Background and Aim

Prognosis of nontuberculous mycobacterial pulmonary disease (NTM-PD) varies; therefore, a uniform assessment tool is needed. We aimed to validate a predeveloped prognostic scoring system for NTM-PD, the BACES, in a separate population of patients along with various outcome measures.

Methods

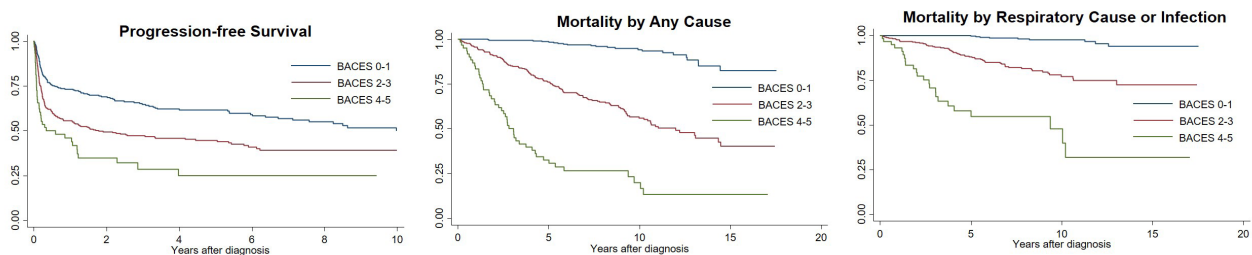
We included adult patients newly diagnosed with NTM-PD according to the appropriate diagnostic criteria. The BACES scores were calculated in each patient with 1 point for each of the following factors: body mass index ≥ 2 , age ≥ 65 years, presence of cavities, elevated erythrocyte sedimentation rate, and male sex. Clinical features and patient outcomes were compared according to the BACES score.

Results

A total of 681 patients were included: 97 (14.3%), 189 (27.8%), 198 (28.2%), 143 (21.0%), 47 (6.9%), and 13 (1.9%) patients revealed BACES scores from 0 to 5, respectively. Compared to patients with BACES 0–1, those with BACES 4–5 were more likely to suffer dyspnea (26.7% vs 8.4%, $P=0.001$) and disease progression (hazard ratio 2.76 with 95% confidence interval [CI] 1.91–3.99). Patients with higher BACES scores revealed a higher probability of all-cause mortality in this separate cohort (Harrell's c-index 0.800 [95% CI 0.772–0.825]) and mortality by respiratory cause or infection (Harrell's c-index 0.811 [95% CI 0.776–0.846]).

Conclusion

BACES score is a simple and efficient tool to assess the severity of NTM-PD regarding various clinical aspects. It not only predicts the all-cause mortality as intended but also the probability of disease progression and deaths associated with the respiratory system and infection.



AO22-5

Nomogram for Predicting Mortality in Patients with *Mycobacterium avium* Complex Pulmonary Disease

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Background and Aim

Nontuberculous mycobacterial infection has increased rapidly in recent years. However, there is not yet an accepted mortality prediction system through the guidelines. This study aimed to develop a scoring system for predicting the mortality of patients with *Mycobacterium avium* Complex pulmonary disease (MAC-PD).

Methods

Participants were diagnosed with MAC-PD from January 2006 to December 2018 in Severance Hospital, a tertiary referral institution in South Korea. We retrospectively analysed the clinical characteristics at the time of diagnosis and searched the prognostic factors affecting mortality. The mortality results were assessed on February 28, 2020, by reviewing electronic medical records and national statistics data.

Results

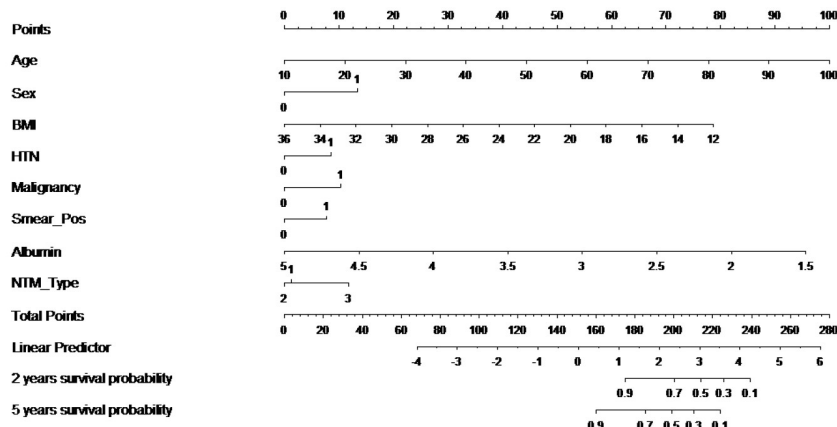
A total of 963 participants with MAC-PD were enrolled, with their median age being 64.1 years and 64.3% women. Patients with lower BMI

It was found that age, sex, BMI, hypertension, malignancy, and serum albumin concentration affected the mortality of patients with MAC-PD. The prognosis prediction model is expressed as a nomogram, as shown in the following figure.

Conclusion

Low serum albumin levels and BMI are closely associated with mortality in patients with MAC-PD.

Figure 1. Nomogram of the final model



AO22-6

The clinical characteristics of *Mycobacterium fortuitum* pulmonary disease and the treatment outcomes

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Background and Aim

We retrospectively reviewed 35 patients diagnosed with *M. fortuitum*-PD at Samsung Medical Center between January 2002 and December 2021. Patients were categorized into two groups by treatment status. We compared the characteristics of the two groups and evaluated the microbiological responses to antibiotic therapy.

Methods

We retrospectively reviewed 35 patients diagnosed with *M. fortuitum*-PD at Samsung Medical Center between January 2002 and December 2021. Patients were categorized into two groups by treatment status. We compared the characteristics of the two groups and evaluated the microbiological responses to antibiotic therapy.

Results

The median patient age was 69 years and 51% (18/35) were female. Twenty (57%) patients had nodular bronchiectatic disease; the most common underlying condition was a history of tuberculosis (46%). Of all patients, 11 (31%) received antibiotics. The characteristics of the treated and untreated groups did not differ significantly. The 11 patients were treated with oral macrolide and fluoroquinolone for a median duration of 15.2 months (interquartile range [IQR] 13.3–17.8 months). Of these, 27% (3/11) additionally received intravenous amikacin and imipenem/cefoxitin for a median duration of 0.6 months (IQR 0.5–0.8 months). The median total treatment duration was 18.4 months (IQR 11.3–17.8 months). The culture conversion rate within 12 months of treatment was 64% (7/11) and the overall microbiological cure rate was 82% (9/11). The median time to culture conversion was 1.0 month (IQR 0.7–2.2 months).

Conclusion

Most *M. fortuitum*-PD patients did not require antibiotic treatment. When antibiotics were required, the microbiological cure rate was high.

AO22-7

Effect of computed tomography-measured body composition on the prognosis of Mycobacterium avium complex pulmonary disease patients in Koreans.

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Background and Aim

There have been several studies on the relationship between body composition and Mycobacterium avium complex pulmonary disease (MAC-PD). Low fat and muscle have been considered risk factors for MAC-PD. We aimed to measure the body composition at the time of MAC-PD diagnosis and find out how the body composition affects the prognosis of MAC-PD.

Methods

This was a retrospective cohort analysis of 963 patients diagnosed with MAC-PD between 2005 and 2018 at the tertiary referral hospital. After excluding patients based on the exclusion criteria, 264 patients were included in the final analysis. In the non-contrast computed tomography (CT) at MAC-PD diagnosis, the cross-section area (CSA) and the Housefield unit (HU) of the erector spinae muscle (ESM), and subcutaneous fat (SQF) were measured at the level of the L1 vertebra. The measured body composition was compared with the CT severity score and all cause-mortality.

Results

There were 81 male and 183 female patients with MAC-PD. AFB smear positivity and low CSA of ESM were associated with moderate/severe CT scores in male patients. For mortality, Age and low SQF CSA were significantly associated with death (Age, aHR 1.12 [1.04–1.22], SQF CSA aHR 0.95 [0.90–1.00]).

Conclusion

Body compositions that have a lower SQF cross-sectional area are associated with increased mortality in MAC-PD patients. Therefore, careful attention and nutritional intervention should be considered in MAC-PD patients with low fat mass.

AO22-8

Mediastinal masses and collections in culture-positive melioidosis: 4-year review in northern Sabah, Borneo

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Background and Aims

Melioidosis is a potentially fatal tropical infection endemic in Sabah, Malaysia. Little is known about mediastinal involvement in melioidosis. This study aimed to 1) describe the prevalence and demographics of mediastinal collections and masses, 2) propose a classification for radiological morphologies of mediastinal melioidosis.

Methods

A retrospective cohort study was performed. Case records of consecutive patients with culture-positive melioidosis who underwent computed tomography thorax from January 1, 2018 - February 28, 2022, were reviewed.

Results

41 out of 486 (8.4%) culture-positive melioidosis patients had mediastinal involvement, of which eight were mediastinal collections (2) or masses (6). Culture-positivity was proven from blood (5) pus (2), and pericardial fluid (1) sampling. Tuberculous screening was negative in all eight patients. Associated pulmonary manifestations include consolidation (5) pleural effusion (2) and lung nodules (2). Half had diabetes; a quarter had chronic kidney disease, while one had syphilis. Exposure to soil was present in six patients: quarry (1), construction (2), farmer (1), living environment (2). One of the eight patients succumbed before the end of intensive phase antibiotic treatment.

The remaining 33 patients showed lymphadenopathy of various morphologies; multiple subcentimeter (18), solitary or multiple enlargement >1 cm (10), necrotic (3), matted (2).

Conclusion

Mediastinal melioidosis is not uncommon in our cohort. Our proposed classification of mediastinal melioidosis is as follows: a) collections b) masses c) lymphadenopathies, of which lymphadenopathies are further subclassified into i) multiple subcentimeter ii) solitary/multiple >1 centimetre iii) matted iv) necrotic. Further studies will elucidate the prognostic implications of mediastinal melioidosis.

AO22-9

A study on the relationship of different comorbidities with morbid histopathological changes in COVID-19 patients using minimally invasive tissue sampling

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Background

COVID-19 causes morbid pathological changes in different organs including lungs, kidney, liver, etc especially in those who succumb. Though clinical outcomes in those with comorbidities are known to be different from those without – not much is known about the differences at histopathological level.

Aims

It was to compare the morbid histopathological changes in COVID-19 patients between those who were immunocompromised (Gr 1), malignancy (Gr 2) or had cardiometabolic conditions (hypertension, diabetes or coronary artery disease) (Gr 3).

Methods

Post-mortem tissue sampling (MITS) was done from the lungs, kidney, heart, and liver using biopsy gun within two hours of death. Routine (H & E stain) and special stains (AFB, SM, PAS) were done besides immunohistochemistry.

Results

A total of 100 patients underwent MITS and data of 92 were included (immunocompromised: 27, malignancy: 18, cardiometabolic conditions: 71). Within lung histopathology, capillary congestion was significantly more in those with malignancy while others like diffuse alveolar damage, microthrombi, pneumocyte hyperplasia etc were equally distributed. Within liver, architecture distortion was significantly different in immunocompromised while steatosis, portal inflammation, Kupffer cell hypertrophy, confluent necrosis were equally distributed. There was a trend towards higher acute tubular injury in those with cardiometabolic conditions as compared to the other groups. No significant histopathological differences in heart were discerned.

Conclusion

Certain histopathological features are markedly different in different groups (Gr 1, 2 and 3) of COVID-19 patients with fatal outcome.

The contribution of the following doctors are hereby acknowledged:

Dr. Ayush Goel, Dr. Deepali Jain, Dr. Prasanjeet Das, Dr. S. Arava, Dr. Gitaka Singh, Dr. S. Arulsevi, Dr. Naveet Wig

Heart histopathology

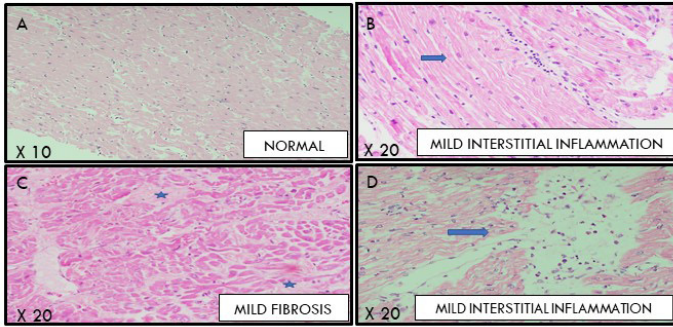


Fig 1 : Cardiac biopsy (H&E stain) : (A) Normal myocardium (B) Minimal hypertrophy with nucleomegaly and presence of few interstitial lymphocytes without any evidence of myocyte damage (B) Minimal interstitial fibrosis [Asterix] (D) Mild interstitial edema with presence of lymphocytes

Liver histopathology

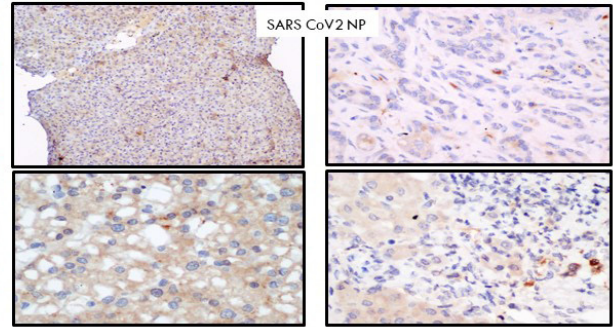


Fig 2: Along with primary pulmonary pathologies in Covid-19 infections, extra-pulmonary organ as the liver is also affected, both directly and indirectly

Kidney Histopathology

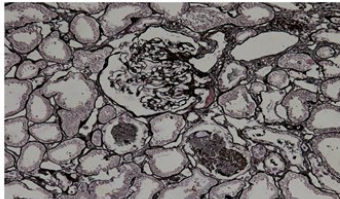


Fig 3: Kidney showing diffuse acute tubular injury with flattening of tubular epithelium, loss of nuclei and luminal granular casts. The glomerulus appears unremarkable. [20x, Jones silver methenamine]

Lung histopathology

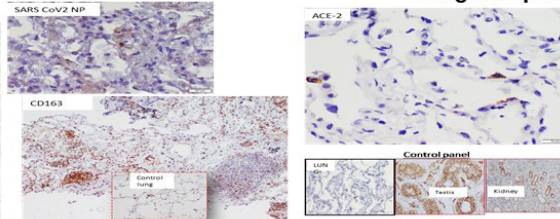


Fig 4A: Anti-CD163 highlighting infiltration by macrophages in acute organizing phase of DAD (arrow). Anti-CD61 immunostaining highlighting occasional microthrombi in alveolar capillaries (arrows) and also megakaryocytes (arrows). Immunostaining using anti-SARS-CoV-2 antibody is positive in alveolar epithelial cells (arrows). Immunostains X 200

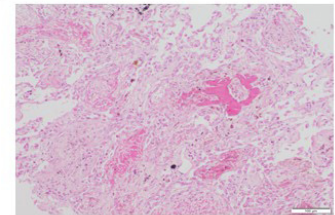


Fig 4 B: Low power photomicrograph shows acute organizing pneumonia with interstitial edema, activated type II pneumocytes, intra-alveolar fibrin and microthrombi. H&E x10

AO23-1

Benefits of budesonide/glycopyrronium/formoterol fumarate dihydrate triple therapy versus dual therapies in patients with COPD and additional asthma features: post-hoc analysis of KRONOS and ETHOS

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Background and Aim

Bronchodilator reversibility and elevated eosinophils, while present in many patients with COPD, are also typical features of asthma.¹ In patients with COPD, concomitant asthma impacts disease control and progression.^{1,2} We report the effects of budesonide/glycopyrronium/formoterol fumarate dihydrate (BGF) triple therapy versus dual therapies on lung function and exacerbations in patients with COPD and these additional asthmatic features.

Methods

KRONOS (NCT02497001) and ETHOS (NCT02465567) enrolled patients with moderate-to-very severe COPD, excluding those with a current asthma diagnosis. While there was no requirement for prior COPD exacerbations to participate in KRONOS, ETHOS required at least 1 moderate/severe COPD exacerbation in the prior year. This pooled post-hoc analysis evaluated lung function (trough forced expiratory volume in 1 second [FEV₁]) over Weeks 12–24 and moderate/severe exacerbation rates over Weeks 0–24 with BGF 320/14.4/10 µg, glycopyrronium/formoterol fumarate dihydrate (GFF) 14.4/10 µg and budesonide/formoterol fumarate dihydrate (BFF) 320/10 µg in patients with COPD and phenotypic features of asthma (defined by reversibility to salbutamol and blood eosinophil count ≥300 cells/mm³). KRONOS and ETHOS were not prospectively powered for these sub-group analyses; reported p-values are not adjusted for multiplicity.

Results

Improvements in trough FEV₁ were greater with BGF than with either dual therapy (Table). Exacerbation rates were lower with BGF than GFF, with a sizable numeric trend also observed versus BFF (Table).

Conclusion

BGF triple therapy had clinically meaningful treatment effects on trough FEV₁ and moderate/severe exacerbation rates versus GFF and BFF dual therapies in patients with COPD and additional features of asthma.

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Table. Change from baseline in morning pre-dose trough FEV₁ and moderate/severe exacerbation rates in patients with COPD and additional features of asthma^a (pooled analysis of KRONOS and ETHOS,^b modified intent-to-treat populations)

	BGF 320/14.4/10 µg	GFF 14.4/10 µg	BFF 320/10 µg
Change from baseline in morning pre-dose trough FEV₁ over Weeks 12–24, mL	N=57	N=54	N=50
Least squares mean ^c (standard error)	239 (30.7)	114 (32.3)	121 (33.6)
Least squares mean ^c difference (95% confidence interval) [two-sided p-value], <i>BGF vs comparator</i>	-	125 (39, 211) [0.0048]	118 (30, 207) [0.0094]
Moderate/severe exacerbations over Weeks 0–24	N=142	N=140	N=130
Patients with events, n (%) [number of events]	57 (40.1%) [87]	79 (56.4%) [182]	62 (47.7%) [129]
Adjusted rate (standard error) ^d	0.59 (0.13)	2.09 (0.43)	0.86 (0.18)
Rate ratio (95% confidence interval) [two-sided p-value], <i>BGF vs comparator</i> ^d	-	0.28 (0.19, 0.43) [<0.0001]	0.69 (0.45, 1.05) [0.0797]

^aPatients defined as having additional features of asthma based on blood eosinophil count ≥ 300 cells/mm³ and reversibility to salbutamol ($\geq 12\%$ and ≥ 200 mL increase in FEV₁ after administration of salbutamol).

^bIn ETHOS, trough FEV₁ was assessed in the subset of patients who participated in the pulmonary function test sub-study.

^cLeast squares mean from a linear repeated measures model including continuous covariates (baseline FEV₁, log baseline blood eosinophil count, and % reversibility to bronchodilator) and categorical covariates (study, visit, treatment, treatment-by-visit interaction, and ICS use at screening [yes/no]).

^dTreatments were compared adjusting for study, baseline post-bronchodilator % predicted FEV₁, baseline COPD exacerbation history (0, 1, ≥ 2), log baseline blood eosinophil count, region, and ICS use at screening (yes/no) using negative binomial regression. The logarithm of time at risk of experiencing an exacerbation was used as an offset variable in the model.

BFF, budesonide/formoterol fumarate dihydrate; BGF, budesonide/glycopyrronium/formoterol fumarate dihydrate; COPD, chronic obstructive pulmonary disease; FEV₁, forced expiratory volume in 1 second; GFF, glycopyrronium/formoterol fumarate dihydrate; ICS, inhaled corticosteroid.

AO23-2

Risk factors of disease progression in young patients with COPD

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Background and Aim

Some young patients with chronic obstructive pulmonary disease (COPD) progress rapidly, resulting in acute exacerbations or treatment requirement, and lung function decline. The aim of this study is to find risk factors for disease progression among young patients with COPD.

Methods

A retrospective cohort study was conducted on patients who visited Boramae Medical Center and Seoul National University Hospital from January 2005 and December 2020. Young patients with COPD were defined as patients between 20 and 50 years of age with post-bronchodilator forced expiratory volume in one second (FEV1)/forced vital capacity (FVC)<0.7.

Results

A total of 205 patients (mean age, 44.4; male, 72.7%; never smoker, 44.0%) were included. Older age, female, structural abnormality in computed tomography, increased leukocyte or neutrophil/lymphocyte ratio, lower FVC, and diffusing capacity for carbon monoxide (DLCO) were related with accelerated decline of FEV1. Risk factors associated with inhaled treatment requirements within 3 years of COPD diagnosis were history of asthma, higher eosinophil count (/ μ L), and low DLCO (<80%) (adjusted odds ratio=3.500 [1.041-11.771], 1.003 [1.000-1.006], and 2.716 [1.116-6.610]). Risk factors associated with moderate-to-severe exacerbation were asthma, sputum, emphysema, and FVC (L) (adjusted hazard ratio=2.732 [1.676-4.453], 2.006 [1.265-3.181], 2.737 [1.623-4.618] and 0.558 [0.344-0.905]).

Conclusion

Among young patients with COPD, early administration of inhaled treatment may be required in those with history of asthma or low DLCO. The patients with small FVC or structural abnormality such as emphysema may need more careful observation due to rapid FEV1 decline and a higher risk of exacerbation.

AO23-3

Exercise performance on the prognosis of mild and moderate COPD

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Background and Aim

Chronic obstructive pulmonary disease (COPD) is a heterogeneous condition with various phenotypes. Exercise capacity in COPD is deemed to be an important prognostic factor to assess the clinical course and to determine a therapeutic strategy. This study attempted to evaluate exercise performance as a prognostic factor in mild and moderate COPD.

Methods

This study enrolled 1052 patients with mild and moderate COPD from Korean COPD Subgroup Study (KOCOSS) cohort. Six-minute walk test (6MWT) including walk distance and exertional desaturation (post 6MWT SpO₂ < 90% or a decrease of ≥4% from baseline) were used to evaluate exercise performance. Survival and acute exacerbation rate during 3 year follow-up were analyzed to determine significant prognostic factors.

Results

Survival group had longer 6-min walk distance (6MWD) compared to non-survivor group (410m vs 332, p-value = 0.0075). Acute exacerbation rate was negatively correlated with 6MWD (mild COPD: r = -0.344, p = 0.0046, moderate COPD: r = -0.153, p = 0.0012). Multivariate analyses showed that 6MWD was independently associated with acute exacerbation rate during 3 year follow-up (p-value = 0.0054) and exertional desaturation was independently correlated with severe acute exacerbation (p-value = 0.0098).

Conclusion

Our study demonstrated that the mortality and acute exacerbation rate were higher in COPD patients with lower exercise performance, suggesting that exercise performance measured by 6MWT is a useful prognostic factor in mild and moderate COPD.

	Total(N=1030)	Non-desaturator (N=868)	Desaturator (N=162)	p-value
FEV1 (3 rd yr)	64.76 [57.52 – 75.16]	64.7 [58.08 – 76.95]	65.78 (56.54, 73.24)	0.624
CAT Score (3 rd yr)	11 [7 – 17]	11 [7 – 17]	12 [9 – 18]	0.182
Walking distance (3 rd yr)	420 [354 – 480]	420.5 [360 – 480]	420.5 [342.25 – 503.5]	0.7045
SGRQ Score (3 rd yr)	23.81 [14.65 – 36.32]	23.4 [14.07 – 36.09]	30.67 [22.34 – 38.53]	0.0520
Difference in walking distance (3YRS)				
- Same or increased distance	93 (55.03%)	79 (56.43%)	11 (45.83%)	0.4582
- Decreased distance	76 (44.97%)	61 (43.57%)	13 (54.17%)	
Severe AE (during 3YRS)				
- 0	440 (85.94%)	373 (87.76%)	56 (75.68%)	0.0098
- ≥1	72 (14.06%)	52 (12.24%)	18 (24.32%)	

Values are presented as median[IQR] or number(percentage). FEV1, post-bronchodilator forced expiratory volume in 1s; CAT, COPD assessment test; SGRQ, St. George's Respiratory Questionnaire; YRS, years; AE, acute exacerbation

AO24-1

Safety and Efficacy of Transbronchial Lung CrYO Biopsy vs Forceps Biopsy in diagnosis of Fibrotic Lung Disease - "Biopsies and Beyond"

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Background

Histology is a key element for the multidisciplinary diagnosis of fibrotic diffuse parenchymal lung diseases (f-DPLD) when the clinical-radiological setting of f-DPLD with high resolution computed tomography (HRCT) features diagnostic of Usual Interstitial Pneumonia (UIP) are not present.

Aim

We compared the diagnostic yield and safety of TBCB with Cryoprobe sampling versus conventional TBLB forceps sampling in the same patient. Airway management with rigid bronchoscope was according to the protocol and performed using fluoroscopy and occlusion balloon.

Methods

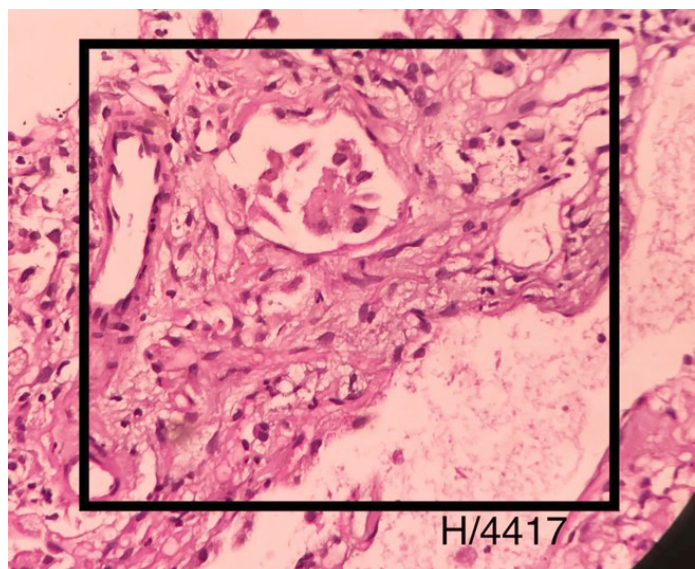
Prospective Single Centre Clinical study of 135 patients with f-DPLD indicated for lung biopsy with histopathology. TBLB was followed by TBCB subsequently.

Results

Diagnostic yield according to multidisciplinary committee results for TBCB was 79.6% and for TBLB was 51.4% ($p < 0.0001$). Diagnostic yield was higher for TBCB compared to TBLB for two groups - Idiopathic Interstitial Pneumonias (IIPs) and ILD of known cause or association (OR 2.5; 95% CI: 1.4-4.2 and OR 5.8; 95% CI: 2.3-14.3, respectively). Agreement between pathologists in the detection of UIP was very good with a Kappa coefficient of 0.83 (95% CI, 0.69-0.97). Grade 3 (moderate) bleeding after TBCB occurred in 5.5% of patients compared to 0.8% after conventional TBLB which confirms need for safe airway management and prophylactic occlusion-balloon use.

Conclusion

Diagnostic yield for TBCB was higher than for TBLB, especially for Idiopathic Interstitial Pneumonia and ILD of known cause or association. The incidence of pneumothorax is mainly related to necessity of biopsy the subpleural areas in patients with fibrotic DPLDs.



AO24-2

Cryobiopsy for peripheral pulmonary lesions using 1.1 mm cryoprobe and guide sheath without fluoroscopy

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Background and Aim

Cryobiopsy is known to improve the diagnostic yield of peripheral pulmonary lesions (PPL)(1). Also, cryobiopsy using a guide sheath was reported to be significantly associated with increased diagnostic yield(2). Cryobiopsy is usually performed under a fluoroscopy guidance to increase the accuracy and avoid complications. This study aimed to evaluate the diagnostic yield and safety of cryobiopsy for peripheral pulmonary lesions using 1.1 mm cryoprobe and guide sheath without fluoroscopy.

Methods

Data from the patients who underwent cryobiopsy for peripheral pulmonary lesions at Chungnam National University Hospital from January to May 2022 were analyzed. Diagnostic yield and complication rate were investigated.

Results

A total of 123 lesions were analyzed. The diagnostic yields of forcep biopsy and cryobiopsy were 51.7% and 77.7%, respectively, and the total diagnostic yield was 82.6% ($p < 0.001$). The diagnostic yields of forcep biopsy and cryobiopsy for malignant lesions were 60.4% and 92.8%, respectively, and the total diagnostic yield was 92.8% ($p < 0.001$). Bleeding occurred in 45 patients (36.6%), and among them, there were 13 (10.6%) clinically significant bleeding (moderate bleeding or severe) cases. There were no severe or life-threatening bleedings

Conclusion

The cryobiopsy using a guide sheath showed a significant improvement in diagnostic yield compared to forcep biopsy alone, and it could be safely performed without fluoroscopy guidance.

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Disclosure statement

The authors have no conflicts of interest to declare.

Patient characteristics (n=123)

Age	71 (13-90)	Bronchus sign	
Sex		Positive	118 (95.9%)
Male	75 (61.0%)	Negative	5 (4.1%)
Female	48 (39.0%)	Orientation 1	
Size (mm)	24 (5-69)	Within	84 (68.3%)
Radiologic feature		Adjacent to	36 (29.3%)
Pure GGN	5 (4.1%)	Invisible	0
Partly GGN	22 (17.9%)	Orientation 2	
Solid	96 (78.0%)	Concentric	54 (43.9%)
Location (lobe)		Eccentric	30 (24.4%)
RUL	26 (21.1%)	Adjacent to	35 (28.5%)
RML	10 (8.1%)	Invisible	0
RLL	32 (26.0%)		
LUL	27 (22.0%)		
LLL	28 (22.8%)		

AO24-3

Transbronchial biopsy by radial probe endobronchial ultrasound followed by cryobiopsy using a novel 1.1-mm diameter cryoprobe

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Background and Aim

The combination of radial probe endobronchial ultrasound (RP-EBUS) and cryobiopsy for peripheral lung lesions (PLLs) improves the performance of transbronchial biopsy (TBB). We investigated the performance and safety of an additional cryobiopsy using a novel 1.1-mm diameter cryoprobe following conventional TBB using RP-EBUS for the diagnosis of PLLs.

Methods

From April 2021 to November 2021, patients who received combined TBB using RP-EBUS and sequential cryobiopsy with a 1.1-mm diameter cryoprobe for the diagnosis of PLL \leq 30 mm were included in our study. All records were followed-up until April 2022.

Results

Baseline characteristics for study patients (n = 110) are presented in Figure 1. The overall diagnostic yield was 79%, which was significantly higher than 61% of conventional TBB using RP-EBUS (P < 0.001). The diagnostic yield of subsequent cryobiopsy was 66% and cryobiopsy increased the overall diagnostic yield by 18%. There were significant differences in the surface area of the tissue between cryobiopsy (mean area, 18.5 mm²) and both TBB using 1.5-mm forceps (mean area, 3.4 mm²; P < 0.001) and 1.9-mm forceps (mean area, 3.7 mm²; P < 0.001). Complications were found in 10% of samples: pneumothorax (1%), infection (1%), and significant bleeding (8%). No patients developed life-threatening complications.

Conclusion

Additional cryobiopsy using a novel 1.1-mm diameter cryoprobe increased the diagnostic yield of conventional TBB using RP-EBUS by 18%. The overall diagnostic yield of combined procedures with TBB using RP-EBUS and subsequent cryobiopsy was 79% for PLL \leq 30 mm.

Baseline characteristics

Variables	Mean (range) or No. (%)
Age, years	69 (31–87)
Females	52 (47)
Longest diameter of PLL, mm	22 (9–30)
Positive bronchus sign	66 (60)

AO24-4

Thoracic Vent versus Conventional Intercostal Tube Drainage in Management of Pneumothorax in University Kebangsaan Malaysia Medical Centre (UKMMC): A Pilot Study

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Background and Aim

Strategies in managing primary spontaneous pneumothoraces are shifting toward simple aspiration and ambulatory follow-up rather than the traditional chest tube and hospital admission. This study is to determine the differences in outcome between the treatment of pneumothorax using a Thoracic Vent (TV) versus conventional intercoastal chest tube drainage (CITD) in terms of pain (Visual Analogue Score, 0-10 cm), complication, rate of expansion, and length of stay (LOS).

Methods

Randomized single-center prospective interventional study of inpatient pneumothorax patients. Subjects were randomized to treatment with True-Close Thoracic Vent with Heimlich valve or conventional chest tube. Both arms received standard medical care and analgesia. Pain score was assessed at baseline (2 hours post insertion), 24 hours after and prior to removal.

Results

wenty subjects were recruited and randomly assigned to treatment with TV (n=10) and CITD (n=10). The mean pain score at baseline (2 hours post insertion) for TV was 1.36. The mean time to chest expansion in those treated with TV is 1.9±0.56 days and 4.9±2.23 days for CITD group. The mean time of removal in TV was about 3 days, while CITD was almost 8 days. Mean LOS in those treated with TV and CITD was 4.8±3.6 days and 13.1± 4.7 days respectively. We recorded 3 cases of recurrences within 14 days from both groups.

Conclusion

Pain scores were significantly less in TV group; and the rate of lung expansion and LOS were significantly shorter compared to CITD. There were less complications in TV group, and no difference in pneumothorax recurrence on follow-up between both groups.

Table : Outcome of Thoracic Vent and Conventional Intercostal Tube Drainage

Outcome variables	Thoracic Vent (n=10)	Conventional Intercostal Tube Drainage (n=10)	p-value
Technical Success, n (%)	8(80%)	4(40%)	0.068 ^a
Clinical Success, n (%)	8(80%)	7(70%)	0.060 ^a
Procedure related complications: n (%)			
Subcutaneous Emphysema	1(10%)	1(10%)	n/a
Dislodged	-	2(20%)	
Infections	-	1(10%)	
Conversion to CITD, n (%)	1(10%)	n/a	n/a
Mean pain score 2hours post insertion	1.36±0.5	3.06±0.6	<0.005 ^b
Mean time to chest expansion, days	1.9±0.56	4.9±2.23	<0.005 ^b
Mean time to removal, days	3.2 ±2.93	7.8±3.91	<0.005 ^b
IR consultation, n (%)	6(60%)	0	n/a
Surgical referral, n (%)	1(10%)	3(30%)	0.264 ^c
Length of Stay, LOS	4.8±3.6	13.1±4.7	<0.005 ^b
Recurrence in 10-14 days, n (%)	1(10%)	2(20%)	n/a

The data are described using mean \pm SD or n (%)

^a Chi-square test

^b Paired t-test;

^c Pearson Chi-square; p-value < 0.05 is significant

n/a -not applicable

AO24-5

The value of finer rigid medical thoracoscope in “APC-plus” for the treatment of primary spontaneous pneumothorax(PSP)

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Background and Aim

The lesion of PSP is superficial and limited. Our innovative technique, medical glue assisted argon plasma coagulation (APC) via medical thoracoscope (MT)^[1], or “APC-plus” for short is a better match to PSP than standard surgical methods because its point-and-point methodological advantage in the target lesion management (TLM). In common rigid MT (CRMT) surgery, the time taken before entering and after exiting the thoracic cavity sometimes exceeds the time of TLM. The combination of finer rigid MT (FRMT) and APC-plus may be better for PSP. We aimed to explore the value of FRMT in APC-plus for PSP’s treatment.

Methods

We retrospectively analyzed PSP patients treated with APC-plus in my hospital from 2020 to 2021. They were divided into CRMT group and FRMT group. Baseline, intraoperative and postoperative conditions were analyzed. The results of FRMT were also compared with a recently published study on different operation plan of VATS for spontaneous pneumothorax^[2].

Results

The target bullae on CT were all treated with APC-plus in both groups. FRMT leaved a smaller incision and losed less blood. Postoperative hospital stay of FRMT is less than CRMT (5.50 ± 1.22 days vs 6.71 ± 0.75 days, $p=0.035$) (Figure 1). FRMT had a significantly shorter duration of surgery than the three-port operation by VATS (32.83 ± 8.66 minutes vs 51.98 ± 10.28 minutes, $p=0.003$) (Figure 2).

Conclusion

FRMT is equivalent to CRMT in APC-plus for PSP’s treatment and may shorten the duration of anesthesia, surgery, postoperative air leakage and hospital stay. FRMT takes less time than three-port operation by VATS. In future studies with larger sample sizes, APC-plus via FRMT is expected to be a better choice for PSP by achieving both surgical path and TLM minimally invasive.

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Figure 1 Comparison of detailed clinical features of treating primary spontaneous pneumothorax with different rigid medical thoracoscope devices

	FRMT group (n=6)	CRMT group (n=7)	t	p value
Gender(male)	6(100%)	7(100%)	NA	NA
Age (years)	18.0±2.36	25.71±8.54	-1.591	0.112
BMI	18.8±1.4	20.5±1.7	-1.952	0.077
The size of the incision (cm)	0.5	1.0	NA	NA
Duration of anesthesia (minutes)	95.0±13.4	125.0±33.3	-2.186	0.060
Duration of surgery (minutes)	32.83±8.66	53.85±31.51	-1.647	0.099
Duration of postoperative air leakage (days)	0.33±0.82	1.0±1.29	-1.056	0.291
Postoperative hospital stay (days)	5.50±1.22	6.71±0.75	-2.159	0.035

FRMT:finer rigid medical thoracoscope; CRMT:common rigid medical thoracoscope; NA:not applied; BMI:Body Mass Index.

Figure 2 Comparison of FRMT with VATS

	FRMT group (n=6)	VATS		t ^b	p value ^b	t ^c	p value ^c
		Single port operation (n=30)	Three-port operation (n=34)				
Duration of surgery ^a (minutes)	32.83±8.66	40.97±8.16	51.98±10.28	-2.302	0.070	-5.417	0.003
Hospital stay(days)	7.33±1.51	7.04±1.48	8.48±1.74	0.447	0.653	-1.866	0.121

FRMT:finer rigid medical thoracoscope; VATS:Video-assisted thoracoscopic surgery.

^a To facilitate comparison, all data are presented in the same form (mean ± standard deviation).

^b FRMT group VS Single port operation.

^c FRMT group VS Three-port operation.

AO24-6

Endobronchial valves for emphysema and persistent air-leak: 9-year experience in one Asian Country

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Background and Aim

Bronchoscopic lung volume reduction (BLVR) with endobronchial valve (EBV) showed the efficacy in severe emphysema and persistent air-leak. However, the real-world data in Asian population is lacking and, we tried to investigate the clinical outcomes of BLVR with EBV in one whole Asian country.

Methods

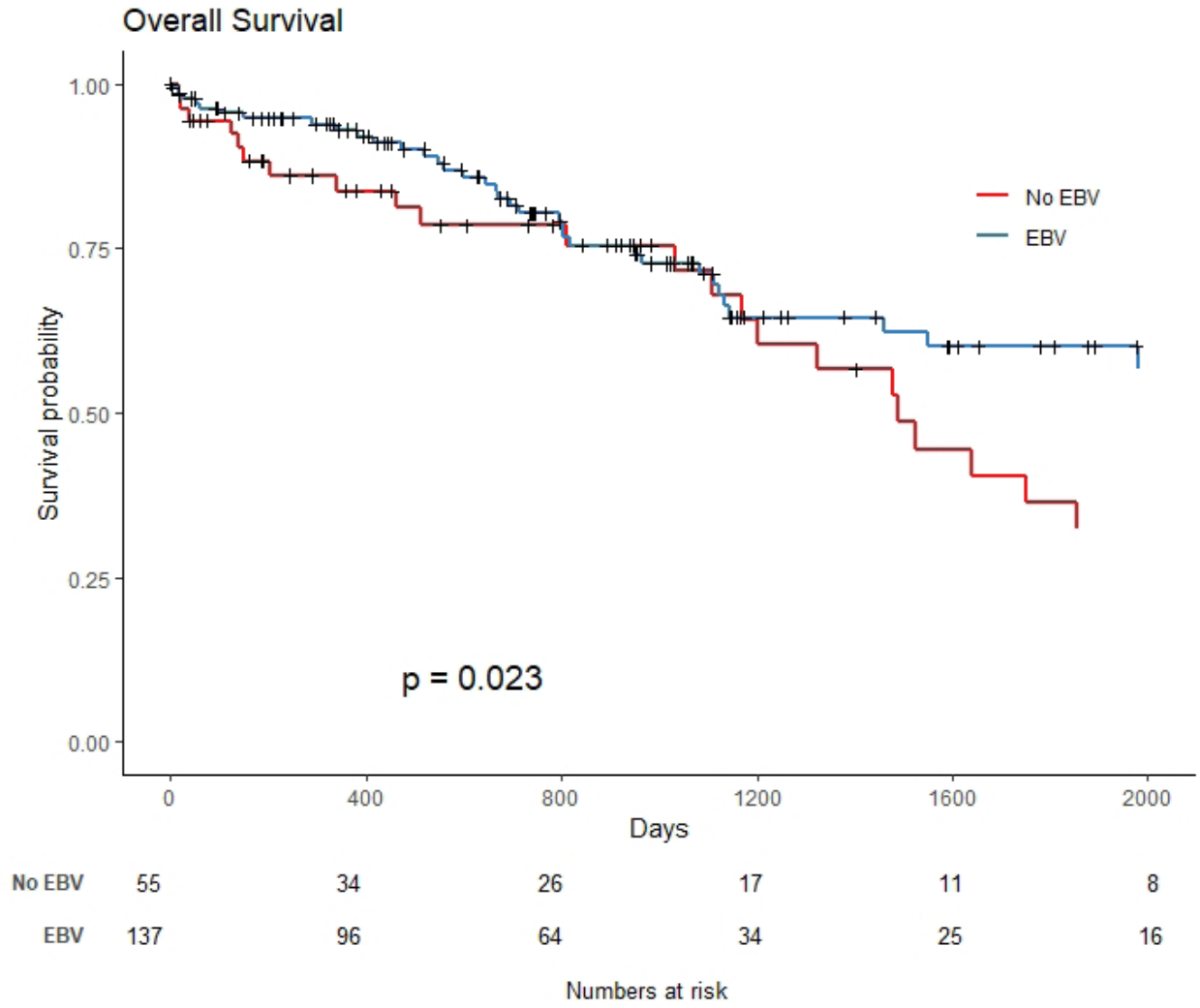
Among 13 centers with the experience of BLVR with EBV in Korea, 11 centers participated to collect the clinical data. In patients who underwent bronchoscopy intended for EBV insertion, the overall survival and lung function were compared between patients who completed EBV insertion and who did not. In patients with persistent air-leak, the causes and outcomes were evaluated.

Results

A total of 210 patients were candidates for EBV insertion between July 2012 and November 2020. The mean age was 69.7 years and 95.7% were male. Among patients with the indication to treat emphysema (n=192), the EBV were placed in 137. The overall survival was better in patients who completed EBV insertion than who did not (median survival: 743 vs. 731 days, p=0.02). The forced expiratory volume in 1 second was significantly improved in EBV group at the median of 3.9 months (6.8±11.0 vs. 3.5±12.0%, p=0.02). In patients who undertook EBV insertion for air-leak (n=18), the causes were spontaneous pneumothorax (38.9%), surgery (16.7%) and emphysema (16.7%). Air-leak was improved in 77.8%.

Conclusion

These results support the favorable outcomes in survival and lung function of BLVR with EBV in real-world practice. It also showed the efficacy in persistent air-leak.



AO24-7

Feasibility and safety of pleural biopsy using rigid forceps in semi-rigid medical thoracoscopy

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Background and Aim

Semi-rigid medical thoracoscopy (MT) is a pleural procedure that could be easily performed by a pulmonologist. However, the flexible forceps biopsy through working channel has a disadvantage in that the diagnostic yield is not high due to the small size of specimen (compared to the rigid forceps biopsy) and the procedure time is long to acquire a large number of specimens. Recently, we have successfully used rigid forceps in semi-rigid MT. We would like to share our experience and report short-term data on feasibility and safety.

Methods

Insertion of rigid forceps [34410MB (Karl Storz): outside diameter [OD] 5mm, length [L] 43cm; 10371L (Karl Storz): OD 2mm, L 35cm] was done with careful insertion tip rotation in the chest wall opening outside the dedicated trocar of semi-rigid thoracoscope [LTF-240 (Olympus)] (Figure). We retrospectively analyzed patients who underwent the semi-rigid MT using rigid forceps between November 2020 and April 2022 at Ulsan University Hospital.

Results

Forty patients [age (mean \pm SD): 69.2 \pm 12.8; male: 23 (57.5%)] underwent semi-rigid MT using rigid forceps. All patients succeeded in inserting rigid forceps during semi-rigid MT. Regarding safety issues, no patients died due to complications, and no significant bleeding or infectious complication was noted. Chest tube removal was successfully performed within 7 days in 75% at 4.4 \pm 2.1 day. The longest diameter of the biopsy specimens was 1.4 \pm 1.2 cm, and definitive pathologic diagnostic yield was 80%.

Conclusion

In semi-rigid MT, pleural biopsy using rigid forceps was feasible and safely performed.

This abstract was submitted to the 22nd WCBIP (World Congress for Bronchology & Interventional Pulmonology) World Congress.

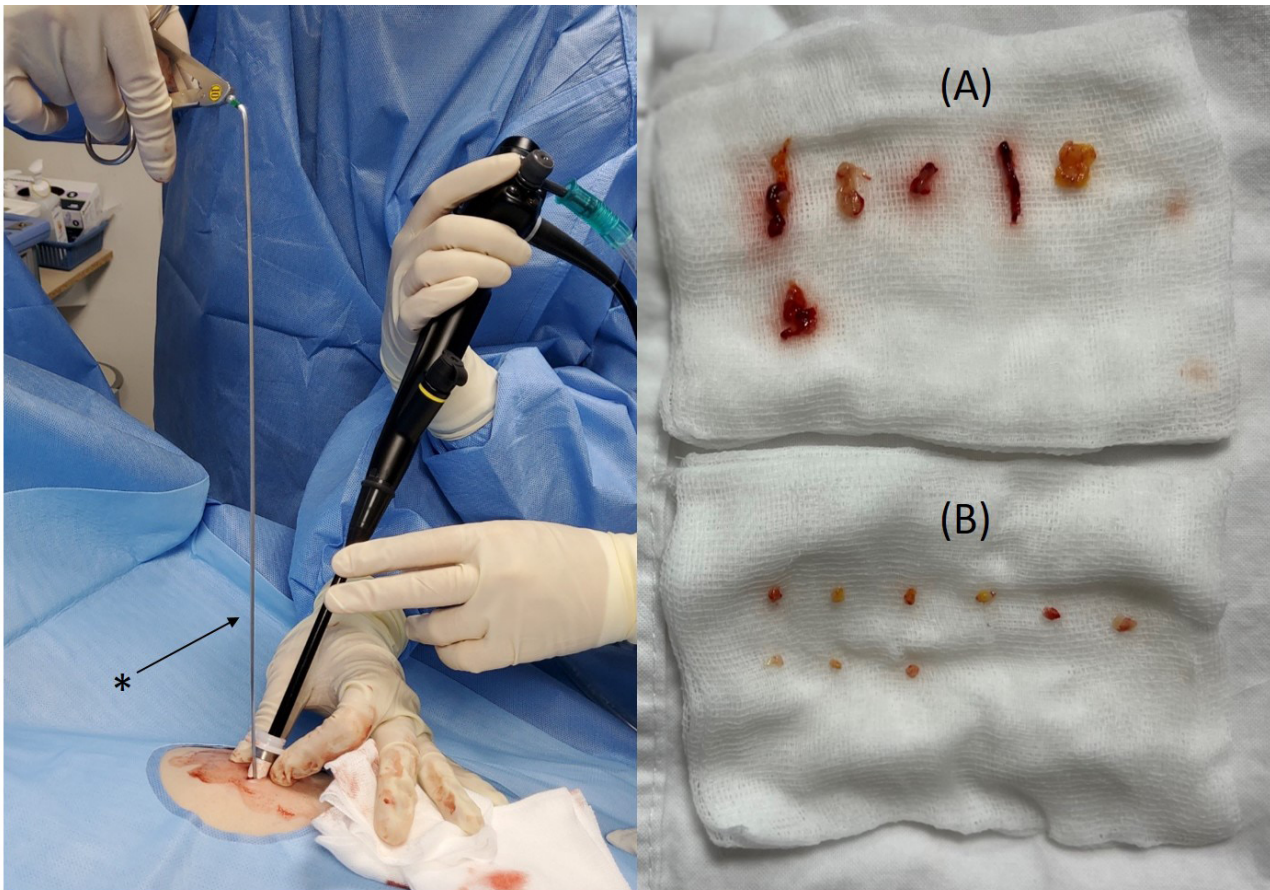


Figure Pleural biopsy using rigid forceps in semi-rigid medical thoracoscopy (*, rigid forceps [10371L]) and size comparison of biopsy specimens using rigid forceps (A) and flexible forceps (B).

AO24-8

Clinical outcomes of bronchoscopic cryotherapy for central airway obstruction in adults: 11-year experience of single center

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Background and Aim

Although bronchoscopic cryotherapy (BC) is a pragmatic modality for recanalization of central airway obstruction (CAO), the risk of bleeding is still worrisome. This study aimed to present the clinical outcomes of BC.

Methods

In this retrospective study, we reviewed the medical records of patients who underwent BC for CAO at Asan Medical Center, South Korea. All sessions were conducted via flexible bronchoscopy under moderate sedation.

Results

A BC was performed 262 sessions in 208 patients between January 2009 and December 2020. The most common cause of BC was recanalization of tumor related CAO (233/262, 88.9%). More than partial reestablishment of airway patency were achieved in 91.0% (212/233), symptoms relief after cryotherapy was found in 75.5% (83/110), and a recurrence was reported in 30.9% of sessions (72/233). Most common complication was intrabronchial bleeding (78 of 233, 35.5%), and one patient died due to severe bleeding and respiratory failure (0.4%). Multivariate logistic regression analysis revealed that diabetes mellitus (OR 2.466, 95% CI 1.136-5.353, $p=0.022$) and respiratory failure before BC (OR 3.046, 95% CI 1.015-9.139, $p=0.047$) were independently associated with moderate to severe complication, while histologic type of tumor was not related to bleeding. BC for CAO caused by blood clot or foreign body was successful in all cases, and there were no complications.

Conclusion

Bronchoscopic cryotherapy is an efficient and relatively safe interventional procedure for patients with CAO. Our finding suggested that diabetes and respiratory failure before cryotherapy might be a risk factor of moderate to severe bleeding complication.

AO24-9

Trends and an online survey on the use of rigid bronchoscopy in Korea: Too old style to be used recently?

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Background and Aim

Although almost all interventional pulmonologists agree that rigid bronchoscopy is irreplaceable in the field of interventional pulmonology, it is not well known which indications are used and what difficulties the operators face during the procedure in Korea.

Methods

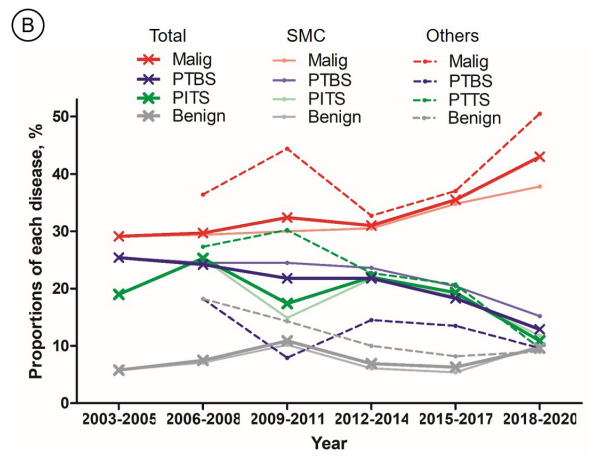
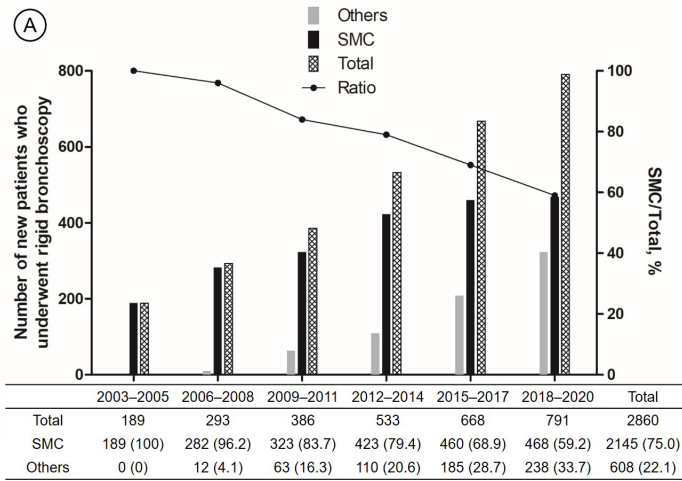
We enrolled 14 hospitals in this retrospective cohort of patients who underwent rigid bronchoscopy between 2003 and 2020. An online survey was conducted with 14 operators to investigate the difficulties of the procedure.

Results

While the number of new patients at Samsung Medical Center (SMC) increased from 189 in 2003–2005 to 468 in 2018–2020, that of others increased from 0 to 238. Eventually, the proportion of SMC in the total started from 100% and steadily decreased to 59.2%. The proportion of malignancy as the indication of the procedure steadily increased from 29.1% to 43.0%, whereas those of post-tuberculous stenosis (25.4% to 12.9%) and post-intubation stenosis (19.0% to 10.9%) steadily decreased (all P for trends <0.001). According to the online survey, half of them said they were performing less than one case per month over the past year. And, they answered the biggest obstacles for performing the procedure were administrative difficulties and non-cooperation of other departments.

Conclusion

This study demonstrated that the number of patients undergoing this procedure have been increasing, especially among cancer patients. In order for this procedure to be used more widely, it will be important for beginners to systematically learn about the procedure itself as well as to achieve a multidisciplinary consultation.



AO25-1

Risk factors for hospitalized bronchiectasis exacerbation based on blood eosinophil level at stable state and incorporation of phenotype into FACED score

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Background and Aim

There has been growing recognition on the importance of phenotyping of airway diseases based on the pattern of inflammation. Eosinophilic phenotype has been proposed in bronchiectasis but there has not been evidence on its association with risks of hospitalized bronchiectasis exacerbation.

Methods

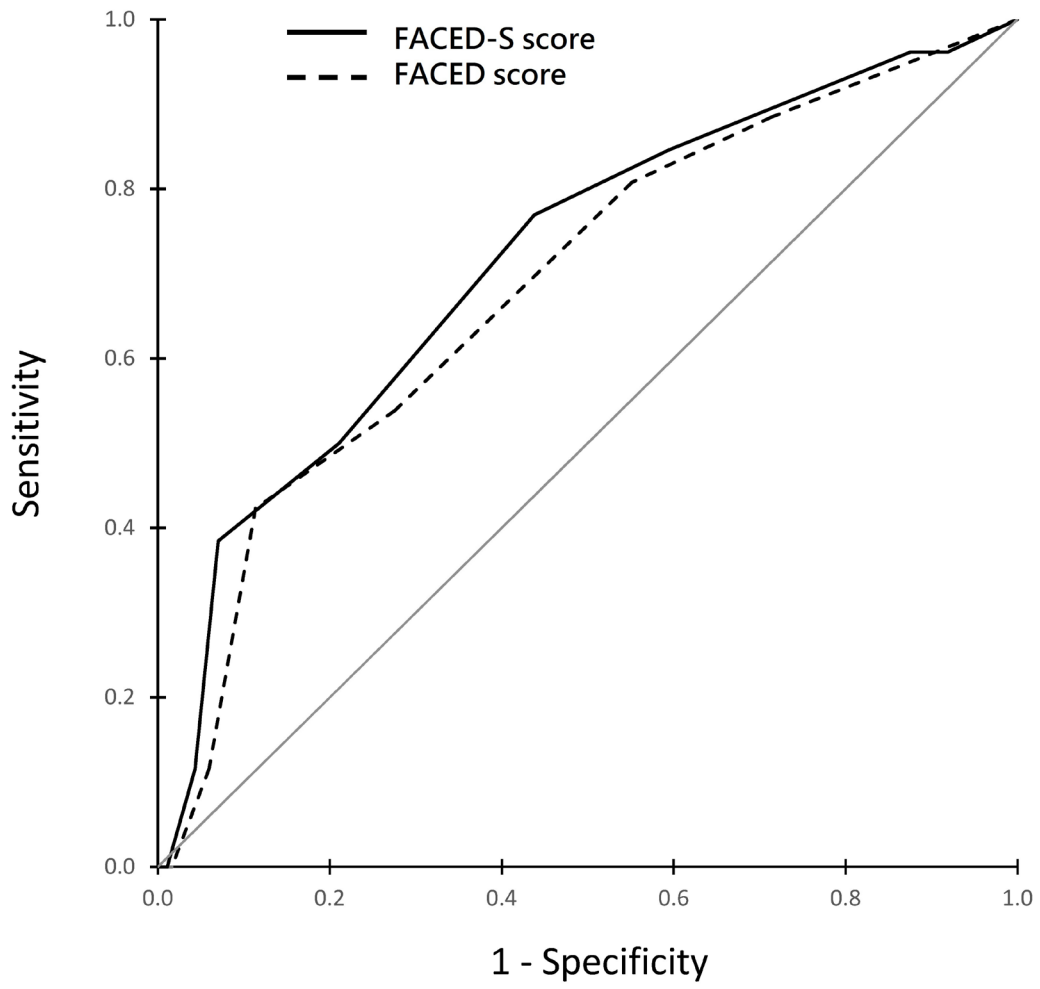
A retrospective cohort study was conducted in the Queen Mary Hospital, Hong Kong that included 318 patients to investigate the association between baseline blood eosinophil and bronchiectasis exacerbation requiring hospitalization with validation by an independent cohort from Queen Elizabeth Hospital. The findings were further incorporated into FACED score to assess the role of blood eosinophil level and hospitalized bronchiectasis exacerbation risks.

Results

Over a 24-month period, 37 of the 318 cohort (11.6%) experienced an exacerbation requiring hospitalization. The mean baseline serum eosinophil was 135 +/- 92 cells/ μ L in those who had exacerbation and 188 +/- 161 cells/ μ L in those who did not have exacerbation. Serum eosinophil level of 250 cells/ μ L at stable state was the most significant cutoff for predicting hospitalized bronchiectasis exacerbation risks, which was validated by the independent cohort. Adding eosinophil as the parameter to FACED score improves the prediction power for hospitalized bronchiectasis exacerbation.

Conclusion

Patients with blood eosinophil below 250 cells/ μ L at stable state is associated with increased risk of having hospitalized bronchiectasis exacerbation. There is a possible role of incorporating this phenotype into FACED score to predict hospitalized bronchiectasis exacerbation risks.



AO25-2

The association between changes in BMI and acute exacerbation in non-CF bronchiectasis

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Background and Aim

There have been several studies of factors affecting acute exacerbation in non-CF bronchiectasis. This study aimed to investigate the effect of changes in body mass index (BMI) on acute exacerbation.

Methods

This study included 515 bronchiectasis patients with valid two BMI measurements at a one-year interval from The Korean Multicenter Bronchiectasis Audit and Research Collaboration (KMBARC). Patients were categorized into two groups according to change of BMI. Decliners are defined as patients with a decrease in BMI over 1 year, otherwise as non-decliner. We categorized acute exacerbations into three types. Moderate exacerbation is defined as visit to an outpatients clinic while severe exacerbation is defined as visit to emergency room or hospitalization. Combined severe exacerbation is defined as at least two moderated exacerbations or one severe exacerbation. The various clinical parameters were compared between decliners and non-decliners.

Results

The mean age was 64.54±9.1 years and 242 (47.1%) of the participants were female. Of 515 patients, there were 181 (35.2%) decliners and 334 (64.8%) non-decliners. There was no difference in age, gender, lung function, bronchiectasis severity index (BSI), and FACED score between the two groups. The mean BMI was higher in decliners than in non-decliners (23.8±3.7 kg/m² vs. 22.6±3.4 kg/m², p<0.001). Multivariate analysis showed that patients with BMI decliners showed higher association with any types of exacerbation (OR=1.99 p=0.002), severe exacerbation (OR=2.19 p=0.015), and combined severe exacerbation (OR=2.02 p=0.005) independent of baseline BMI. The BSI was also significantly associated with all type of exacerbations.

Conclusion

Patients with decreased BMI over a 1 year showed more frequent acute exacerbations requiring outpatient, emergency room visit or hospitalization than those without decreased BMI.

AO25-3

Predictors of mortality in COVID-19 associated pneumothorax/ pneumomediastinum patients without a history of invasive mechanical ventilation: the CoBiF score

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Background and Aim

Pneumothorax(PNx)/pneumomediastinum(PMEx) among COVID-19 patients is known for its high mortality; however, the same condition among non-intubated patients remains unknown. We aimed to analyze the clinical manifestation and outcomes of COVID-19 associated spontaneous PNx/PMEx and identify prognostic factors.

Methods

Seventeen case series and 87 case reports(n=151) of PNx/PMEx without previous invasive mechanical ventilation were reviewed from PubMed, Scopus, Embase, and Web of Science. We performed a pooled analysis for clinical characteristics, management, and prognosis; then, a novel scoring system to predict in-hospital mortality was developed. It was externally validated in the multinational cohort from Clinical Pneumothorax Research Network.

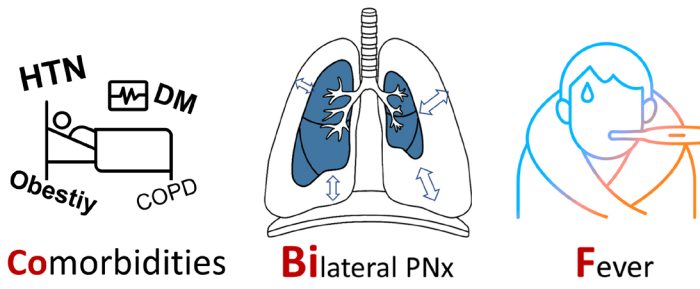
Results

Clinical scenarios included PNx/PMEx as first COVID-19 episode(n=68), PNx/PMEx development during hospitalization(n=65), and PNx/PMEx after recent COVID-19 management(n=18). Whether patients had PMEx or PNx(±PMEx), there was no significant difference in clinical outcomes, and the overall mortality of PNx/PMEx was 23.2%. In risk factor analysis, comorbidities, bilateral pneumothorax, and the presence of fever at the PNx/PMEx presentation were recognized as predictors for mortality (1 point each). With this new scoring system CoBiF(comorbidity, bilateral PNx, fever), the predictability of mortality was area under the curve(AUC) 0.856 [95% CI 0.789-0.923]. Thereafter, the external validation results were also promising(AUC 0.722, [95% CI 0.598-0.846]).

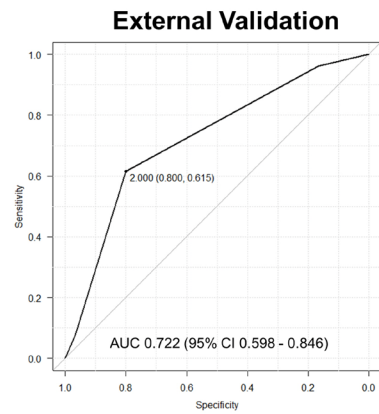
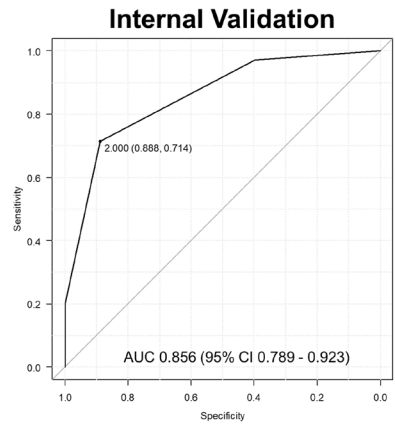
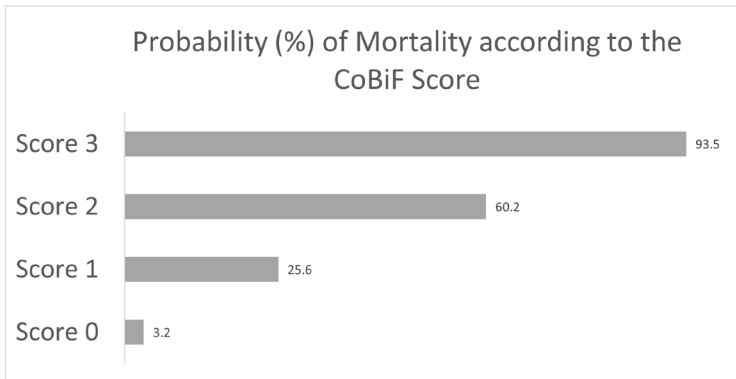
Conclusion

A presence of underlying disease, bilateral PNx, fever were significantly related to worse prognosis in spontaneous PNx/PMEx COVID-19 patients. The CoBiF scoring system incorporating these factors could predict mortality and be used in clinical settings. With the CoBiF score, clinicians could easily identify patients at high risk and provide proper management

No conflicts of interest. There is nothing to disclose.



CoBiF score



AO25-4

A national survey of non-invasive respiratory management in COVID-19 patients with acute respiratory failure using COVIREGI-JP database

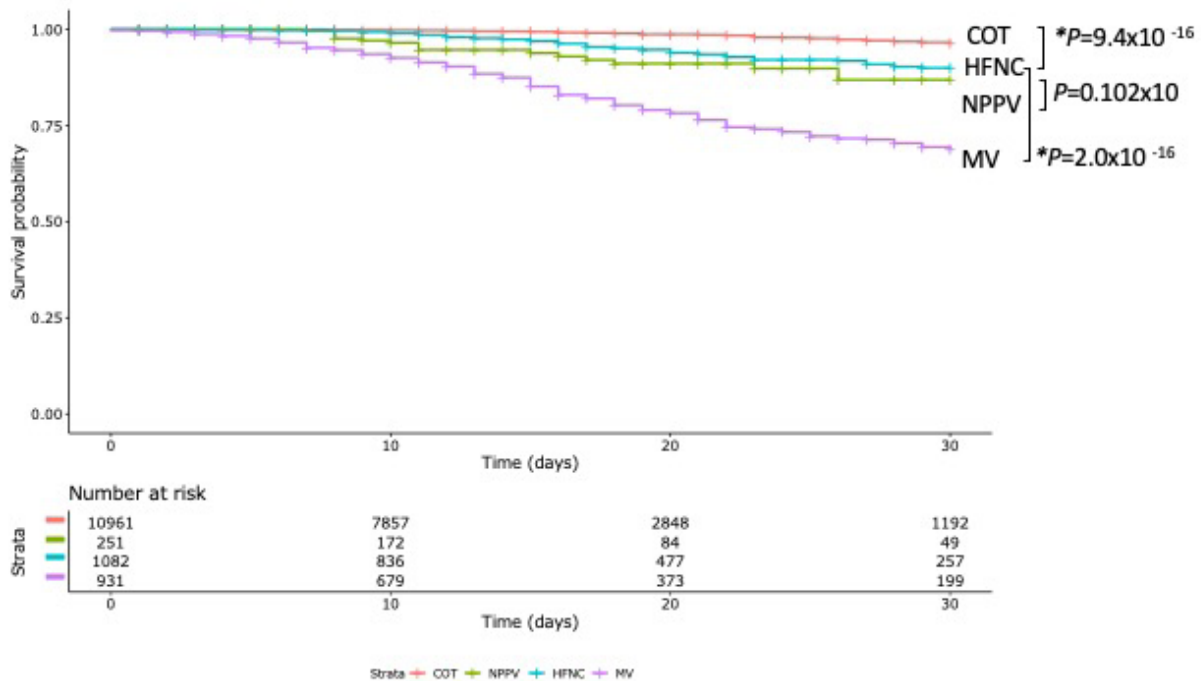
Kazuko Yamamoto¹, Keisuke Tomii², Motoya Izumi³, Naoyuki Akiyama⁴, Nobuyuki Ashizawa¹, Naoki Iwanaga¹, Takahiro Takazono¹, Shinnosuke Takemoto¹, Hiroshi Ishimoto¹, Noriho Sakamoto¹, Yasushi Obase¹, Masato Tashiro⁵, Takeshi Tanaka⁵, Momoko Yamauchi⁶, Naoki Hosogaya⁷, Koichi Izumikawa⁵, Katsunori Yanagihara⁸, Hiroshi Mukae¹

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Background and Aim

We aimed to investigate the real world data of the effect of noninvasive respiratory support (NIRS) in treating COVID-19 patients with respiratory failure in Japan. [Methods] Hospitalized COVID-19 patients aged 18 years or older, SpO₂

This research was supported by Fisher & Paykel Healthcare.



AO25-5

Effect of Intravenous N-acetylcysteine on Prevention of Mechanical Ventilation and Mortality among COVID-19 Patients: A Meta-Analysis

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Background and Aim

COVID-19 is a looming disease that continues to challenge medical systems all over the world due to its significant effect on morbidity and mortality. Early in the pandemic and even until present time, repurposing of a known drug significantly hasten the deployment of a novel approach for COVID-19. One existing medication explored that could potentially provide invaluable treatment for COVID-19 is N-acetylcysteine (NAC) due to its antioxidant, anti-inflammatory and immune-modulating characteristics that has been hypothesized to modulate cytokine storm in patients with COVID-19.

Objectives

To investigate the effect of intravenous N-acetylcysteine in the prevention of mechanical ventilation and mortality among COVID-19 confirmed patients.

Methods

A comprehensive literature search showed 7 records from which 5 were excluded and only 2 passed the inclusion and exclusion criteria. Two reviewers independently selected studies, assessed quality, and extracted and pooled outcomes. All selected studies were found to be of low risk of bias based on Review Manager Bias Assessment assessment tool. Statistical analysis and forest plot generation were done using the Review Manager Software 5.3.

Results

Pooled results showed a total of 227 patients in both NAC (n=114) and control groups (n=113) of COVID-19. There was no sufficient evidence to show that NAC prevents the need of mechanical ventilation among COVID-19 patients with odds ratio of 0.97 (95% CI, 0.54-1.74) and with p-value of 0.93. There was also no sufficient evidence to show that NAC prevents mortality among COVID-19 patients with odds ratio of 0.87 (95% CI, 0.44-1.7) and with p-value of 0.68.

Conclusion

NAC is an accessible, safe and highly tolerated drug used for many years already in patients with respiratory infection. This study showed that there is no sufficient evidence to prove that NAC prevents mechanical ventilation and mortality among COVID-19 patients and its use in resource limited areas cannot be recommended.

AO25-6

Assessment of Dysfunctional Breathing in a cohort of post covid patients and the impact of Breathing Retraining Physiotherapy

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Background and Aim

Breathing pattern disorders is an entity in the post covid state resulting in disability and loss of work¹. We describe the assessment of dysfunctional breathing in a cohort of post covid patients referred to a respiratory clinic in a tertiary care centre and the impact of breathing retraining physiotherapy.

Methods

20 consecutive adult patients (75% female) were recruited with persistent breathlessness (>3/12) after covid infection, with chest x ray, 6-minute walk test, spirometry and echocardiography excluding contributory cause for breathlessness. 17 had mild, 2 moderate and 1 severe covid infection. 85% had not returned to work.

Results

Evaluation was with Brompton Breathing Pattern Assessment Tool (BPAT), Nijmegen questionnaire and Manual Assessment of Respiratory Motion (MARM)². The BPAT score was >4 in 60%. Apical breathing pattern noted in 65%; Nose/mouth breathing in 35%; Air hunger in 85%; respiratory rate >13/minute in 70%; Erratic breathing in 30%. Nijmegen score was >23 in 30%. MARM revealed thoracic dominant breathing pattern in 30%. All patients were referred for breathing retraining physiotherapy exercises. 15 attended review in 2/52. 5 contacted over the phone; had subjective improvement in symptoms. BPAT score improved in 93%. Nijmegen score improved in 86%. MARM improved in all 6 who had an abnormal pattern. 75% returned to full time work. 5 were referred for further physiotherapy.

Conclusion

Thoracic dominant dysfunctional breathing was the predominant pattern detected. There was symptom improvement and return to work with breathing retraining exercises. Awareness of this condition is important for prompt evaluation and physiotherapy intervention.

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2. Hylton H, Long AL, Quantrill SJ, Ali FR, Pfeiffer PE. P156 Use of the breathing pattern assessment tool within the difficult asthma service. Thorax. 2019 Dec 1;74(Suppl 2):A175.

AO25-7

SUPER to Characterize Pleural Effusion

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Background and Aim

For 50 years since its inception, Light's criteria have been used widely in the evaluation of pleural effusions, classifying them as exudates if 1 or more of 3 criteria are met. Advances in ultrasound (US) technology and easy accessibility have led to point of care use when pleural procedures are contemplated and, as non-invasive technique to evaluate pleural effusions.

Objectives

We aim to develop a score that combines clinical, radiological and US features of a pleural effusion that can reliably identify an exudate without paired pleura fluid and serum tests thereby leading to cost-savings.

Methods

A prospective review of consecutive patients with pleural effusions that necessitated thoracentesis at a large tertiary center was performed. CXRs were evaluated to determine unilateral or bilateral involvement followed by US for features of echogenicity, pleural nodularity, pleural thickening, and septations. Pleural effusions were classified by Light's criteria and aided by albumin gradient in discordant cases. A score combining clinical, radiological and US features ranked by multivariable modified Poisson regression was developed with the study set, and validated using bootstrap analysis.

Results

185 patients presenting with pleural effusions requiring thoracentesis were included, 31 (16.7%) were classified by Light's criteria and corroborated with albumin gradient as transudates while 154 (83.2%) were exudates. US features of echogenicity, pleural nodularity, and septations as well as unilateral nature of pleural effusion on radiology were combined to create a composite score. Score 0-1 suggested low and 2-3 high likelihood of exudate. This composite score demonstrated sensitivity of 99% and specificity of 100% for exudate.

Conclusion

SUPER (Score of Ultrasound for Pleura Effusion with Radiology) is clinico-radiological ultrasound composite score that reliably distinguishes exudate from transudate, thereby obviating the need for paired blood and pleural fluid investigations. SUPER can lead to cost-savings and future trials are eagerly awaited to validate the score.

Nothing to disclose

AO26-1

The effect of the coronavirus disease (COVID-19) pandemic on hospital admissions among children due to the respiratory illnesses and the respiratory pathogens.

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Background and Aim

COVID-19 pandemic affects almost everyone, including children, and it also changed the respiratory disease profile and the detection of respiratory pathogens among children.

Methods

A retrospective study on hospital admissions due to respiratory illnesses and respiratory pathogens from April 2019, until December 2020, in a tertiary centre, Kuala Lumpur, Malaysia. Hospital admissions from March 11, 2020, onwards were categorized as admissions during the pandemic.

Results

Generally, there was a decrease in respiratory admissions from 4305 (58.9% of total) to 729 (36.5% of total) during the pandemic. We observed a reduction in the admissions for pneumonia (223 to 31 per month), acute bronchiolitis (53 to 8 per month), upper respiratory tract infections (URTI) (45 to 13 per month), bronchial asthma (43 to 13 per month) and wheezing episodes (25 to 3 per month). Respiratory syncytial virus (RSV) was the commonest (290/361) pathogen isolated, and it reduced from 22 to 6 per month during the pandemic. RSV showed two peaks from June 19 to September 19 and February 20 to April 20, and the cases remained low from May to December 2020. The children admitted before the pandemic were significantly younger (18 months) compared to those during the pandemic (21 months) ($p=0.001$). RSV showed a positive correlation with pneumonia ($r=0.694$), acute bronchiolitis ($r=0.765$), URTI ($r=0.644$), bronchial asthma ($r=0.620$) and wheezing episodes ($r=0.752$).

Conclusion

A movement control order and improved hygiene awareness might cause a reduction in the respiratory admissions and the trend of respiratory pathogens isolated.

AO26-2

Pulmonary function and complications in children who have received hematopoietic stem cell transplantation

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Background and Aim

Respiratory involvements are common in children who have received hematopoietic stem cell transplantation (HSCT). To assess and monitor respiratory conditions, pulmonary function tests (PFTs) are recommended, but there has been no data for these children in Thailand. Aims to describe pulmonary function (assessed by spirometry, body plethysmography, and diffusion capacity of carbon monoxide) and complications, determine clinical factors associated with pre- and post-HSCT pulmonary function defects, and trends in pulmonary function change in these children

Methods

This is a retrospective cohort study of children aged 6-18 years who underwent HSCT during 1999-2020 and had available PFTs.

Results

Of 48 patients, pre- and post-HSCT (2-8 years) abnormal pulmonary function were diffusion defect 16.7% and 18.8%, restrictive defect 20.8% and 8.3%, and obstructive defect 4.2% and 10.4%, respectively. Pulmonary complications were noted in 16 patients (33.3%), including 15 infections and 1 bronchiolitis obliterans. Although, pre-HSCT pulmonary function defects were not significantly associated with any characteristics, pulmonary complications were significantly associated with post-HSCT pulmonary function defects (aOR=4.11 (1.23-13.64), p=0.02). Of 6 patients who had pre- and post-HSCT PFTs follow-up, pulmonary function of patients with pulmonary complications declined overtime, while of those without pulmonary complications remained stable or improved. However, the changes between groups were not significantly different (p=0.13-0.76).

Conclusion

Pulmonary function defects and complications were common in children after HSCT. The complications were associated post-HSCT pulmonary function defects. There was probably pulmonary function deterioration in patients with pulmonary complications, but more prospective data are needed to confirm the trend.

Acknowledgement

Pulmonary and Critical Care Division, Department of Pediatrics, Faculty of Medicine, Chulalongkorn University

AO26-3

Correlation of lung function using forced oscillation technique with spirometry in children aged (4-18 years) with cystic fibrosis (CF)

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Background and Aim

In cystic fibrosis lung disease starts in early infancy in peripheral small airways which progressively involves central larger airways. Recurrent pulmonary infection leading to exacerbation and inflammation leads to progressive lung damage with irreversible changes and airway remodelling. FEV1 is most used parameter for monitoring lung disease and index for newer molecular treatment effect. Although measurement of FEV1 needs forced expiratory manoeuvres which are not practically possible in younger age, and it reflects central larger airways pathology. Forced oscillation technique (FOT) also called Oscillometry, is used to measure the mechanical properties of the respiratory system. This study was done to evaluate correlation between two methods.

Methods

This was a prospective observational study from a tertiary centre done from November 2020-December 2021. Children with cystic fibrosis(n=15) and non-cystic fibrosis(n=10), normal children(n=10) were enrolled and lung function test were done with spirometry and forced oscillation. Correlation was calculated using Spearman's correlation coefficient.

Results

15 children with cystic fibrosis, 10 children with non-cystic fibrosis along with 10 normal children total of 35 children were enrolled. The Mean±SD age (years) in children with CF was 11.24 ± 4.163 while of non-Cystic fibrosis was 10.57 ± 1.83 and 10.07 ± 2.81 of normal children. The Mean±SD of FEV1%predicted (L) in CF group was 42.606 ± 24.126 in non-CF 44.75 ± 19.05 and 87.95 ± 10.04 in normal children. The Mean±SD of resistance R 5Hz % predicted in CF patients was 161.342 ± 74.140 while in non-CF group 177.64 ± 103.66 . Our study showed negative moderate significant correlation of FEV1 with resistance and impedance at 5 Hz and positive moderate significant correlation with reactance at 5Hz and 20 Hz.

Conclusion

Across the all three group it was found that FEV1, FVC, FEF25-75 correlate negatively with resistance and impedance with varied significance level while positive correlation with reactance. FOT was found safe and easy to perform in children with cystic fibrosis.

AO26-4

Pneumorrhachis Complicated by Spontaneous Pneumomediastinum in Pediatric Patients: An 11-year Retrospective Study in Taiwan

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Background and Aim

Although uncommon, available evidence suggests pneumorrhachis (PR) complicated by spontaneous pneumomediastinum (SPM) in adulthood is usually benign and self-limiting. This study aimed to review our experience and identify the risk factors of PR in pediatric patients with SPM.

Methods

Between September 2007 and September 2017, spontaneous pneumomediastinum in patients aged ≤ 18 years was retrospectively reviewed. The clinical features and outcomes between SPM patients with and without PR were analyzed.

Results

In total, thirty consecutive occurrences of SPM in 29 patients were finally identified and classified into SPM (n=24) and SPM plus PR (n=6) groups. No significant differences in received interventional exams, prophylactic antibiotic administration or restriction of oral intake between the two groups were found. Both groups were treated with hospitalization predominantly, whereas the SPM plus PR group tended to have longer length of hospital stay (median 5.5 vs. 3 days, $p = 0.08$). PR was observed more frequently in patients with abnormal serum C-reactive protein (CRP) level ($> 5\text{mg/L}$), identified predisposing factors, and those with more severe grade of SPM ($p = 0.005$, 0.001 and <0.001 respectively). On multivariable regression analysis, the SPM plus PR group exhibited more predisposing factors than did the SPM group (coefficient: 0.514, standard error: 0.136, $p < 0.001$). All patients were successfully treated without morbidity and mortality

Conclusion

Although patients with pneumorrhachis retained a higher CRP level, more identified predisposing factors, and prolonged inpatient care, conservative management without an extensive work-up would be an appropriate and favorable strategy in pediatric patients with PR complicated by SPM.

Acknowledgements

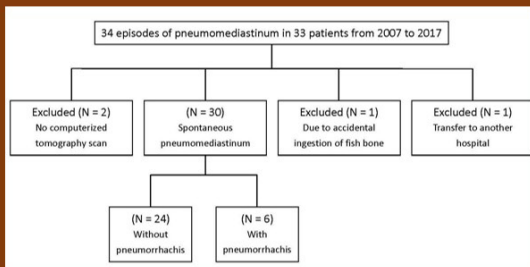
The authors thank Dr. Yi-Ming Wang for data collection and imaging interpretation.

Conflict of Interest

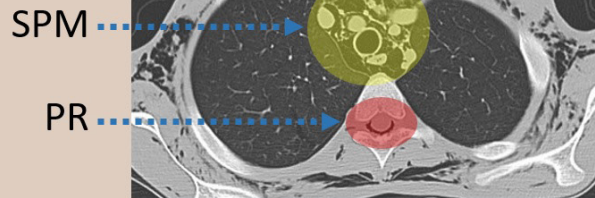
The authors declare that they have no conflict of interests.

Pneumorrhachis (PR) Complicated by Spontaneous Pneumomediastinum (SPM) in Pediatric Patients (age ≤18)

2007-2017 at single center



SPM (n=24) vs. SPM plus PR (n=6)



SPM plus PR group

- Retained a higher CRP level ($p = 0.005$)
- Exhibited more predisposing factors ($p < 0.001$)
- Longer hospital stay (median **5.5** vs. 3 days, $p = 0.08$)
- ✓ No Diff. in interventions, antibiotics, and fasting between groups
- ✓ No morbidity and mortality in both groups

Conclusion: Conservative management without an extensive work-up would be an appropriate and favorable strategy in pediatric patients with PR complicated by SPM.

AO26-5

Risk factors of adverse respiratory outcome after scoliosis surgery in neuromuscular disorder patients

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Background and Aim

Scoliosis is a major morbidity of neuromuscular disorder (NMD) patients that affect respiratory function. Postoperative respiratory complications negatively affect patient outcome, but the risk factors are poorly understood. This study aimed to identify the rate and risk factors of respiratory complications following surgical treatment of scoliosis in pediatric NMD patients.

Methods

A retrospective chart review of pediatric NMD patients who underwent surgical treatment for scoliosis at Seoul National University Children's Hospital during 2012 to 2021 was done. Preoperative state including diagnosis, height, weight, spirometry, ventilation status, motor function, motor power, intellectual disability, and seizure history were collected. Postoperative outcomes including atelectasis, pneumonia, pulmonary edema, and desaturation were collected. Univariate logistic regression analysis was done with statistical significance considered at $p < 0.05$.

Results

A total of 66 cases were identified (median age 13.2 years) of whom 4 had cerebral palsy, 52 had muscular disorder, and 10 had other syndromic disorders. The rate of respiratory complication was 30.3% (20/66). On univariate analysis, risk factors of respiratory complications included syndromic disorder (OR 1.82 95%CI (1.07-3.09)), z-scores for height and weight (OR 0.93 (0.88-0.99) and OR 0.94 (0.90-0.99), respectively), and intellectual disability (OR 1.31 (1.02-1.68)) and seizure history (OR 1.41 (1.06-1.87)). Median FVC z-score was lower in patients with respiratory complications but was not statistically significant.

Conclusion

In NMD patients undergoing scoliosis correction surgery, impaired growth for age, intelligence and seizure history were predictive of respiratory complications. Pulmonologists must be aware of the risk factors for perioperative management of these patients.

AO26-6

Multicenter Surveillance of Cystic Fibrosis in Korean Children

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Background and Aim

Cystic fibrosis (CF), caused by mutations in the cystic fibrosis transmembrane conductance regulator (CFTR) gene, is rare among non-Caucasians. We aimed to identify the clinical features and CFTR mutations in Korean children.

Methods

HEK293 cells were transfected with wild-type CFTR, Δ F508-CFTR, and L441P-CFTR mutant plasmids for 24 hours and treated with VX809 and VX661 (Vertex).

Results

The median age at diagnosis was 9.2 years. Eleven patients had growth retardation, and six had a respiratory failure at diagnosis. Genetic analysis was used for all patients, while sweat testing was for eight patients. At diagnosis, the median z scores of FEV₁, FEV₁/FVC, and FEF₂₅₋₇₅ were -3.61 (-5.78, 1.78), -3.38 (-4.40, -0.60), and -4.45 (-5.78, 0.54), respectively. Two patients were treated with Dornase alfa and only one with CFTR modulator. Patients were followed up for 3.7 years as a median. Four patients died at 10.6 years, with 4.2 years of post-diagnosis survival. The most common mutation was exon 16-17b deletion (19.4%). Among 11 single nucleotide variants, c.1322T>C (p.Leu441Pro, L441P) was detected in four patients. In the functional assay, L441P-CFTR correction was well restored by CFTR correctors (VX809 and VX661) compared with Δ F508.

Conclusion

CF is extremely rare in Korean children and is caused by different mutations from those commonly observed in Caucasians. Early diagnosis and treatment availability may improve outcomes. CFTR modulators may be effective for Asian patients with rare CFTR mutations, c.1322T>C (p.Leu441Pro).

AO27-1

Lung function and bronchiectasis incidence: nationwide population-based cohort study

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Background and Aim

It is well known that patients with bronchiectasis suffer from decreased lung function over time. However, few studies have been conducted on the relationship between lung function impairment and the occurrence of BE in the general population. This study aimed to evaluate the incidence and characteristics of bronchiectasis according lung function impairment.

Methods

Population-based cross-sectional data of 21,255 subjects over 40 years of age, who had not previously been diagnosed with bronchiectasis and had spirometry results, was obtained using a nationwide database from 2008 to 2016. Primary endpoint was newly diagnosed bronchiectasis.

Results

During the median follow-up periods of 6.5 years, 571 participants (2.69%) were newly diagnosed with bronchiectasis. The risk of bronchiectasis was significantly increased in participants with obstructive and restrictive pulmonary dysfunction (adjusted hazard ratio [aHR] 2.713; 95% confidence interval [CI], aHR 1.453; 95% CI) compared to normal lung function.

The incidence rate of bronchiectasis significantly increased as the quartile or decile of FEV1, FVC, and FEV1/FVC was lowered (p for trend <0.0001). When the FEV1 was the lowest quartile (Q1), the incidence of lung cancer was significantly increased regardless of FVC (FEV1 Q1 and FVC higher three quartiles Q2-4: aHR 1.668; 95% CI 1.257-2.213, FEV1 Q1 and FVC Q1: aHR 1.819; 95% CI 1.492-2.217). However, when only FVC was the lowest quartile, there was no significant difference on the incidence rate of lung cancer.

Conclusion

In this nationwide population-based cohort study, obstructive and restrictive pulmonary dysfunction were significantly associated with increased risk of bronchiectasis.

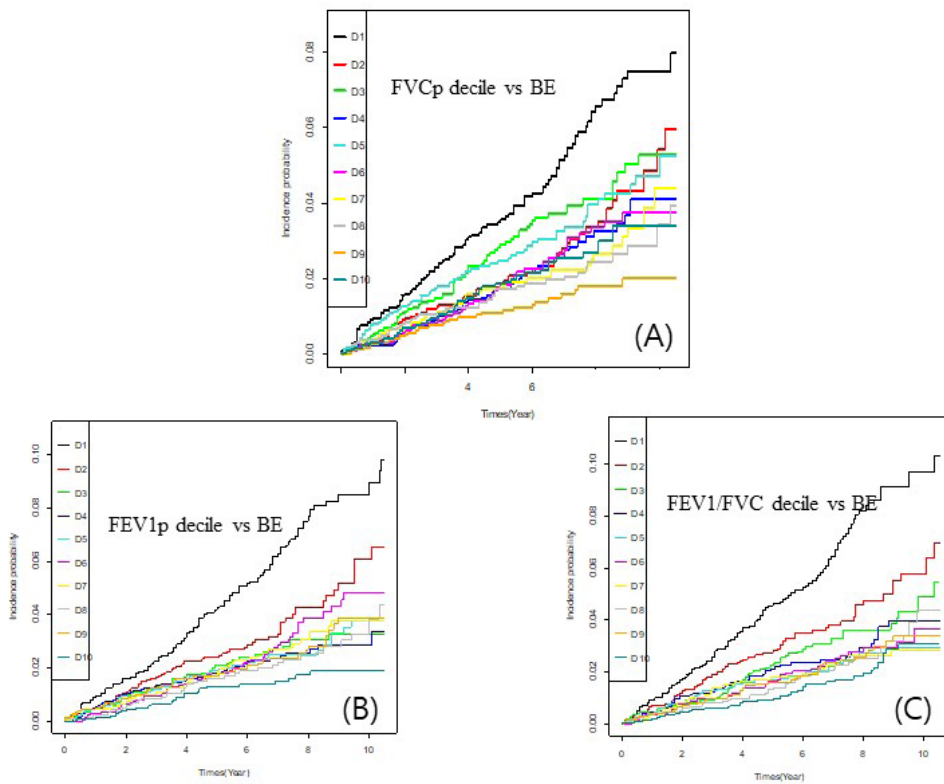


Figure : Cumulative incidence curve of bronchiectasis according to lung function by Kaplan-Meier method and log-rank test
 Deciles from lung function measured day 1 were calculated and used to compare incidence probability of bronchiectasis in those patients with low or high lung function. (A) Incidence of bronchiectasis according to FVCp decile. (B) Incidence of bronchiectasis according to FEV1p decile. (C) Incidence of bronchiectasis according to FEV1/FVC decile.

AO27-2

Impact of Bronchopulmonary Dysplasia on Functional and Structural Changes in the Lungs of School-aged Children

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Background and Aim

Long-term respiratory consequences of preterm survivors with bronchopulmonary dysplasia (BPD) during school-aged childhood have not been well understood.

Objectives

To determine how preterm birth complicated by bronchopulmonary dysplasia (BPD) influenced lung growth in school-aged children.

Study design

The LONGitudinal cohort study for the population born preTERM (LONGTERM) recruited 150 preterm survivors born between 2005 and 2015 and treated with surfactant at birth who could undergo pulmonary function testing (PFT) and chest computed tomography (CT). Chest CT was scored using the number of lobes with hyperaeration or parenchymal lesions. The participants were classified into non/mild BPD, moderate BPD, and severe BPD.

Results

Fifty one (34.0%) participants were born at a gestational age of 27 weeks or less, while 53 (35.3%) and 65 (43.3%) had birth weights less than 1000 g and 1000–1500 g, respectively. Both moderate and severe BPD was observed in 39 (26.0%) and 43 (28.7%) patients. The z-score for forced expiratory volume in one second (FEV1) tended to be lower in the severe BPD group than in the non/mild BPD group (-1.24 vs. -0.18, P=0.052). The z-scores for forced vital capacity (FVC; 0.41 vs. -0.22, P=0.007), FEV1/FVC (-1.12 vs. -1.8, P=0.006), and forced mid-expiratory flow (FEF25-75; -1.01 vs. -1.88, P=0.011) were both significantly lower in the severe BPD group than in the non/mild BPD group, while bronchodilator response was not different between the groups. The severe BPD group showed a higher median CT score than the non/mild BPD group (6 vs. 1, P<0.001).

Conclusions

School-aged children with severe BPD and preterm birth presented functional and structural abnormalities than those with less severe BPD, even without any subjective respiratory symptoms.

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AO27-3

Characterising the effect of body mass index on thoracic mechanics in adults with cystic fibrosis using dynamic chest radiography

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Background and Aim

A poor nutritional state is associated with worse lung function in people with cystic fibrosis (CF). To explore this further, using dynamic chest radiography (DCR), a large-field-of-view, real-time X-ray system (Konica Minolta, Inc.) we examined the relationship between projected lung area (PLA) and diaphragm excursion with body mass index (BMI) in adult people with CF.

Methods

Posteroanterior (PA) DCR was acquired in 129 adult people with CF during deep and tidal breathing, in a standing position. Software automatically calculated diaphragm midpoint vertical motion and projected lung area (PLA), the visible area of lungs in the PA plane. BMI was categorised into low ($\leq 18.5 \text{ kg/m}^2$), 10 individuals; normal ($18.5\text{--}24.9 \text{ kg/m}^2$), 80 individuals; and high ($\geq 25 \text{ kg/m}^2$), 39 individuals; respectively.

Results

Although there was no difference between groups in PLA at full inspiration (low, $422 \pm 72 \text{ cm}^2$; normal $428 \pm 76 \text{ cm}^2$; high $418 \pm 66 \text{ cm}^2$, ANOVA $P=0.8$), low BMI was associated with a smaller change in PLA between full inspiration and expiration (ΔPLA) (low, $70 \pm 21 \text{ cm}^2$; normal $101 \pm 37 \text{ cm}^2$; high $114 \pm 44 \text{ cm}^2$, $P=0.009$) and range of diaphragm excursion (left: low, $25 \pm 9 \text{ mm}$; normal $33 \pm 11 \text{ mm}$; high $39 \pm 12 \text{ mm}$, $P<0.001$).

Conclusion

Using this novel technique, we have shown that people with CF with a low BMI have less chest thoracic cage movement during respiration. This may be an indication of air trapping associated with poorer lung function, coupled with reduced muscle strength when nutrition is compromised.

AO27-4

Standalone electrical impedance tomography system can infer spirometric indices providing global and regional lung function assessment

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Background

Spirometry is the standard for diagnosing and monitoring several lung diseases. However, it lacks regional assessment capabilities necessary for detecting subtle regional changes in certain diseases. Electrical impedance tomography (EIT) is an increasingly used large-view non-invasive biomedical imaging technique for monitoring lung functionality. However, its feasibility as a standalone technique to measure global and regional spirometric indices remains unknown.

Aims

We aim to establish a relation between EIT and spirometry indicators, and obtain a regional mapping of these indicators.

Methods

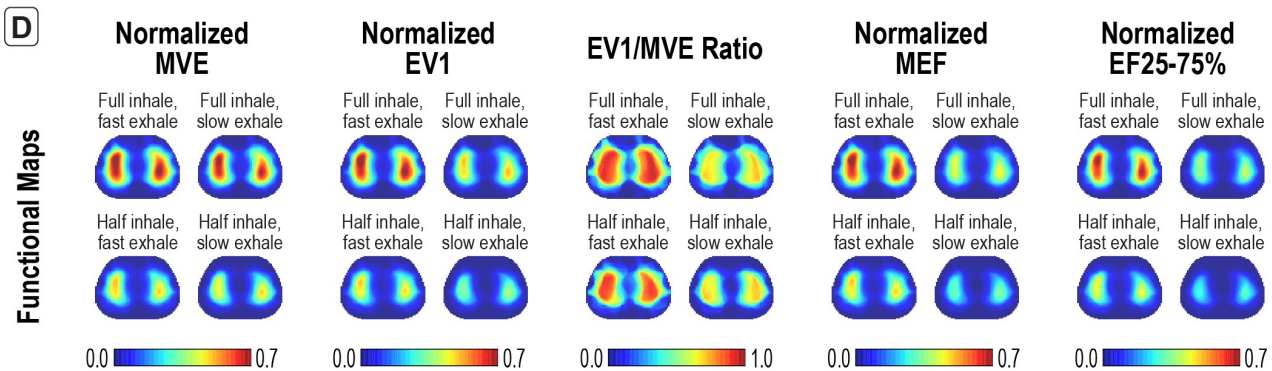
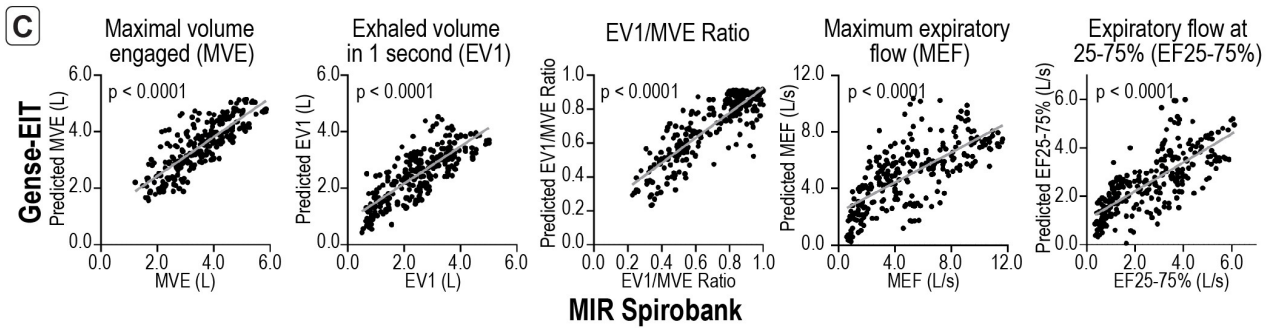
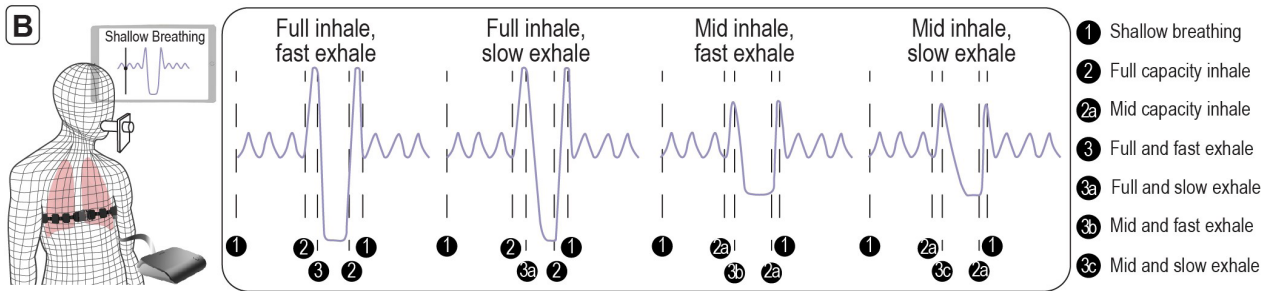
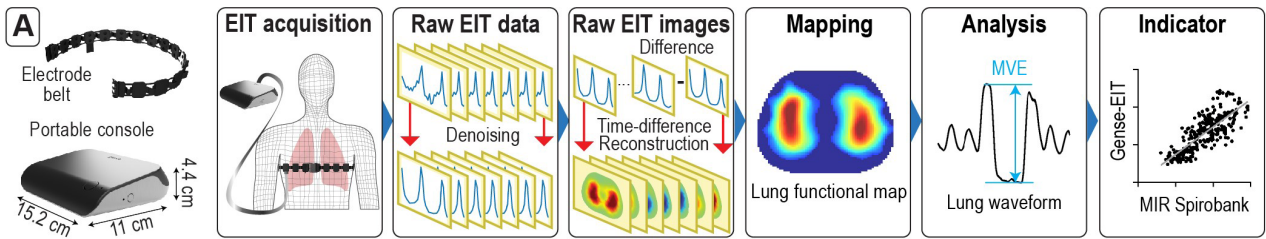
We actualized a low-cost, portable and self-administrable EIT system (Figure 1A) and collected simultaneous EIT and spirometry measurements on healthy subjects (N=14) who performed four different breathing paradigms, including a combination of full or mid capacity inhale, and fast or slow exhale (Figure 1B). We then developed a model to estimate the maximal volume engaged (MVE), exhaled volume in 1 second (EV1), EV1/MVE-ratio, maximum expiratory flow (MEF), and expiratory flow at 25–75% of maximum volume engaged (EF25–75%), corresponding to standard spirometric indices FVC, FEV1, FEV1/FVC-ratio, PEF, and FEF25–75%, respectively.

Results

EIT-derived indicators are significantly correlated with spirometry indicators across a wide dynamic range (Figure 1C). Beyond global aerodynamics, EIT parametric maps (Figure 1D) and regional EIT-derived indicators were consistent with the corresponding breathing paradigms.

Conclusion

We demonstrated that EIT can be used as a standalone device to infer standard spirometric indices and potentially assess regional lung health, indicating the system can be used for screening, diagnosis, and monitoring of obstructive and restrictive lung diseases.



AO27-5

The anatomical variations in tracheobronchial tree through videobronchoscope

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Background and Aim

The anatomy of tracheobronchial tree is characteristic of individual. Proper orientation of this anatomy and its variations is prerequisite for the pulmonologist, bronchoscopist and thoracic surgeons. We can know this by direct visualization through bronchoscope, cadaver dissection and indirect methods by imaging modalities such as CT scan with virtual bronchoscopy. We aim to see the prevalence of anatomical variations. These occurs during the embryonic and pseudoglandular phase, 4-16 weeks of gestation.¹

Methods

We included bronchoscopic anatomy of whole tracheobronchial tree of 392 patients, from April 2016 to April 2018(25 months). All cases were videotaped and bronchoscopic images were taken. They were qualified as normal or with variations with respect to Standard bronchial nomenclature(SBN). The data on categorical variables is shown as n(% of cases) and the data on continuous variables is presented as Mean and Standard deviation(SD).

Results

115(29.3%) of them showed normal anatomy according to SBN, while remaining 277(70.7%) patients showed one or other variation in normal anatomy. The right lung(65.48%) showed variations more often. In right lung, lower lobe(RLL) showed frequent variations, two basal segments(29.8%) was the most common. Other variations seen were tracheal bronchus(0.79%); accessory cardiac bronchus(0.2%); bifurcate(15.3%), quadrifurcate(6.4%), bifid(0.8%) and absent(0.3%) right upper lobe bronchus; trifurcate middle lobe bronchus(2.3%), absent medial basal segmental bronchus(2.3%) and presence of subsuperior segment(8.16%) in RLL; trifurcate(7.4%) and quadrifurcate(0.3%) left upper lobe bronchus, trifurcate lingula(1.3%); presence of separate medial basal segment(2.8%) and subsuperior segment(1.78%), and two basal segments(1.73%) in left lower lobe. Certain rare variations were not found.

Conclusion

The anatomic variations in tracheobronchial tree are frequent. Understanding of these variations is implicated to correlate clinical and pathological conditions and various procedures.

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AO27-6

Prevalence of positive bronchodilator response in a real-world clinical setting.

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Background and Aim

Spirometry with bronchodilator response (BDR) study is a commonly performed lung function test. The prevalence of positive BDR across spirometry patterns is less well-studied. We aim to study the prevalence of positive BDR in a real-world setting and explore factors associated with positive BDR.

Methods

Retrospective database review of spirometry with BDR studies performed at a tertiary hospital from January 2020 to February 2022. Baseline demographics, study indication(s) and spirometry results were retrieved. Positive BDR is defined according to the latest ATS/ERS 2021 technical standards.

Results

A total of 2801 unique spirometry studies were identified. Mean age was 61 years and 56% were male subjects. BDR for FEV₁ and FVC were 3.3(4.2)% and 1.9(5.1)% relative to predicted values respectively; 264 (9.4%) demonstrated positive BDR. Positive BDR was observed in 4.7% (77/1632) individuals with normal spirometry. In comparison, obstructive (25.2%), mixed (21.4%), dysanapsis (20.2%) and restrictive (8.8%) patterns had higher prevalence of positive BDR. Asthma and query asthma had 17% positive BDR, highest compared to the other indications. The positive BDR group had lower mean absolute (1.72L vs 2.06L, p₁ (64% vs 76%, pp=0.05) and %predicted FVC (82% vs 86%, p₁/FVC ratio (0.70 vs 0.79, pp=0.05) and PEFr (289L/min vs 363L/min, pp=0.05) compared with individuals with negative BDR.

Conclusion

The prevalence of positive BDR in an unselected clinical cohort is low. Threshold for selection of individuals for BDR study may be explored with further studies to examine the clinical relevance of positive BDR.

AO28-1

Ventilator associated pneumonia and antibiotic stewardship in cardiac surgical patients in tertiary care hospital

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Background and Aim

Nosocomial infections are major threat to recovery of patients undergoing cardiac surgery. Prevalence of VAP is 6.37% and incidence is 35.2% and 21.27 episodes per 1000 mechanical ventilation days. VAP is associated with high mortality rate (24-76%) with 15% to 45% attributable mortality.

Methods

Prospective observational study, consecutive sampling of all patients undergoing cardiac surgery and not having active infection in last one month. Ventilation duration >48 hours, development of fever, leucocytosis, increased oxygen, PEEP, purulent secretions, and microbiological samples sent were recorded.

Results

4810 patients enrolled in study. 177 had ventilation for more than 48 hours. 51 developed VAP. Mean age 59 (\pm 10) with 75% males. Logistic regression showed hypertension, prolonged nasogastric tube, severe LV dysfunction as factors associated with VAP. Positive microbial isolates obtained for 40 (78%). Common pathogens isolated were *Klebsiella pneumoniae* (60 -95% resistance to most cephalosporins and carbapenems), *Acinetobacter baumannii* (75% susceptibility to gentamicin and resistant to all antibiotics), *Pseudomonas aeruginosa* (43% susceptibility to all drugs) and *E. coli* (80% susceptibility to aminoglycosides and carbapenems). Length of stay was 19 days in VAP vs 9 days in non-VAP. Surgical Antibiotic for Prophylaxis was Cefuroxime (85.41%, 2.46 days) and Cefoperazone sulbactam (10.41 %, 4.4 days). Twenty-two patients were on dual and 9 were on triple antibiotics and mean duration of antibiotics was 8.7 days. 27 required escalations of therapy, done in 12 cases. Switching to oral antibiotics was not done for this cohort of patients. Antibiotic time-out was followed only in 17/40 patients. There was a strong association between failure to follow antibiotic time-out with mortality ($p < 0.015$)

Conclusion

VAP is caused by highly resistant bacteria, resulting in significant increase in ICU stay and hospital stay. It is important to send cultures at appropriate time and change antibiotics according to susceptibility results. This will greatly reduce the cost of treatment and help reduce preventable loss of life and reduce length of stay (LOS). Antibiotic time-out should be done at the end of 48 hours of sending samples to the microbiology laboratory to ensure optimal patient care.

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Descriptive Characteristics	Global
Preoperative	
No. patients	4810
Mean age in years (SD)	57.5±10.4
Sex, male	80.03%
Underlying conditions (%)	
Hypertension	2402 (49.94%)
Diabetes	3092 (64.28%)
Myocardial infarction	4016 (83.49%)
Severe LV dysfunction	520 (10.81%)
Rhythm abnormality	20 (0.42%)
Chronic obstructive pulmonary disease	51 (1.06%)
Asthma	174 (3.62%)
Renal disease	106 (2.2%)
Maintenance Dialysis	10 (0.21%)
Previous Cerebrovascular accident	128 (2.66%)
TB	50 (1.04%)
Smoking	481 (10%)
Previous cardiac surgery	222 (4.62%)
New York Heart Association functional class (%)	
Class 1	3610 (75.05%)
Class 2	684 (14.22%)
Class 3	432 (8.98%)
Class 4	84 (1.75%)
Surgical	
Emergency (%)	29 (0.60%)
Type of surgery (%)	
Valvular replacement	1008 (20.96%)
CABG surgery	3952 (82.16%)
Complex cardiac surgery	40 (0.83%)
Congenital heart disease	44 (0.91%)
Vascular	42 (0.87%)
Mean cardiopulmonary bypass time (min) (SD)	83.32 ± 64.04
Mean aortic cross-clamp time	47±39.9

AO28-2

Prognostic validity of SMART-COP, PSI, and CURB-65 scores in hospitalized patients with melioidosis pneumonia

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Background and Aim

Burkholderia pseudomallei can cause severe community-acquired pneumonia called melioidosis pneumonia. Whether SMART-COP, pneumonia severity index (PSI), and CURB-65 scores having prognostic validity for melioidosis pneumonia or not remains unanswered. And which one of these scores is the most suitable?

Methods

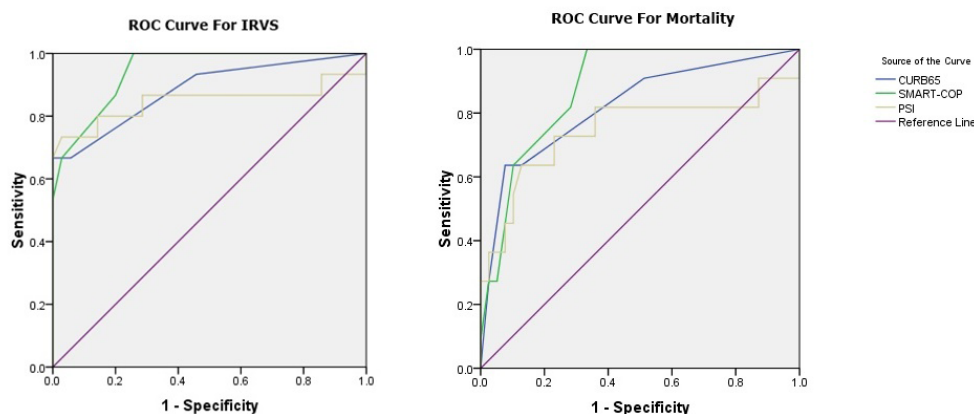
A retrospective cohort study was conducted at the respiratory department of the large tertiary hospital during more two years. All adult patients with diagnosis of culture-confirmed melioidosis pneumonia were enrolled. SMART-COP, PSI, and CURB-65 scores were evaluated at the time of admission.

Results

We found 50 cases of melioidosis pneumonia, mean of age (50.5 ± 10.3) and male/female ratio (23/2). There were 78.0% cases of septicemia and 20.0% of septic shock. Median scores of SMART-COP, CURB-65, and PSI were 2.0 (IQR 1.0 – 4.0), 1.0 (IQR 0.0 – 1.3), and 87.0 (IQR 72.3 – 116.5) respectively. The need of intensive respiratory or vasopressor support (IRVS) was recorded in 30.0% cases and the survival rate at the discharged time was 78.0%. The area under curves (AUCs) of SMART-COP score, CURB-65 score, and PSI score for predicting the need of IRVS were 0.945 ($p < 0.001$), 0.883 ($p < 0.001$), and 0.847 ($p < 0.001$) respectively. The AUCs of SMART-COP score, CURB-65 score, and PSI score for predicting the mortality were 0.879 ($p < 0.001$), 0.822 ($p = 0.001$), and 0.747 ($p = 0.013$) respectively (figure 1).

Conclusion

SMART-COP score showed efficiency of predicting the need of IRVS and the mortality in melioidosis pneumonia better than CURB-65 score and PSI score.



AO28-3

Changes in respiratory infection trends during the COVID-19 pandemic in the hematologic malignancy patients

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Background and Aim

The coronavirus disease 2019 (COVID-19) pandemic led to a lot of change in the pattern of respiratory infection. We aimed to investigate the change of patterns of respiratory infection in patients with hematologic malignancy after COVID-19 era.

Methods

This retrospective observational study included 281 patients with hematologic malignancies who presented respiratory symptoms and received bronchoscopy between January 2018 and December 2021. During the pandemic, patients was enforced to wear a face mask in outdoor and in-hospital legally.

Results

During the pandemic, the overall respiratory virus positivity rate was significantly decreased (23.8% vs. 1.3%, $P < 0.001$). Among the viruses, especially influenza A (6.9% vs. 0%, $P = 0.002$) and respiratory syncytial virus (7.9% vs. 1.1%, $P = 0.01$) were decreased during the pandemic. Despite adherence to personal preventive measures significantly increased, the rate of hospital acquired pneumonia (50.5% vs. 43.9%, $P = 0.344$), and fungal infection (21.4% vs. 20.0%, $P = 0.905$) were not significantly decreased during the pandemic. Although overall hospital mortality was not changed between the periods, intensive care unit mortality was significantly increased during the pandemic (15.6% vs. 30.8%, $P = 0.018$).

Conclusion

This study suggests that only the incidence of respiratory virus infections decreased during the pandemic in patients with hematologic malignancies. Despite through personal hygiene, the incidence of fungal infection or hospital acquired pneumonia were not decreased.

AO28-4

Long Term Predictors of Fatal Pneumonia in a Japanese population

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Background and Aim

Pneumonia is a major cause of mortality among adults. This study aims to investigate predictors of long-term mortality from pneumonia in a longitudinal study of a representative sample from the general Japanese population.

Methods

Data are from the National Intergrated Project for Prospective Observation of Noncommunicable Disease and Its Trend in the Aged 1980-2009 (NIPPON DATA80). The sample includes 9,462 participants aged ≥ 30 years from randomly selected areas in Japan. Subjects were followed for up to 29 years. Risk factors investigated were age, sex, body mass index, systolic blood pressure, diabetes, serum albumin, total cholesterol, smoking, drinking, and history of stroke. Cox's proportional hazards regression models were applied to estimate the effects of risk factors on death from pneumonia.

Results

During the 29-year period of follow-up, 326 deaths from pneumonia were observed (1.43 per 1,000 person-years of follow-up). There were significant associations of age, sex, diabetes, serum albumin, and smoking status with pneumonia death. Associations remained significant after adjustment for other risk factors. The multivariable-adjusted hazard ratio (HR) for pneumonia death per 10-year increase in age was 5.07 (95% Confident interval [CI] 4.42 to 5.83). For serum albumin, a 1 standard deviation increase [3 g/L] was associated with 24% risk of fatal pneumonia (95% CI 0.66 to 0.86). The HR comparing women to men was 0.54 (95% CI 0.39 to 0.75). The HR of diabetes was 1.56 (95% CI 1.11 to 2.20). The HR comparing current smoker with never smoker was 1.38 (95% CI 1.01 to 1.88).

Conclusion

In this long-term prospective study of a general Japanese population sample, age, male sex, diabetes, low serum albumin, and current smoker were associated with an increased risk of death due to pneumonia.

No conflict of interest

AO28-5

Combining a novel cyclic peptide with antibiotics to treat acute and chronic pulmonary infections with multidrug resistance gram-negative bacteria

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Background and Aim

Pulmonary infections caused by carbapenemase-producing multidrug resistance (MDR) *Klebsiella pneumoniae*, *Pseudomonas aeruginosa* and *Acinetobacter baumannii* represent a major therapeutic challenge. With a lack of current investment into traditional antibiotic discovery pipelines, one alternative is to revitalize existing antibiotics using novel molecules as adjuvants. Here, we tested the synergistic activity of a novel peptidomimetic cyclic peptide when combined with antibiotics in vitro and in vivo.

Methods

Synergistic activity of a novel peptidomimetic cyclic peptide (PCP0218) was assessed when combined with antibiotics against 300 clinical isolates of carbapenemase-producing MDR *K. pneumoniae*, *P. aeruginosa* and *A. baumannii*. Activity was assessed using a novel high-throughput assay, coupled with confocal microscopy to assess both bactericidal and antibiofilm activity. The ability of PCP0218 with antibiotics to eliminate acute and chronic (biofilm) lung infections was also assessed in a relevant in vivo mouse model.

Results

PCP0218 at low concentrations (8 µg/ml) effectively restored bacterial sensitivity to colistin (0.25 µg/ml), amikacin (1 µg/ml), tobramycin (2 µg/ml), imipenem (0.5 µg/ml), ciprofloxacin (0.5 µg/ml), ceftazidime-avibactam (0.5 µg/ml), and aztreonam (2 µg/ml) against carbapenemase-producing MDR *K. pneumoniae*, *P. aeruginosa* and *A. baumannii*. It also maintained activity after incubation with trypsin/pepsin/papain (12 mg kg⁻¹) at 37 °C for 12 h. PCP0218 in combination with antibiotics induced >98% reduction of biofilm and bacterial load (1-log₁₀ kill) in vivo, lowered serum creatinine, and protected from mortality.

Conclusion

Our findings provide a first potential novel therapeutic option using a peptidomimetic cyclic peptide adjuvant in combination with antibiotics on carbapenemase-producing MDR *K. pneumoniae*, *P. aeruginosa* and *A. baumannii*.

AO28-6

A hybrid AI model with the first 3-day features of CXR and clinical data to predict the survival discharge of pneumonia patients within seven hospital days

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Background and Aim

Mimicking the physicians' thinking process, we establish a hybrid AI model to predict the survival discharge of pneumonia patients within seven hospital days on the 3rd day after admission.

Methods

We retrospectively collected the patients with community acquired pneumonia admitted to general wards from 2014 to 2018. The patients of mortality and age ≤ 18 were excluded. We took the vital signs and CXRs within the first three days of admission. We created the AI model to segment the thoracic field of CXRs and automatically extract the features of pulmonary infiltrates, cardiomegaly, and pleural effusion. Then we constructed the hybrid model with the first 3-day features of CXR and clinical data to predict the survival discharge within seven hospital days.

Results

A total of 3839 patients (M/F 64/36%) were enrolled with the discharge ≤ 7 hospital days (26.1%) and > 7 days (73.9%). The mean of hospital days and age was $11.5 \text{ days} \pm 7.9$ and 71.0 ± 16.8 respectively. Using vital signs only, the model of XGBoost was best with an accuracy of 0.77 and an F1 score of ≤ 7 -d discharge 0.44. The AI-CXR features model yielded an accuracy of 0.77 and an F1 0.33. The hybrid AI model with vital signs and CXR features yielded an accuracy of 0.76 and an F1 0.51.

Conclusion

Mimicking the physicians' thinking process, the hybrid AI model of vital signs and CXRs is better than the AI model of vital signs or CXRs respectively.

AO28-7

Comparison of beta-lactam monotherapy and combination with fluoroquinolone therapy as initial empiric treatment in patients with hospital-acquired pneumonia: a Korean multicenter cohort study

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Introduction

There is insufficient data on the effect of empiric combination therapy for *Pseudomonas aeruginosa* in patients with hospital-acquired pneumonia (HAP). We aimed to investigate whether empiric combination therapy was associated with decreased mortality in patients with HAP.

Methods

This was a multicenter retrospective cohort study of patients admitted to 16 tertiary or general hospitals in Korea from January 1 to December 31, 2019. The patients were divided into two groups according to mono or combination empiric antibiotic therapy for *Pseudomonas aeruginosa*. Propensity score matching (PSM) was used to reduce bias between groups. The primary outcome was 30-day mortality.

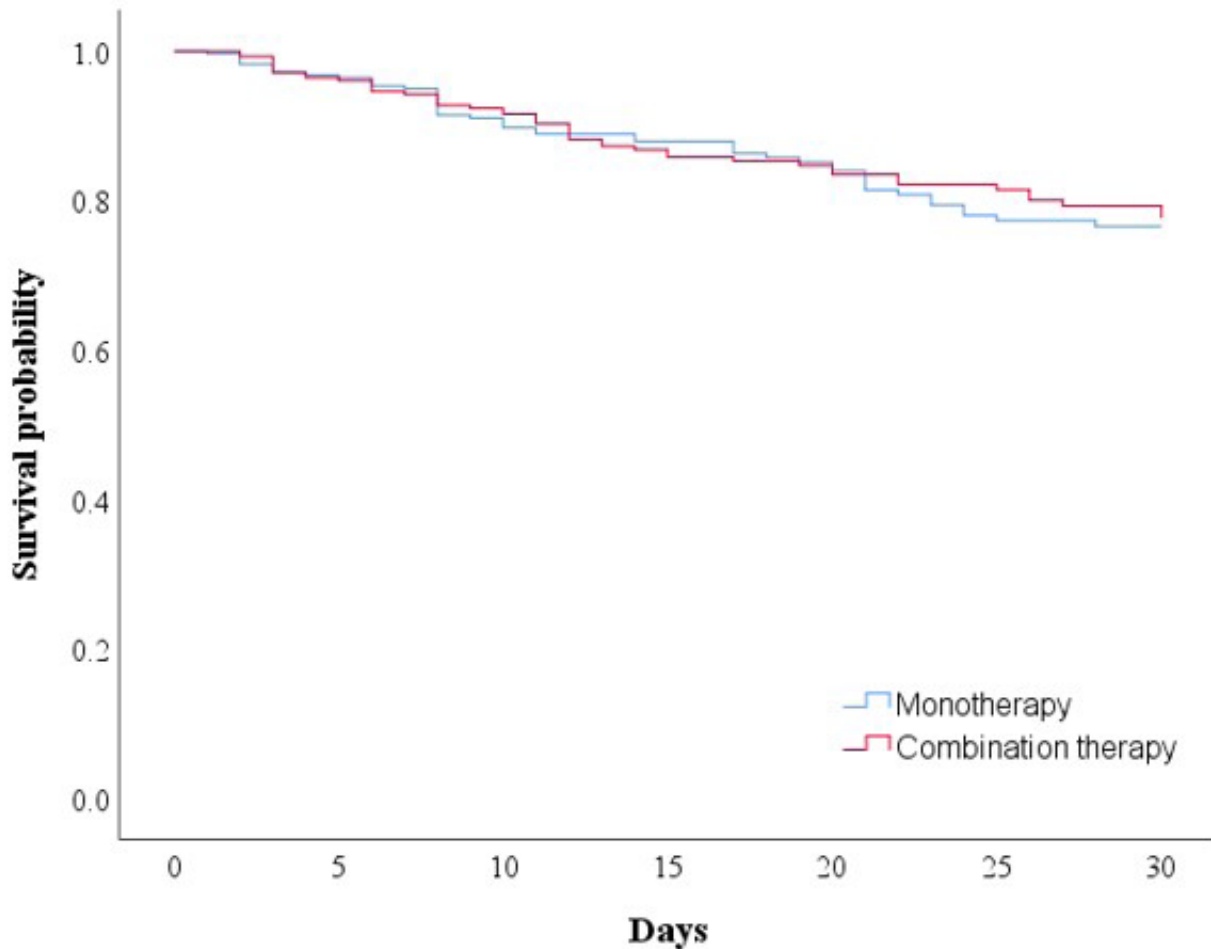
Results

During the study period, 1193 adult patients with HAP were enrolled. Beta-lactam monotherapy was 56.9% (n=429), and combination therapy with fluoroquinolones was 43.1% (n=325). Gram-negative pathogens were 29.6%, with 11.1% of *Acinetobacter baumannii* and 7.0% of *Pseudomonas aeruginosa*. Multidrug resistant (MDR) pathogens were 26.9%, and the MDR rates of *Acinetobacter baumannii* and *Pseudomonas aeruginosa* were 90% (76/84) and 83% (44/53), respectively. After 1:1 PSM, a matched cohort with 568 patients was generated. There was

no significant difference in the 30-day mortality rate between two groups (16.8% vs. 17.2%, $p=0.871$), even after PSM (16.5% vs. 17.3%, $p=0.823$).

Conclusion

In Korea, the most common gram-negative bacterial pathogens of HAP were *Acinetobacter baumannii* and *Pseudomonas aeruginosa*, and the MDR rates of both organisms are high. Empiric antipseudomonal beta-lactam combined with fluoroquinolone showed no survival benefit in patients with HAP. Further nationwide study regarding antibiotic susceptibility data on nosocomial *Pseudomonas aeruginosa* is needed.



AO28-8

Correlation of fungal infection risk factor on fungal colonization in pulmonary tuberculosis sequelae patients with recurrent hemoptysis in labuang baji hospital

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Background and Aim

Fungal colonization is the discovery of fungal colonies from one or more culture sites in patients without fungal infection or with clinical features of fungal infection. One of the risk factors for fungal colonization is pulmonary tuberculosis (TB) sequelae. The study aimed to determine the correlation between fungal infection risk factors and the occurrence of fungal colonization from bronchial lavage in patients with sequela of pulmonary TB / drug resistance (DR) pulmonary TB with recurrent hemoptysis.

Methods

The design of this study was a cross sectional study at the pulmonary outpatient of Labuang Baji Hospital Makassar. The sample was patients with sequela of pulmonary TB and DR pulmonary TB with recurrent hemoptysis who performed bronchial lavage from bronchoscopy between January 2020 and December 2021.

Results

The number of inclusion criteria samples was 55 samples. There were 43 (78.2%) patients of pulmonary TB sequela and 12 (21.8%) patients of DR pulmonary TB sequela. There were 24 (41.8%) patients who were positive for fungal colonization. The risk factors that had a significant correlation with the occurrence of fungal colonization were pulmonary TB sequela (p value = 0.006; OR = 3.375; CI% 0.875-13.021) and bronchiectasis (p value = 0.008; OR = 2.901; CI% 0.906-9.286).

Conclusion

There were 41.8% fungal colonization in patients with pulmonary TB sequela and there was a significant correlation between the risk factors for pulmonary TB sequela and bronchiectasis and the occurrence of fungal colonization (p<0.05).

Key words

fungal colonization, TB sequela, bronchial lavage

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AO28-9

Pneumonia in children with tracheostomy: incidence and associating factors in a tertiary hospital

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Background and Aim

Tracheostomy has been a more common procedure in our hospital to manage airway obstruction, protect from aspiration, or in prolonged ventilatory used. Children with tracheostomy have increased risk of trachea-pulmonary infections, as tracheostomy provides open portal of entry for pathogen in the lower airway. Yet, associating factors are unclear.

Methods

A cross sectional study from electronic medical records of children /who underwent tracheostomy during 2020-2021. Demographic data, indication, nutritional status, and hemoglobin factors are evaluated.

Results

During 2020-2021, 65 pediatric patients underwent tracheostomy, however 15 patients were excluded due to incomplete data. From 50 subjects, 64% were male, median of tracheostomy insertion was 24 months (IQR 10.5-13.2 months). Pneumonia was experienced in 62% subjects, with majority of them (41.9%) experiencing one episode of pneumonia during study period. Culture from tracheostomy aspirate was commonly *Pseudomonas aeruginosa* (33%), followed with *KleibSELLA pneumonia* (27%) and *Acinetobacter sp.* (23%). Only one case of pneumonia was related to COVID-19. Indication for tracheostomy was associated with pneumonia ($P=0.000$), as major etiology for tracheostomy were prolonged mechanical ventilator. Age when tracheostomy was performed was associated with pneumonia ($P=0.000$), as the odds of pneumonia in subjects 12 months old. Nutritional status and hemoglobin level were not associated with pneumonia in tracheostomy children ($P=0.121$ and $P=0.624$).

Conclusion

Incidence of pneumonia in tracheostomy children is 62%, commonly due to K.pneumonia. Prolonged mechanical ventilation and age

No disclosure statement



The 26th
Congress of the
Asian Pacific Society
of Respiriology



**POSTER
EXHIBITION**



AP01-1

Effects of vaccination by age subgroup on the respiratory outcomes in patients with breakthrough COVID-19 infections

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Background and Aim

Being vaccinated seems to be associated with a lower risk of severe disease when breakthrough COVID-19 infections develop. However, influence of age on the vaccination effect has not yet been determined.

Methods

A total of 387 patients with mild to severe COVID-19 patients were included. The study patients were classified into two groups based on the age of 65 and vaccination effects on the respiratory outcomes were analyzed in each group. Respiratory outcomes were defined as the development of hypoxia or respiratory failure. Logistic regression analysis was used to determine risk factors for hypoxia and respiratory failure.

Results

There were 229 and 158 patients in the age

Conclusion

Regardless of age, being vaccinated appeared to be a predictor for less severe respiratory outcomes. However, the benefit was greater in patients ≥ 65 years, where prior vaccination was a predictor for risk reduction in both hypoxia and respiratory failure.

AP01-2

Association between ferritin serum level and oxygen supporting demand in COVID-19 patient during hospitalization

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Background

Oxygen supporting demand is major cause of COVID-19 patient hospitalization. It refers to severity of the disease due to cytokine storm induced by inflammatory in response to the novel coronavirus. As in inflammatory state various acute biomarker reactants expected to raise including serum ferritin. This study aims to evaluated prospective impact of ferritin serum level on admission on oxygen supporting demand in COVID-19 patient hospitalization.

Methods

This is retrospective cohort study included 400 COVID-19 patients admitted to DR. M. Djamil General Hospital in Padang City in 2021. We evaluated association between ferritin serum level on admission and highest oxygen supporting demand during hospitalization.

Results

Most of the subjects in this study were females (54,25%) and above 50 years old (59%). The ferritin serum level on admission 211 (52,75%) were below 500 ng/ml, 73 (18,25%) were in range 500-1000 ng/ml and 116 (29,00%) were above 1000 ng/ml. There was increasing risk of high flow nasal cannula (HFNC) oxygen demand on those whose ferritin level above 1000 ng/ml compare to those whose below 500 ng/ml (OR 4,76 (2,70-8,39), CI 95%, p<0,001). The risk mechanical ventilation also increased on those whose ferritin level 500-100 ng/ml and above 1000 ng/ml (OR 3,64 (1,66-7,98), CI 95%, p<0,001 and OR 7,69 (3,97-14,92), CI 95%, p<0,001; respectively)

Conclusion

Ferritin serum level on admission could be considered as prognostic biomarker on predicting the high oxygen supporting demand like HFNC or mechanical ventilation. This examination could be recommended routinely to assist of COVID-19 patient placement or on considering patient referral.

Keywords

Ferritin, Oxygen supporting demand, COVID-19, HFNC, Mechanical ventilation

AP01-3

Comparative Study of Clinical Outcomes of Severe and Critical COVID-19 Patients With and Without Hemoperfusion Admitted in a Referral Hospital

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Background and Aim

Coronavirus disease (COVID-19) has been a global problem since 2020, and is challenging to manage, leading to countless deaths worldwide. Severe cases are due to overwhelming hyperinflammatory response termed cytokine release syndrome. Hemoperfusion (HP) has been proposed as a means of removing cytokines from the circulation, theoretically improving survival. This study compared the clinical outcomes of hemoperfusion among severe and critical COVID-19 patients admitted in a COVID-19 referral hospital.

Methods

This is a retrospective cohort study involving hospital records of severe and critical COVID-19 adult patients. Patients were grouped according to severity and HP status.

Results

There were 435 patients included in the study, of which 155 were patients without HP, and 280 with HP. Baseline inflammatory markers of critical patients were significantly higher than severe patients in both the HP group (LDH $p=0.01$, Procalcitonin $p=0.01$) and non-HP group (LDH $p=0.02$, ferritin $p<0.001$).

Conclusion

There is an association between HP and improved survival among severe COVID patients, but not among critical COVID patients. HP was also associated with better survival among severe patients who were intubated during admission. Future studies should be done in institutions where HP is not part of their standard of care.

AP01-4

Pulmonary function tests in the aftermath of covid infection in a cohort of national level athletes

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Background and Aim

There is limited data regarding the impact of covid 19 infection on lung function tests in athletes. We describe the spirometry values and 6-minute walk test (6MWT) results of 51 national level athletes after recovery from mild covid infection.

Methods

Athletes engaged in aerobic sports, with no previous comorbidities and no smoking history had spirometry and 6-minute walk tests. 31 (19 female, 12 male) players were within a period of 2-8 weeks (Group A) after mild covid infection; 20 (10 female, 10 male) >8 weeks (Group B).

Results

The FEV1, FVC and The FEV1/FVC ratio were normal in all (Table 1). The mean height was 176 cm in males; 166 cm in females. The BMI was normal in males; overweight in 23% females. In the 6MWT, 70% players walked between 400-700m in each group. The rest achieved >700m. the MEF 25, MEF 50, MEF 75 and MEF 25-75 were less than the predicted lower limit of normal in 70%, 52%, 29% and 61% in Group A respectively and 55%, 45%, 35%, 35% in Group B. Bronchodilator reversibility (BDR) was negative in all. In the peripheral airways, BDR was seen in one player in group B.

Conclusion

In this study, an impact on the peripheral airways was noted, despite normal FEV1 and FVC values in many players. Longer term studies will be valuable to observe the evolution of these deficits.

Table 1. spirometry values of group A (2-8 weeks after infection) and Group B (>8 weeks after infection)

	Group A	Group B
Mean FEV1 (L)	Female <u>3.31</u> (91%) Male 2.82 (85%)	Female 2.56 (83%) Male 3.77 (96%)
Mean FVC (L)	Female 3.9 (91%) Male 3.3 (86%)	Female <u>2.93</u> (80%) Male 4.54 (96%)
Mean MEF 25 (L/sec)	Female 1.78 (71%) Male 2.9 (71%)	Female 1.73 (75%) Male 1.7 (65%)
Mean MEF 50 (L/sec)	Female 4.1 (79%) Male 3.5 (76%)	Female 3.9 (86%) Male 4.27 (76.5%)
Mean MEF 75 (L/sec)	Female <u>6.95</u> (79%) Male 5.6 (87%)	Female <u>6.2</u> (99%) Male 7.5 (76.5%)
Mean FEF 25-75 (%)	Female 75% Male 71%	Female 83% Male 76%
Inspiratory capacity (L)	Female 2.9 Male 2.2	Female <u>2.25L</u> Male 3.03L

AP01-5

Tent using for MOTT patient undergoes antibiotics nebulizer to minimise environmental contamination under COVID 19 Pandemic

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Introduction

Patients with Mycobacteria other than Tuberculosis (MOTT) need long hospitalization stay for systemic antibiotics treatment. However, home nebulization of antibiotics is one of the effective methods for treating MOTT

and helps shorten the patients' length of stay in hospital. Nebulization of antibiotics minimize the systemic exposure of antibiotics (Palmer, 2017; Michalopoulos & Falagas, 2014), which the antibiotics would be directly inhaled and deposited to the lungs through nebulization. Under the pandemic of COVID 19, nebulization needs

cautious measures under the aerosol generating procedure (AGP) guideline. Single isolation room or good ventilation area will be the best appropriate places for patient undergoing nebulization. When patient discharges to home settings, it is suggested patient to perform nebulization in a well ventilated area (e.g. open area balcony or single room)

(Swarnakar et al., 2020) and cleansing of the nearby environment after the procedure to minimise the environmental contamination by the residual antibiotics. Yet, due to crowded area in Hong Kong, some patients might not have suitable environment to undergo nebulization in home settings. To overcome this issue, our department underwent an experiment to test the feasibility by using a transparent tent as a single isolation area, helps to minimize the environmental contamination.

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AP01-6

Clinical Characteristics of COVID-19 between ICU and non-ICU patients

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Introduction

May until September 2021 marks the peak of the greater Klang Valley COVID-19 crisis, in which Hospital UiTM Sg. Buloh was converted into a full COVID-19 hospital. We described our experience in managing active COVID-19 patients and subsequent follow-ups.

Aim

To compare clinical characteristics of COVID-19 patients between ICU and non-ICU. Methodology: Retrospective review of medical notes during admission and subsequent follow-up.

Result

215 patients were enrolled; 81 patients required ICU admission, and the rest required only ward admission. Males accounted for 61%, mean age of 53 years old, mean day of illness upon presentation, and duration of admissions of 9 and 10 days, respectively. Fully vaccinated patients less likely to be admitted to ICU, OR 0.2 (0.04 - 0.89). ICU patients more likely to be female Adj OR 2.0 (1.11-3.56), diabetic Adj OR 1.9 (1.04-3.68), longer hospital stay (17 vs. 6 days), and higher mortality OR 5.50 (2.64-11.34). ICU patients have higher creatinine (167 vs. 107 mmol/L), CRP (115 vs. 69 ug/L), and ALT (80 vs. 53 mmol/L), and lower PF ratio (148 vs. 210). Arrhythmias and secondary infection likely seen in ICU patients, Adj OR 16.44 (1.56-172.81) and 12.05 (5.44-26.69), respectively. Pneumothorax, pneumomediastinum, subcutaneous emphysema, and acute cor-pulmonale were only observed in ICU patients. Recorded mortality was 43 cases (20%). 83 patients who attended a 3-month follow-up showed no difference in symptoms, 6-minute-walk-tests, and spirometry between ICU and non-ICU.

Conclusion

ICU COVID-19 patients have poorer outcomes but similar recovery to non-ICU patients at 3-month follow-up.

AP01-7

Pulmonary alveolar proteinosis after COVID-19 infection: a possible association.

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Introduction

Pulmonary alveolar proteinosis (PAP) is a rare lung pathology, characterized by abnormal accumulation of lipoprotein materials (predominantly surfactant) within alveoli. It can cause severe respiratory compromise. Even though initially considered idiopathic, subsequently many etiologies including infections were discovered.¹ Although many pulmonary complications have emerged due to COVID-19 pandemic, its relationship with PAP is yet to be established.

We report a unique case of PAP developed following COVID-19 pneumonia.

Case report

A 42-year-old female presented with severe dyspnea and hypoxia persisting for 6 months, after having confirmed mild COVID pneumonia. She was not improved after a course of oral prednisolone. There was no fever, cough, chest pain, hemoptysis or constitutional symptoms. She had no medical comorbidities, connective tissue disorders or hereditary lung diseases; no exposure to organic/inorganic dust, fumes or tobacco smoke. Examination revealed SpO₂ 92% on air with exertional desaturation, tachypnea, tachycardia and bilateral diffuse lung crepitations. Chest X Ray revealed bilateral interstitial opacities. Typical crazy-paving pattern was evident in HRCT chest (figure 1). Bronchoscopic lung biopsy revealed intra-alveolar periodic acid-Schiff staining material which established the diagnosis of PAP. We could effectively rule out many infections (including tuberculosis and fungal infections), hematological malignancies, pulmonary embolism and cardiac pathologies. Anti-nuclear factor was weakly positive. Anti-granulocyte-macrophage colony-stimulating factor antibodies were not done due to unavailability. Eventually, total lung lavage was decided as the treatment after a multi-disciplinary discussion.

Discussion

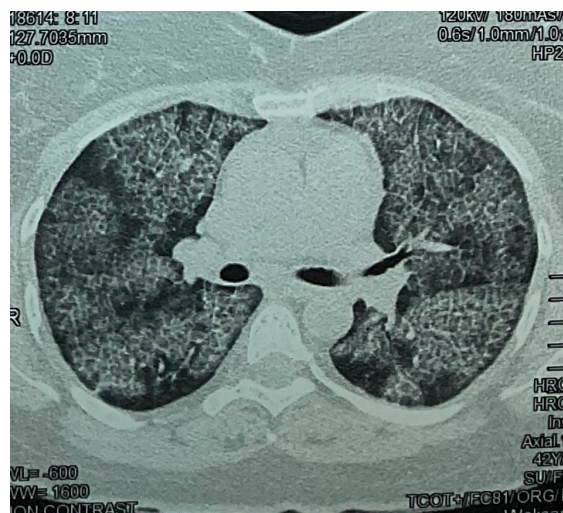
This case demonstrates an important possible association of PAP with COVID-19 infection. However causal relationship between the two should be evaluated further.

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Disclosure statement

No disclosures



AP01-8

Clinical Outcome of Supervised Pulmonary Telerehabilitation Program among Adult Patients with Post-Acute COVID-19 Symptoms (PACS): A Case Series

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Post-acute COVID-19 syndrome (PACS) is a significant sequela due to the complex systemic effects of COVID-19 infection. A vast majority of the affected patients had persistent symptoms ranging from 3 to 12 months after recovery from the acute phase of COVID-19. One of the challenging respiratory manifestations is dyspnea leading to intolerance in activities of daily living which has led to an influx of pulmonary rehabilitation (PR). However, to abide by the demands of home confinement with the pandemic, improvised telerehabilitation has been formulated. Exercise capacity and pulmonary function were assessed using a cardiopulmonary exercise test, pulmonary function test, and St. George Respiratory Questionnaire (SGRQ). Nine patients who recovered from the acute illness of COVID-19 had undergone the telerehabilitation program. Their clinical outcome shows that eight had improvement in exercise capacity on VO₂peak, 6-minute walk test, and SGRQ. In terms of pulmonary function, seven patients improved forced vital capacity (FVC), and six patients improved in forced expiratory volume (FEV₁), respectively. PR is a comprehensive intervention for patients with chronic obstructive disease aimed to alleviate pulmonary symptoms and improve functional capacity. Hence, further support for the effectiveness of PR in PACS is mandated. This case series has demonstrated that a supervised and improvised PR shows evidence of improvement in the quality of life of patients with PACS.

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AP01-9

PSI, CRB-65 and MuLBSTA scores for predicting severity and mortality among hospitalized COVID-19 Pneumonia patients at Chinese General Hospital and Medical Center

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Background and Aim

Estimation of severity and mortality risk in using validated classic Community Acquired Pneumonia risk scores for Coronavirus Disease 2019 (COVID-19) Pneumonia are still under investigation. Our study aims to evaluate and compare the applicability and its usefulness of the Pneumonia Severity Index (PSI), Confusion, Respiratory rate, Blood pressure, Age >65 (CRB-65), and Multilobular infiltration, Lymphopenia, Bacterial co-infection, Smoking history, Hypertension and Age (MuLBSTA) scoring system in predicting mortality, disease severity and need for ventilatory support and ICU admission among hospitalized Filipino COVID-19 Pneumonia.

Methods

A retrospective analytical study was conducted in Chinese General Hospital Medical Center, Manila, Philippines from the period of January to December 2021. Clinical data from Four hundred thirty-six (N=436) hospitalized RT-PCR confirmed COVID-19 pneumonia patients were analyzed. A receiver operating characteristic curve (ROC) analysis and Area under the Curve (AUC) was used to determine accuracy of pneumonia scoring system in predicting outcomes of interest.

Results

All three pneumonia scoring systems have poor accuracy in predicting mortality (PSI AUC 0.48, CRB-65 AUC 0.5, MuLBSTA AUC 0.46), severe/critical disease severity (PSI AUC 0.57, CRB-65 AUC 0.56, MuLBSTA AUC 0.46), Need for ICU admission (PSI AUC:0.45, CRB-65 AUC:0.45, MuLBSTA AUC:0.38) and Need for additional ventilatory support within 72 hours (PSI AUC:0.55, CRB-65 AUC:0.54, MuLBSTA AUC:0.53) among COVID-19 patient.

Conclusion

The Accuracy of CRB-65, PSI, and MuLBSTA scoring system in predicting mortality, disease severity and clinical outcomes were low.

Keywords

COVID-19, PSI, CRB-65, MuLBSTA scoring systems, predicting severity and mortality

AP01-10

Predictors of Poor Outcomes in Unvaccinated COVID Pneumonia Patients: A Retrospective Study

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Background

Assess predictors of poor outcomes of COVID pneumonia

Methods

We retrospectively analysed the outcome of non-vaccinated COVID pneumonia patients, admitted to Teaching Hospital Peradeniya from April-June 2021.

Results

We recruited 221 patients (male 48.4%) ,mean age of 60 years. Non-severe and severe pneumonia were 55.7% and 44.3% respectively. 11% had intubation over 48 hours and 23% died. Average hospital stays were 17.5 and 12 days for survivors and deceased respectively.

Diabetes was associated with high rates of ventilation (p=0.239) and deaths (p=0.023). Higher oxygen requirement observed in patients presented with cough (OR=1.9, p=0.044) and breathlessness (OR=2.5, p=0.004). WBC count (p=0.001), neutrophil:lymphocyte ratio (p<0.001), C-reactive protein (p=0.002) on admission and the highest CRP(p=0.008) were factors associated with increased oxygen demand.

Mortality of COVID pneumonia predicted by high initial WBC count (13.9 in those died and $8.5 \times 10^9/L$ in survivors, p=<0.001), N:L ratio (17.02 in dead and 5.41 among survivors, p=p<0.001), initial CRP (119 U/L Vs 50 U/L, p=0.007) and highest CRP (171 Vs 67.7 U/L ,p<0.001). 72% of patients who were intubated did not survive. Secondary bacterial infection associated with poor survival (64.7% vs 19.4%,OR=6.6, p<0.001)

Conclusion

Diabetes mellitus, high WBC count, high N:L ratio, high CRP at admission and highest CRP levels are significant factors for increased oxygen demand and mortality in non-vaccinated COVID pneumonia patients. Symptomatically, presence of cough and dyspnoea were associated with the oxygen requirement. The development of secondary infection is a significant factor for mortality and for development of post-COVID ILD among survivors.

AP01-11

Severe melioidosis after covid pneumonia: a chameleon to watch out

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Introduction

Melioidosis is a potentially fatal infection usually occurs when the immune status is weakened¹. The covid pandemic has seen many fatal opportunistic infections in the post covid state due to secondary bacterial and fungal infections. We report a case of severe melioidosis infection in the aftermath of covid infection. To our knowledge this is the first successful case reported with this association.

Case report

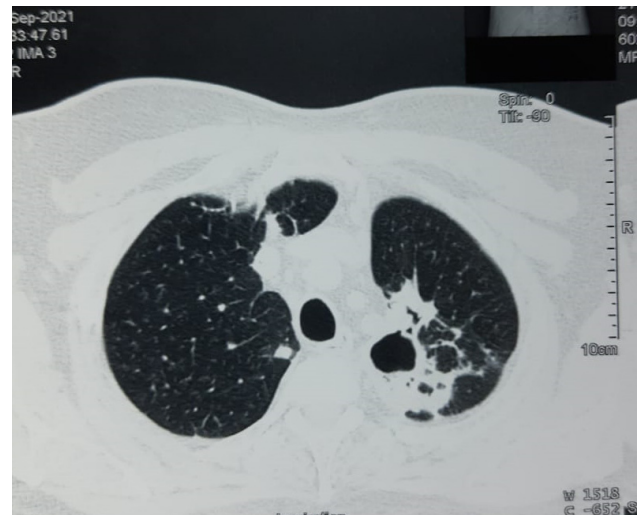
A 46-year-old previously well controlled diabetic male was treated for severe covid pneumonia. He was discharged on tailing down steroids. After 10 days he developed bilateral knee and elbow joint pain and swelling. He readmitted with fever and worsening dyspnoea. He had elevated inflammatory markers; blood culture grew gram negative bacilli and joint aspirate was suggestive of septic arthritis. His oxygen requirement increased. The HRCT revealed fibrocavitations, pluroparenchymal scarring and traction bronchiectasis and post covid changes in bilateral lower lobes. Sputum gene expert Tb and serum galactomannan were negative. Melioidosis antibody titre was highly positive at 1:10240. He received IV meropenem for two weeks leading to clinical and biochemical improvement. He was discharged on oral co trimoxazole for 4 weeks and to be reviewed in clinic.

Discussion

As the covid infection and its treatment with steroids make patients vulnerable to opportunistic infections, it is important to be vigilant of secondary bacterial and fungal infections. As melioidosis is a great mimicker and as Sri Lanka lies in the endemic belt² for melioidosis, raises the importance of this potentially treatable condition which can otherwise be missed.

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AP01-12

Dapsone induced Methemoglobinemia: A case of hypoxia overlooked in a patient during covid pandemic

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Introduction

Covid pandemic has caused many delayed diagnoses for hypoxia which might be owing to adverse medication effects. (1, 2) This is a case scenario of a patient with acquired methemoglobinemia from dapsone use where diagnosis was unintentionally delayed and other possible diagnosis were overlooked.

Case report

An 18-year-old student presented with flu-like illness and respiratory distress for 10 days. RT-PCR for SARS-CoV2 was found negative. He mentioned an eczematous skin condition and was prescribed dapsone.

On examination, he was tachypneic, acyanotic. SpO₂ was 85% on room air. Cardio-respiratory and relevant clinical and laboratory findings including chest radiology were unremarkable. Arterial blood samples appeared chocolate brown and analysis revealed a PH 7.37, PCO₂: 39.7 mmHg, pO₂ 93 mm Hg, bicarbonate 22 mmol/L. (Table 1). Methemoglobinemia secondary to dapsone was suspected and methemoglobin level tests were ordered. After stopping dapsone, hypoxia started to resolve in two days and no further treatment was required.

Discussion

Methemoglobin, an aberrant form of hemoglobin has reduced oxygen carrying and delivering capacity at the tissue resulting in functional anemia. (3, 4, 6)

Dapsone, an anti-inflammatory drug (5, 6, 7) used in treatment of various diseases. (6, 7) and can cause methemoglobinemia. (4-8) Diagnosis of methemoglobinemia is normally based on clinical symptoms and an elevated serum methemoglobin level which is not usually available. Oxygen "saturation gap" between ABG and pulse oximetry readings are considered for diagnosis. (8,9) Discontinuation of the causative medication is the first line treatment without cyanosis where methylene-blue is used where methHb level exceeds 30% (8, 9, 10, 11).

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Investigation	Findings
Hemoglobin level	11.2 g/L
White blood cells (10 ⁹ /L)	11,500/cmm neutrophil 71%, Lymphocyte 24%
RBC	4.4m/uL
S. IgE	58 IU/mL
Mean cell volume, fL 104	88 fL
Hematocrit	37.7
PBF	Neutrophilia
HRCT chest	Unremarkable
Echo with Colour Doppler	Normal study
D-dimer	0.32 ug/mL
Arterial blood gas	pH 7.37 PCO ₂ 39.7 mmHg pO ₂ 93 mm Hg bicarbonate 22 mmol/L Oxygen saturation: 88%

AP01-13

Effect of excessive high-dose corticosteroids in patients with ARDS caused by COVID-19

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Background and Aim

In COVID-19 patients in need of oxygen therapy, dexamethasone 6mg per day is recommended according to the RECOVERY trial¹. However, there is limited evidence in patients with ARDS caused by COVID-19 about the optimal dose of systemic corticosteroid dose. We investigated the effect of excessive-high corticosteroid dose on the prognosis in ARDS patients with COVID-19.

Methods

This retrospective study included patients with confirmed COVID-19 and ARDS requiring mechanical ventilation in Boramae Medical Center between January 2021 and February 2022. We divided patients into lower (mean dose 136.33mg) and higher (mean dose 284.38mg) dexamethasone groups according to the total administered dexamethasone in enrolled patients. The primary outcome was the mechanical ventilator weaning rate within 28 days according to the total amount of systemic corticosteroid.

Results

Among the 59 patients, thirty patients (50.8%) were in the lower dexamethasone group, and twenty-nine (49.2%) were in the higher dexamethasone group. Hypertension was more prevalent in the lower dexamethasone group (76.67% vs. 44.83%, $p=0.025$). Nineteen patients of 30 (63.33%) in the lower dexamethasone group and 8 of 30 (27.59%) in the higher dexamethasone group weaned from the mechanical ventilator within 28 days ($p = 0.01$). The 28-day mortality was 20.0% in the lower dexamethasone group and 37.9% in the higher ($p=0.09$). There was no significant difference in the rate of nosocomial infection.

Conclusion

In patients with ARDS caused by COVID-19, the excessive higher dose of dexamethasone did not improve the weaning rate within 28 days after the mechanical ventilator was applied.

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AP01-14

An Observational Study of Demographic and Clinical Profile of COVID-19 Suspected Patients Attending in a Tertiary Care Hospital in Bangladesh

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Background

In Bangladesh, the first case of Covid-19 was detected on the 8th March 2020.¹ Demographic profile of Covid-19 patient may be helpful in the treatment arena of Covid-19. We have very limited research-oriented data regarding the social, demographic, and/or clinical status of Covid-19 patients.

Aim of the study

To analyze the demographic and clinical profile of Covid-19 suspected patients.

Methods: This observational study was conducted in the Department of Medicine, Shahabuddin Medical College Hospital, Bangladesh from March, 2021 to August, 2021. In total 126 Covid-19 suspected patients referred from government primary/secondary healthcare institutions were included as the study subjects. Suspected cases were defined by HRCT and biochemical findings. This study was approved by the ethical committee of the mentioned hospital. All data were collected, processed, and analyzed by using MS Office and SPSS version 23 program.

Results

In this current study, among the total of 126 suspected Covid-19 subjects, the male-female ratio was 1:1.7. The majority numbers of patients were from 31 to 60 years range: 17.5%, 31.7%, and another 17.5% from 31-40, 41-50- and 51-60-years age groups respectively. Among all the participants, 41% were found as Covid-19 RT-PCR positive. Comorbidities were found among 61% of subjects with an alarming ratio of HTN and DM. As the major comorbidities, HTN and DM were found in 71% and 62% respectively.

Conclusion

In Bangladesh, middle-aged people are at high risk for attacking by Covid-19. HTN and DM may be considered as the most potential comorbidities among Covid-19 suspected patients.

Keywords

Demographics, Clinical profile, COVID-19 suspected patients, Bangladesh.

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Conflict of Interest

The authors declare that they have no competing interests.

Ethical Approval

The study was approved by the Institutional Ethics Committee from Shahabuddin Medical College Hospital, Dhaka, Bangladesh.

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AP01-15

Clinical Profiles of COVID-19 Patients Associated with Acute Hypoxemic Respiratory Failure (AHRF) requiring High Flow Nasal Cannula (HFNC) Therapy in a Tertiary Hospital in Metro Manila

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Background and Aim

The emergence of the COVID-19 pandemic changed the world and the landscape of health care. Numerous researches and treatment modalities emerged, with differing practices in each country, depending on resources available. Due to the paucity of data in a low-resource setting like the Philippines, identifying at risk COVID-19 patients is important. This study identified clinical characteristics of probable and confirmed COVID 19 patients requiring high flow oxygen therapy. Data gathered would assist in early recognition of patients requiring this intervention, proper allocation of resources and prevention of patient morbidity.

Methods

This is a cross-sectional study of patients diagnosed with COVID-19 confirmed and probable between March 2020 until March 2021, in Santo Tomas University Hospital, a tertiary hospital in Metro Manila.

Results and Conclusion

COVID 19 patients with acute hypoxemic respiratory failure requiring high flow oxygen therapy were seen in ages 60.29 + 15.67, with comorbidities particularly hypertension, diabetes and COPD. Previous and current smokers were more likely to be started on HFNC. Clinical parameters showed that patients with increasing respiratory rate and heart rate were more likely to be hooked to HFNC, while other vital signs were not statistically significant. On the average, HFNC use was initiated on 8th day of illness. (6 to 11). Patients requiring HFNC were 2.4 times more like to have prolonged hospital stay, with overall patients on HFNC 3.5 times more like to have clinical outcome (mortality, morbidity, HAP, prolonged hospital stay).

Acknowledgement

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Research Ethics Committee, University of Santo Tomas Hospital

Nothing to declare.

Table 1. Demographic and clinical profile of the patients

	High Flow Nasal Cannula			P-value
	Total (n=207)	With (n=75, 36%)	Without (n=132, 64%)	
	Frequency (%); Mean \pm SD; Median (IQR)			
Age	54.86 \pm 17.3	60.29 \pm 15.67	51.78 \pm 17.43	<0.001
Sex				0.470
Male	105 (50.72)	41 (54.67)	64 (48.48)	
Female	102 (49.28)	34 (45.33)	68 (51.52)	
COVID-19 status				0.714
Confirmed	199 (96.14)	73 (97.33)	126 (95.45)	
Probable	8 (3.86)	2 (2.67)	6 (4.55)	
Comorbidities				
Hypertension	111 (53.62)	53 (70.67)	58 (43.94)	<0.001
Diabetes Mellitus	77 (37.2)	35 (46.67)	42 (31.82)	0.037
CKD	38 (18.36)	19 (25.33)	19 (14.39)	0.062
Asthma	33 (15.94)	11 (14.67)	22 (16.67)	0.844
COPD	26 (12.56)	17 (22.67)	9 (6.82)	0.002
PTB	22 (10.63)	9 (12)	13 (9.85)	0.644
Smoking status				<0.001
Non smoker	170 (82.13)	51 (68)	119 (90.15)	
Smoker	7 (3.38)	6 (8)	1 (0.76)	
Previous smoker	30 (14.49)	18 (24)	12 (9.09)	
Pack years	15 (8 to 30)	15 (9 to 30)	15 (6 to 30)	0.949
qSOFA				0.003
0	75 (46.88)	25 (33.33)	50 (58.82)	
1	74 (46.25)	42 (56)	32 (37.65)	
2	11 (6.88)	8 (10.67)	3 (3.53)	
Respiratory rate	22.07 \pm 3.34	22.84 \pm 2.89	21.39 \pm 3.58	0.006
Heart rate	92.4 \pm 15.87	95.25 \pm 18.36	89.96 \pm 12.90	0.035
Systolic blood pressure	126.9 \pm 17.8	126.8 \pm 16.45	126.94 \pm 19.09	0.960
Diastolic blood pressure	78.38 \pm 9.03	77.6 \pm 8.03	79.06 \pm 9.83	0.310
Peripheral O2 saturation	96 (91 to 98)	92 (90 to 96)	97 (96 to 98)	<0.001
Day of Illness on Admission	7 (5 to 10)	7 (6 to 10)	7 (4 to 9)	0.055

AP01-16

Physiotherapy practices when treating patients with COVID-19 during a pandemic: A survey study

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Background and Aim

Specific details pertaining to the clinical and other challenges faced by physiotherapists managing patients with COVID-19 during the pandemic are still largely unknown. The aim of this study was to determine how physiotherapists clinically managed patients with COVID-19 in a hospital-based setting during a pandemic and to identify the effects of undertaking the clinical management of patients with COVID-19 on physiotherapists both personally and professionally.

Methods

Self-administered electronic cross-sectional survey. Physiotherapists from around the world involved in clinically managing patients with COVID-19 in hospitals.

Results

Of the 204 who returned the questionnaire, 39% participants worked as senior physiotherapists, 29% as consultant or specialist physiotherapists, 23% as general physiotherapists and 4% as graduate physiotherapists. Seventy-two percent of participants worked in the intensive care unit. The largest barrier to treating patients with COVID-19 was a lack of intensive care trained physiotherapists (70%). Eighty-three percent of participants reported performing activities outside of their typical work duties, including proning patients (55%), tutoring and advising other staff in the intensive care unit (55%) and adjusting or changing ventilator settings (52%). Almost all participants (90%) reported being aware of physiotherapy specific guidelines for treating patients with COVID-19, yet most participants performed techniques that were not recommended.

Conclusion

The experience of the pandemic highlighted the need for specialist training and experienced cardiorespiratory physiotherapists for the management of patients with COVID-19, specifically in intensive care. Furthermore, clear guidelines on the management of patients with COVID-19 should be established to ensure optimal management of patients and ensure the safety of physiotherapy staff.

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Ethics

The Griffith University Human Research Ethics Committee approved this study (GU2020-598). All participants gave written informed consent before data collection began.

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AP01-17

Persistent hiccups: "An unsung presentation of Covid 19 pneumonia with delta variant"

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Introduction

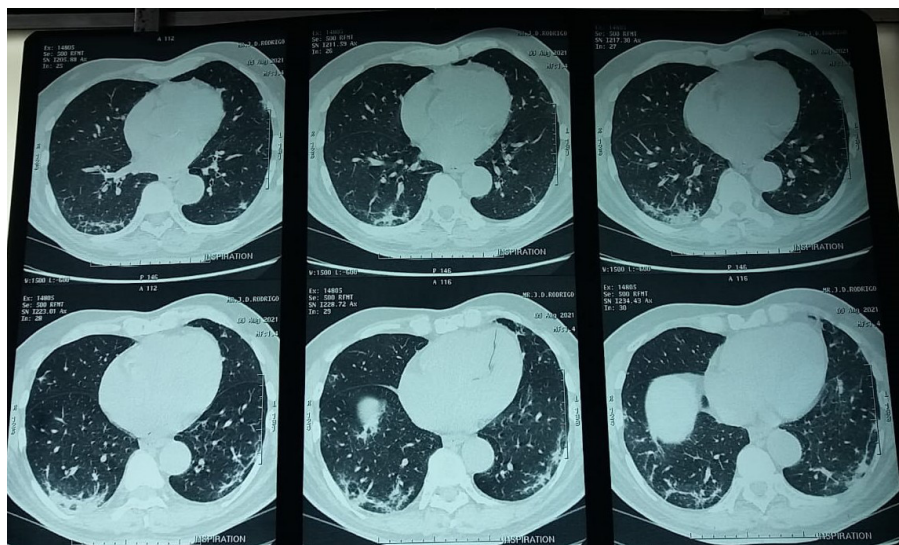
The most frequently reported symptoms of SARS-CoV-2 infection are fever, dry cough, sore throat, muscle pain, fatigue, dyspnea and less commonly presented with headache, diarrhea, hemoptysis and rhinorrhea. Persistent Hiccups (lasting more than 48 hours) occur rarely in individuals as a symptom and this may be caused by structural, infectious, or inflammatory aetiology. We have encountered few patients of Covid19 pneumonia with delta variant including this patient who presented initially with persistent hiccups.

Case Report

A 76 years old patient with Diabetes and Hypertension presented with hiccups, loss of appetite and fatigability for 1 week duration without fever, cough, sore throat or upper respiratory symptoms. Clinically he was ill looking but no signs elicited in both general and respiratory system examination. Investigations revealed WBC – $7.71 \times 10^3/u/l$, Hb 11.2g/dl, Plt $169 \times 10^3/u/l$, ESR 104mm/1sthr, CRP 94mg/dl, chest radiograph- normal, cultures- no growth and SARS-CoV-2 rapid antigen – Negative. He was started and continued intravenous antibiotics for 5 days followed by oral antibiotics. Hiccups were responded to chlorpromazine. He had persistent exertional fatigability following discharge from hospital and referred to the chest clinic. His 6 Minute walking test didn't show desaturation but HRCT revealed sub pleural thick curvilinear bands and consolidations of peribubular distribution along the bases of both lungs suggestive of organizing pneumonia following Covid 19 (figure). Retrospectively SARS-CoV-2 RT PCR done and it became positive. Patient was managed symptomatically as his saturation was normal and he gradually recovered.

Discussion

Clinicians should be aware of new and atypical presentations of SARS-CoV-2 infection like persistent hiccups in order to prompt diagnosis. This case highlight the need to include Covid-19 in the differential diagnosis in patients with persistent hiccups.



AP01-18

Immunosuppressant and SARS-CoV-2 vaccine antibody response after lung transplantation

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Background and Aim

There are insufficient reports on the immunogenicity and safety of coronavirus disease (COVID) vaccination after lung transplantation in Korea.

Methods

Between April and September 2021, lung transplant recipients (n = 52) and healthy controls (n = 22) underwent vaccination. The levels of antibodies were assessed prospectively at four weeks after priming and the booster dose. We evaluated the side effects, antibody prevalence, and clinical factors associated with antibody formation in lung transplant recipients.

Results

Of a total of 52 lung transplant recipients, there were 84.6 % non-responders, 15.4 % booster responders, and 0 % primary dose responders. Among healthy controls, 63.6 % were priming responders, 18.2% were booster responders, and 18.2 % were non-responders. Compared to the control group, lung recipients were less likely to develop antibodies (p < 0.001). Antibody formation tended to be higher in recipients more than one year after transplantation (0 vs. 20.5%, p=0.076). No major safety events were reported, and the adverse symptoms were mild and consistent with those of the general population. In a multivariate regression analysis, mycophenolic acid levels (p=0.001).

Conclusion

The immunogenicity of the second dose of COVID vaccination with various combinations was substantially low in lung transplants. A booster of the COVID-19 vaccine is warranted in lung transplants, especially a year later.

AP01-19

Screening for respiratory disease abnormalities with cough sounds collected by smartphones: A prospective study

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Background and Aim

Respiratory physicians can easily analyze cough sounds by correlating them with respiratory diseases. However, in the case of medical staff lacking clinical experience for respiratory patients, respiratory diseases may not be suspected or treatment for emergency patients may be delayed. Therefore, it is expected to be able to collect cough sounds with smartphones used by 70% of the world and to diagnose respiratory diseases early from abnormal cough sounds using deep learning technology.

Methods

The cough sound signals of 644 patients prospectively collected at Gangneung Asan hospital were used by sliding the window with a size of 0.6 seconds by 0.2 seconds. Figure 1 shows that a total of 2778 cough samples are extracted and used to train the Wavegram-Logmel-CNN Model. Figure 2 shows that Wavegram and Log-Mel feature maps are extracted from one cough sound signal, and these two features are integrated and applied to the 2D CNN layer to determine the cough sound class (normal vs abnormal).

Results

The number of patients consisted of 229 Normal, 415 abnormal (COPD: 223, Asthma: 82, and Pneumonia: 110). The number of cough samples in the train set was 2220 (80% of total cough samples), with normal being 1040 and abnormal being 1180 (COPD: 380, asthma: 350, pneumonia: 450). The number of cough samples in the test set was 558 (20% of total cough samples), with 261 normal and 297 abnormal (COPD: 96, asthma: 88, pneumonia: 113).

The analysis results for the classification of normal/abnormal cough sound were 0.80 in sensitivity, 0.7 in F1-score, 0.68 in negative predictive value, 0.64 in accuracy, 0.46 in specificity, 0.63 in precision and 0.63 in AUROC.

Conclusion

The classification model of normal/abnormal cough sounds using smartphone is expected to help early screening of respiratory diseases.

Wavegram-logmel-CNN model : PANNs: Large-Scale Pretrained Audio Neural Networks for Audio Pattern Recognition _ <https://arxiv.org/abs/1912.10211>

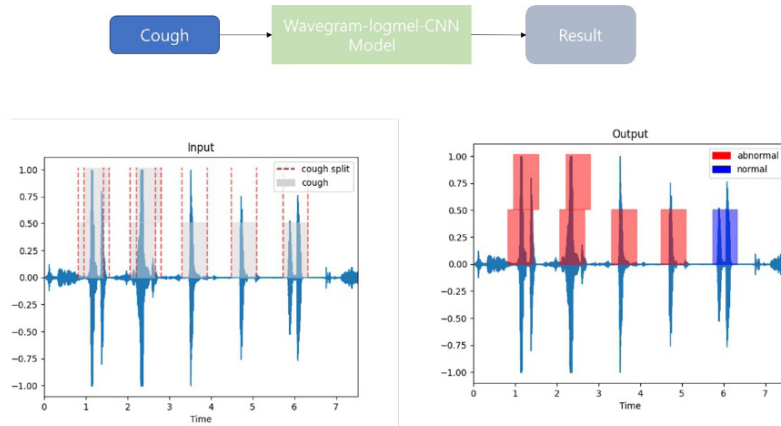


Figure 1

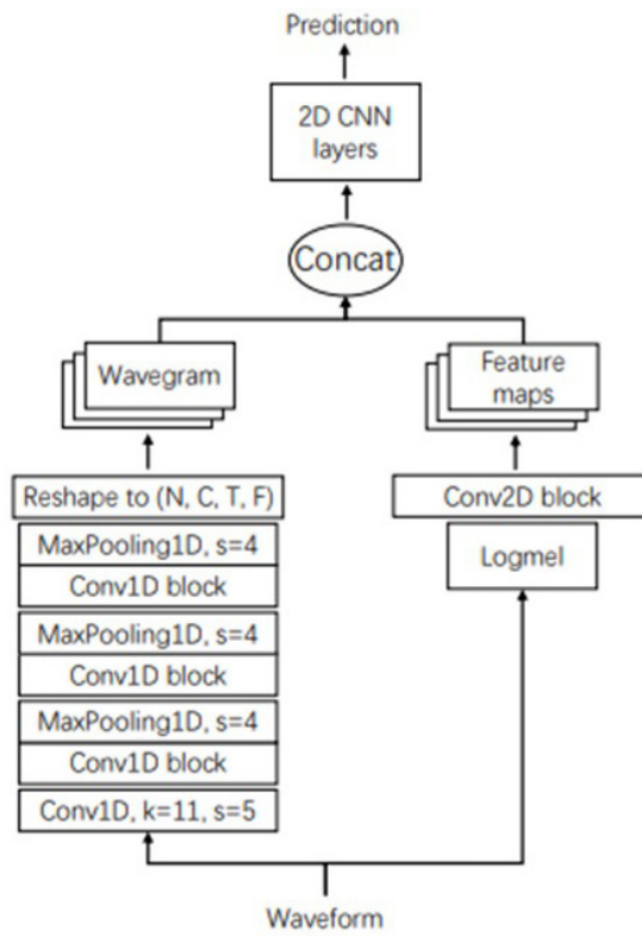


Figure 2

AP01-20

Acute oxygen therapy: an audit of oxygen charting practices at a tertiary hospital in Sydney, Australia

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Background and Aim

Inappropriate oxygen administration can lead to hyperoxygenation and poor patient outcomes. The Thoracic Society of Australia & New Zealand Position Statement recommends an SpO₂ target range of 88-92% in those with chronic respiratory disease and 92-96% in other clinical situations. Compliance with the updated recommendations at our institution is unknown. Aims of the study is to assess oxygen charting practices in the respiratory ward at a tertiary hospital in Sydney, NSW.

Methods

A cross-sectional study of all patients admitted to St Vincent's Hospital respiratory ward was performed over two days in May 2022. Patient's progress notes and Standard Adult Observation Charts (SAGO) were reviewed by three staff members. Data was collected to determine the primary admission diagnosis, the number of patients using oxygen therapy and whether an appropriate target SpO₂ range was documented in the progress notes or SAGO chart.

Results

Forty-seven patients were included (mean \pm SD age 66 \pm 16 years, male 65%). 45% (n=21) were admitted with a primary respiratory condition and 26% (n=12) had chronic respiratory disease. There were 28% (n=13/47) of patients on oxygen therapy. The target SpO₂ range was documented according to the TSANZ recommendations in 15% (n=7) of patients.

Conclusion

Target SpO₂ range documentation was very poor at our institution. A rigorous education program to improve awareness of the rationale behind controlled oxygen therapy and the risks associated with hyperoxygenation is needed. This in turn will help improve patient outcomes.

AP01-21

The Efficacy of High Flow Nasal Cannula as First Line Oxygen Therapy in Patients with Acute Cardiogenic Pulmonary Edema: A Meta-Analysis

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Background and Aim

High-flow nasal cannula (HFNC) has been used in the management of acute hypoxemic respiratory failure of heterogeneous etiologies. However, only few studies have demonstrated its efficacy in patients with acute cardiogenic pulmonary edema (ACPE). To our knowledge, this is the first meta-analysis that compares HFNC to conventional oxygen therapy (COT) for ACPE.

Methods

Searches for eligible studies were made in MEDLINE, CENTRAL, Embase, Scopus, ClinicalTrials.gov, ICTRP, and Google Scholar. Outcomes were respiratory rate, peripheral oxygenation, arterial oxygenation and dyspnea scores in the first hour of intervention. Two reviewers independently worked to screen studies and assess their quality. Mean differences (MD) were outlined in a Forrest plot.

Results

All three studies had low risk for selection, attrition, and reporting bias but with high risk for performance bias due to the nature of the intervention. There is a significant difference in reduction of respiratory rate favoring the HFNC group (MD=-3.0246 [-3.9069,-2.1422]). In terms of peripheral oxygenation, there was no difference between the groups. (MD=2.8725 [0.0119, 5.7332]) in contrast to arterial oxygenation which is higher in the HFNC group. (MD=58.2014 [10.0398,106.3631]). Dyspnea scores were not significantly different between the two groups.

Conclusion

Treatment with HFNC compared to COT significantly improves arterial oxygenation and respiratory rate in patients with ACPE. It can potentially replace COT as an initial effective oxygen therapy in this population. However, we suggest more studies that evaluate clinical outcomes beyond the 1st hour of intervention. Furthermore, systematic reviews that compare HFNC and non-invasive ventilation are also recommended.

AP01-22

Heterogeneity of Asthma-Chronic obstructive pulmonary disease (COPD) overlap by comparison of ACO from severe asthma and COPD cohort

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Background

There are considerable proportion of patients who have features of both asthma and chronic obstructive pulmonary disease (COPD) simultaneously, called asthma-COPD overlap (ACO). We aimed to identify heterogeneity of ACO from severe asthma and COPD cohort with the same diagnostic criteria.

Methods

We included individuals from the International Severe Asthma Registry (ISAR) and the Korean COPD Subgroup Study (KOCOSS) and classified subjects into four groups; 1) pure asthma, 2) ACO from asthma cohort, 3) ACO from COPD cohort, and 4) pure COPD. ACO was defined by satisfying extreme bronchodilator response (BDR) >15% and 400 ml and/or blood eosinophil count $\geq 300/\mu\text{L}$ in patients with aged 40 years or older and post-BD forced expiratory volume in 1 second (FEV1)/forced vital capacity (FVC) ratio <0.7.

Results

ACO was 25 of 111 (23%) in the ISAR cohort and 403 of 1,781 (23%) in the KOCOSS cohort. ACO from COPD cohort was older, more male predominant and more smokers, but has similar degree of airflow limitation (mean % of predicted value of FEV1 was 61.1 vs 58.4) compared to those from asthma cohort. ICS-containing inhaler treatment was prescribed in all asthma subjects but in 43.9% of ACO from COPD cohort. Compared to patients with pure asthma, the risk for exacerbation higher in ACO either from asthma of COPD cohort [adjusted odds ratio (aOR) was 1.54; 95% CI, 2.22-10.95 and 2.15; 95% CI, 0.59-7.85], but there was no statistical significance.

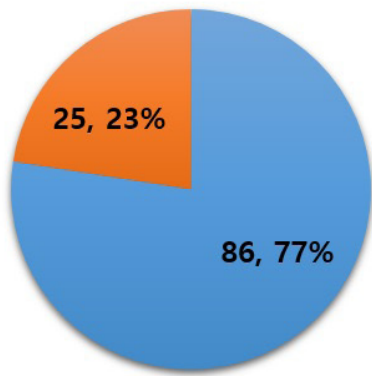
Conclusion

The prevalence of ACO was similar in the severe asthma and COPD cohorts applying the identical diagnostic criteria. In contrast to allergic trait, ACO from asthma cohort was similar to ACO from COPD cohort in terms of lung function and exacerbation risk.

Acknowledgement

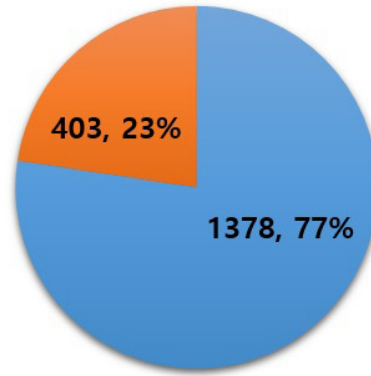
This work was supported by the Research Program funded Korea National Institute of Health (Fund CODE 2016ER670100, 2016ER670101, 2016ER670102, 2018ER67100, 2018ER67101, 2018ER67102, 2021ER120500 and 2021ER120501) for the KOCOSS cohort, and the ISAR cohort was supported by a grant from the Korea Health Technology R&D Project through the Korean Health Industry Development Institute (KHIDI), funded by the Ministry of Health & Welfare, Republic of Korea (grant no. HI18C0522).

ACO in ISAR



■ pure asthma ■ ACO

ACO in KOCOSS



■ pure COPD ■ ACO

AP01-23

Can Patients Achieve Sufficient Peak Inspiratory Flow Rate (PIFR) With Turbuhaler® During Acute Exacerbation of Asthma?

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Background and Aim

The single maintenance and reliever therapy (SMART) delivered through Turbuhaler® has been widely used in Malaysia. Patients treated with SMART are not prescribed separate reliever inhalers but are dependent on the Turbuhaler® during acute asthma. The peak inspiratory flow rate (PIFR) is crucial in drug delivery from a DPI, however, there are concerns that during acute exacerbation of asthma, patients are unable to achieve adequate PIFR.

The present study aimed to assess PIFR at resistance setting matching Turbuhaler® in patients with acute exacerbation of asthma.

Methods

A six-month cross-sectional study was conducted at the emergency department (ED) of Hospital Sultanah Bahiyah and Hospital Kulim, Kedah. Adult patients diagnosed with mild to moderate acute exacerbations of asthma were recruited. The PIFRs were measured using the In-Check Dial G16 that was set to stimulate the resistance of Turbuhaler® (R3). The PIFRs were assessed before (pre) and after (post) initial bronchodilator (BD) treatment at the ED. The minimal required PIFR was defined as flow rates ≥ 30 L/min.

Results

In a total of 151 patients, 81 female and 70 male patients were enrolled in the study with a mean age of 38 years old (range 18-71). It was found, that 98 % (n=148) of patients can achieve minimal PIFR required pre-and post-BD. The mean PIFR pre-BD was 60 ± 18.5 L/min and post-BD was 70 ± 18.5 L/min. Furthermore, 54% (82/151) of the patient during pre-BD and 72% (93/130) post-BD recorded PIFR ≥ 60 L/min. The PIFR had a moderate correlation with PEFR, $r = 0.55$, 95% Bca CI (0.45-0.65), $p < 0.01$.

Conclusion

The study assured that most asthmatic patients are able to achieve sufficient PIFR from Turbuhaler® during acute exacerbation of asthma.

AP01-24

Comparison Between Fractional Exhaled Nitric Oxide (FeNO) In Patients With Rheumatoid Arthritis And Normal Population

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Background and Aim

Rheumatoid arthritis (RA) is an autoimmune disorder characterized by systemic inflammation causing articular destruction and extra-articular manifestation. The respiratory system has been studied as a primary initiation site of inflammation in RA. Fractional exhaled nitric oxide (FeNO) is a non-invasive and cost-effective marker of airway inflammation.

Objectives

The aims of the study were to compare between FeNO in patients with RA and normal population in Malaysia. Another objective is to determine the factors associated with elevated FeNO \geq 25 parts per billion (ppb) in subjects with RA.

Methods

Subjects with RA (n = 52) were recruited during their regular outpatient visits to the rheumatology department. FeNO levels were measured according to American Thoracic Society recommendations using an NO analyser. Healthy subjects (n = 52) matched by gender and height were used as controls. Data were given in mean, (Standard Deviation), median, (Inter Quartile Range). Factors associated with FeNO \geq 25 ppb in RA patients were investigated using a univariate and multivariate logistic regression analysis.

Results

FeNO was significantly higher in the RA patients compared with healthy control subjects; 19.38ppb (\pm 9.28) vs 14.25ppb (\pm 4.99), ($p < 0.005$). DMARDs treatment \geq 6 months will have 84.3% lower risk of getting an elevated FeNO \geq 25.

Conclusions

Significant differences were evident between FeNO level in RA patients compared to normal healthy population. DMARDs treatment $>$ 6 months is protective against an elevated FeNO \geq 25.

Table 2: Comparison of FeNO level between RA and healthy subjects

	RA, n=52	Healthy subjects, n=52	p-value
FeNO(ppb), mean (\pm SD)	19.38(\pm 9.28)	14.25(\pm 4.99)	<0.001*
FeNO(ppb), n (%)			
\geq 25	15 (28.8)	0(0)	<0.001*
<25	37(71.2)	52 (100)	

*Significant ($P < 0.05$)

AP01-25

Intrapleural fibrinolysis is non-inferior to surgery for management of pleural infection refractory to antibiotics and thoracostomy drainage

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Background and Aim

The management options for pleural infection refractory to percutaneous thoracostomy drainage and antibiotics include intrapleural fibrinolysis with tissue plasminogen activator (tPA) and deoxyribonuclease (DNase), video-assisted thoracoscopic surgery (VATS) and thoracotomy with or without decortication. We aimed to compare the efficacy of intrapleural fibrinolysis with surgery for management of refractory pleural infection.

Methods

We retrospectively audited medical records of inpatients with pleural infection who received either intrapleural fibrinolysis or surgery after failing treatment with antibiotics and tube thoracostomy at a tertiary hospital between 2015 to 2019. The baseline characteristics, treatment success (discharge without requiring subsequent procedures or readmission within 30 days) and complication rates were compared between the two cohorts using independent T-test or Fisher's exact test.

Results

63 cases of pleural infection refractory to antibiotics and tube thoracostomy were identified. Of these, 1 was palliated, 28 received intrapleural fibrinolysis and 34 received surgery (VATs=16, Thoracotomy=18). The intrapleural fibrinolysis and surgical cohorts were similar in mean age (60 ± 18 vs 54 ± 17 years, $p=0.2$), number of comorbidities (3.4 ± 2.4 vs 4.2 ± 3.2 , $p=0.3$), RAPID score (3.5 ± 1.6 vs 2.7 ± 1.5 , $p=0.06$), treatment success (86% vs 97%, $p=0.1$), length of stay (27 ± 24 vs 28 ± 22 days, $p=0.9$), 30-day mortality (1 vs 0, $p=0.4$) and hemorrhage rates (0% vs 6%, $p=0.7$), however the intrapleural fibrinolysis cohort had lower rates of pain requiring PCA (7% vs 59%, $p<0.001$).

Conclusion

Intrapleural fibrinolysis was non-inferior to surgery in treatment success and length of stay without increasing complication rates for management of pleural infection refractory to antibiotics and percutaneous thoracostomy drainage.

AP01-26

A diagnostic dilemma of Tuberculous pleurisy in a patient with Systemic Lupus Erythematosus

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Introduction

Systemic Lupus Erythematosus (SLE) and Tuberculosis (TB) intricately related to each other in a way such as both may have similar presentation and mimic each other. Besides there is an increase predisposition to Tuberculous infection in SLE patients due to the immunocompromised state. Our case is to highlight the importance of differentiating Tuberculous pleurisy from SLE flare which is very challenging.

Case report

We describe a 27 year old lady who is a diagnosed patient with Mixed Connective Tissue Disease (MCTD), Systemic sclerosis and rheumatoid arthritis investigated for new onset of pericardial and right-sided pleural effusion and treated as extra pulmonary TB with the evidence of high adenosine-deaminase (ADA level-90.1). But after one month of anti-tuberculous medication patient was clinically deteriorated further with poor resolution of both pericardial and pleural effusion with negative TB-culture on both fluid. Patient developed diffuse alveolar hemorrhage and managed at intensive care unit. After multi-disciplinary team discussion patient was given cyclophosphamide pulse therapy and plasma exchange considering the presentation as acute disease flare. Her anti-TB medication were stopped and immunosuppressive treatment was continued with good clinical recovery.

Discussion

Though estimation of ADA levels > 42IU/L are considered very sensitive to diagnose TB², it can be elevated in conditions like SLE, rheumatoid arthritis, empyema and malignancy³. Tuberculous infections in background SLE are the most difficult to manage as clinical features and laboratory investigations can coexist in both. Therefore the diagnostic accuracy depends on clinical course, bacteriological and histopathological evidences which were momentous for patient care.

Key words:

Tuberculous pleurisy, SLE serositis, Lupus flare, adenosine deaminase level, diagnostic accuracy

Conflict of interest statement

The authors have declared no competing interests exist.

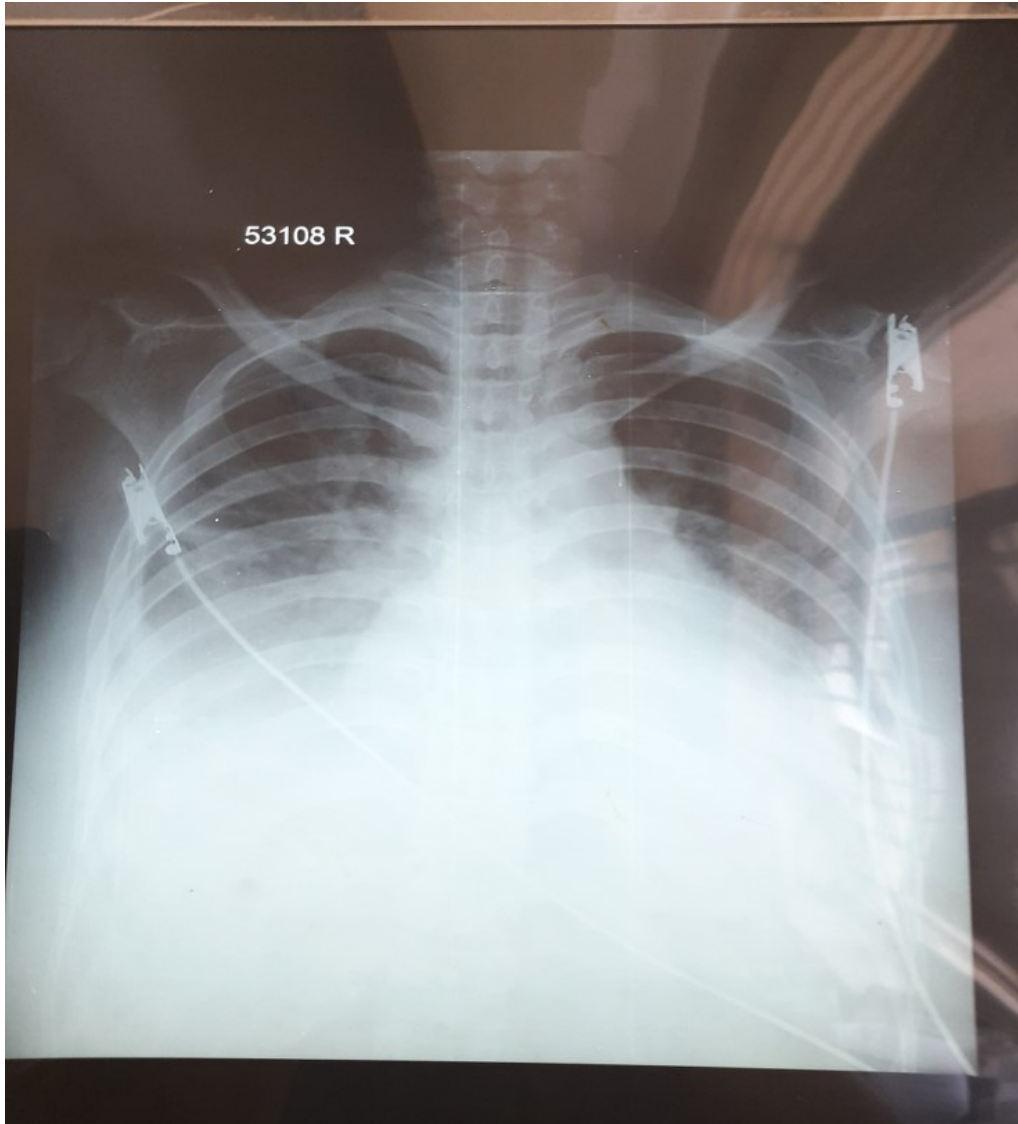
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AP01-27

Catamenial pneumothorax in a young Sri Lankan female – An uncommon aetiology for recurrent pneumothorax

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Introduction

Catamenial pneumothorax is a rare entity in which there is the occurrence of spontaneous recurrent pneumothorax in women in relation to their menstruation. It is attributed to the presence of thoracic endometriosis in the medical literature.

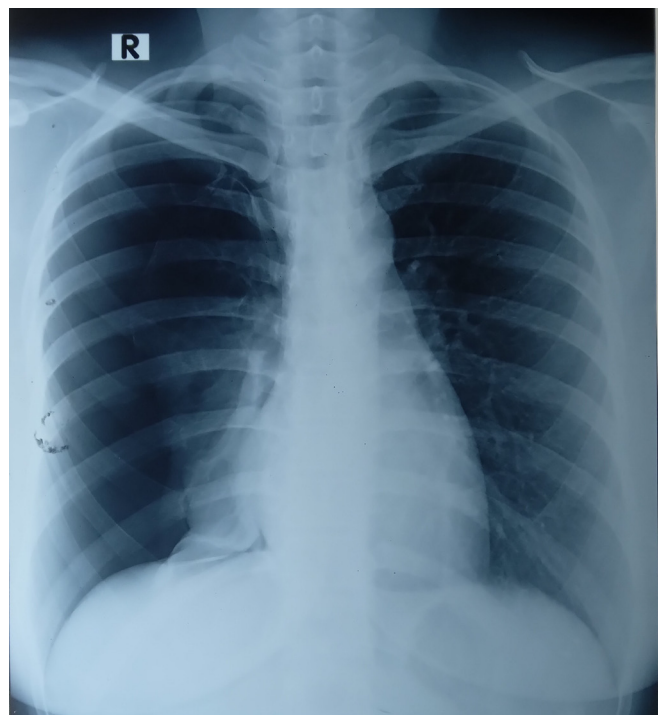
Case Report

A 29-year-old nursing officer who was under investigation for primary subfertility presented to the emergency department of National Hospital Sri Lanka with exertional dyspnoea during her menstrual period. She didn't give any history of concomitant respiratory diseases. Further inquiry revealed a two-year history of episodic right-sided pruritic type chest pain, shoulder tip pain, and exertional dyspnoea monthly in relation to her menstrual period. However, there was no history of dysmenorrhea to suggest coexisting pelvic endometriosis.

On examination, she was found to have reduced breath sounds in the right hemithorax. An urgent chest x-ray showed a right-sided pneumothorax with a collapsed lung. The patient was started on supplemental oxygen and a right intercostal tube was inserted. There was a poor expansion of the right lung and the patient was referred to the thoracic surgical team for video-assisted thoracoscopic surgery.

Discussion

There is limited data in the medical literature with regard to the epidemiology of catamenial pneumothorax probably due to underreporting and underdiagnosis as suggested by previous studies. It is considered to be one of the commonest manifestations of thoracic endometriosis. Video-assisted thoracoscopic surgery is the treatment of choice for this disease entity. Catamenial pneumothorax must be considered in all females in their reproductive age group who present with cyclical dyspnoea in relation to their menstruation.



AP01-28

Bilateral chylothorax in a 63-year old Female: how come?

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Introduction

The development of bilateral chylothorax in cervical cancer is rare.

Case report

A 63-year-old female sought consult due to dyspnea. She was diagnosed with cervical cancer six years prior but opt not to receive any chemotherapy and radiation therapy. Instead, she subjected herself to an alternative medicine comprised with high dose Vitamin C and lifestyle modification. In the interim, she developed left supraclavicular mass consistent with metastatic squamous cell carcinoma. Furthermore, dyspnea became more pronounced. Diagnostics showed bilateral pleural effusion with greater volume on the right. Thoracentesis of right pleural effusion was consistent with exudative pleural effusion, milky appearance with elevated pleural triglyceride at 421mg/dl. She underwent radiation therapy thereafter. Three months after, dyspnea became more prominent with bilateral pleural effusion on imaging. Thoracentesis was done on the left pleural fluid which was also consistent with chylothorax.

Discussion

Chylothorax does not only affect the mechanics of breathing but also the immunity and nutritional status of the affected individual. Though the course of the thoracic duct crosses to the contralateral side at the fifth thoracic vertebrae, an occurrence of bilateral chylothorax is still a possibility brought about by another mechanism as the case presented. In our patient, the leakage of chyle from the lymph vessels of the peritoneal cavity led to the transdiaphragmatic movement of the chylous peritoneal fluid to both pleura. Though rare and unusual, cognizance will greatly impact every patient's well-being.

AP01-29

“Fate of a TACE”: A rare case of Empyema developed following Trans Arterial Chemo Embolization (TACE) for hepatocellular Carcinoma (HCC).

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Introduction

TACE is an effective therapy for patients with non resectable HCC and those who are contraindicated for surgery. Liver failure, Liver abscess or infarction, bile duct injury and post embolization syndrome are serious complications which can occur following TACE. We describe a rare occurrence of empyema secondary to a ruptured liver abscess after TACE.

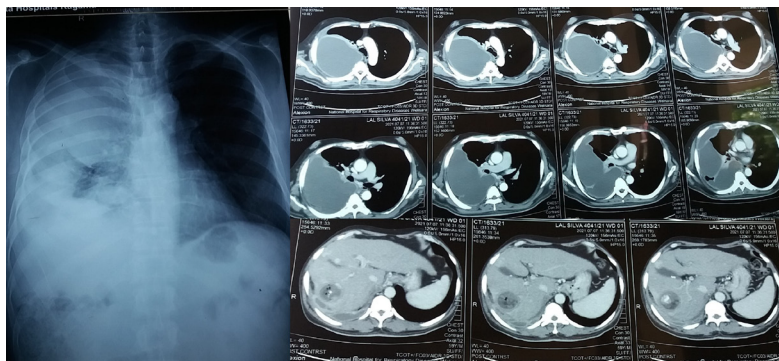
Case report

A 59 years old gentleman who is a known diabetes and HCC with single liver lesion, underwent TACE in 2021, presented with 3 weeks history of fever, productive cough, right side pleuritic chest pain and constitutional symptoms. Clinically he was ill looked, Spo2 93% on room air and there were signs of right side pleural effusion. Blood pressure was 90/60mmHg. Chest radiograph revealed moderate to massive pleural effusion without consolidation. WBC 22×10³/L, ESR 100mm/hr, CRP 323mg/dl and sputum/blood cultures were negative. Pleural aspiration revealed an empyema evidence by turbid appearance, PH 6.8, leucocyte >10 000, 96% neutrophils, LDH 43000u/L and ADA 89U/L. Investigations for tuberculosis were negative. Liver enzymes and bilirubin were slightly deranged but serum creatinine was normal. CT chest and abdomen revealed ruptured liver abscess in segment VI which communicate with right pleural space in the background of cirrhosis and there was a moderate to large encysted pleural effusion without right basal consolidation (figure 1).

He was managed with intercostal drain and 6 weeks of broad spectrum antibiotics. Patient recovered successfully with time and his follow up chest radiograph series have shown remarkable resolution of the empyema.

Discussion

Although rare, the possible development of liver abscess with or without diaphragm rupture should be considered when a patient develop pleural effusion or empyema following chemoembolization.



AP01-30

A Case of Tuberous Sclerosis Complex-Associated Lymphangioliomyomatosis presenting as Recurrent Seizures

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Introduction

Tuberous sclerosis is a highly variable disease which may affect several organs. Brain lesions may lead to neurologic manifestations such as seizures and cognitive disability. The most common causes of seizures are of infectious and structural etiologies, however genetic and immunologic causes must be considered when associated with strong clinical clues. In a patient presenting with recurrent seizures, skin lesions, and pulmonary symptoms, tuberous sclerosis and its rare manifestation, lymphangioliomyomatosis, should be confirmed.

Case report

This is a case of a 27-year old female with a history of recurrent seizures after being diagnosed with tuberculous meningitis at the age of 13 despite nine months of anti-Koch's treatment. Further work-up revealed the presence of tuberculoma. Upon admission, a shallow right nasolabial fold, unguis fibromas, and papules at the facial area were seen. The patient reported to have episodes of shortness of breath after three to five steps on inclined surfaces or while doing light chores. A non-contrast HRCT revealed multiple thin-walled cysts in both lungs compatible with pulmonary lymphangiomyomatosis or lymphangioliomyomatosis.

Discussion

Tuberous sclerosis complex clinically manifests with benign tumors in multiple organs, skin lesions, epilepsy, and cognitive deficits. Its clinical diagnostic criteria requires satisfying two major features, or one major plus two minor features. This patient satisfied three major criteria, hence was diagnosed as a definite case of TSC.

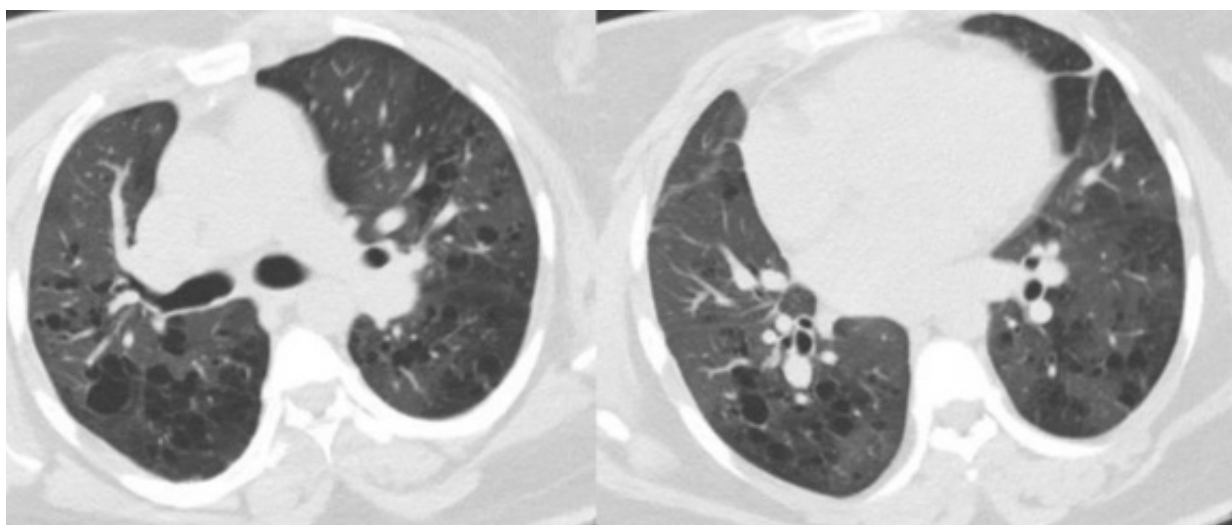


Figure 2. Non-contrast HRCT showing multiple thin-walled cysts in both lungs

AP01-31

Pulmonary lymphangiomyomatosis and renal angiomyolipoma in a patient with systemic lupus erythematosus: A case report

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Introduction

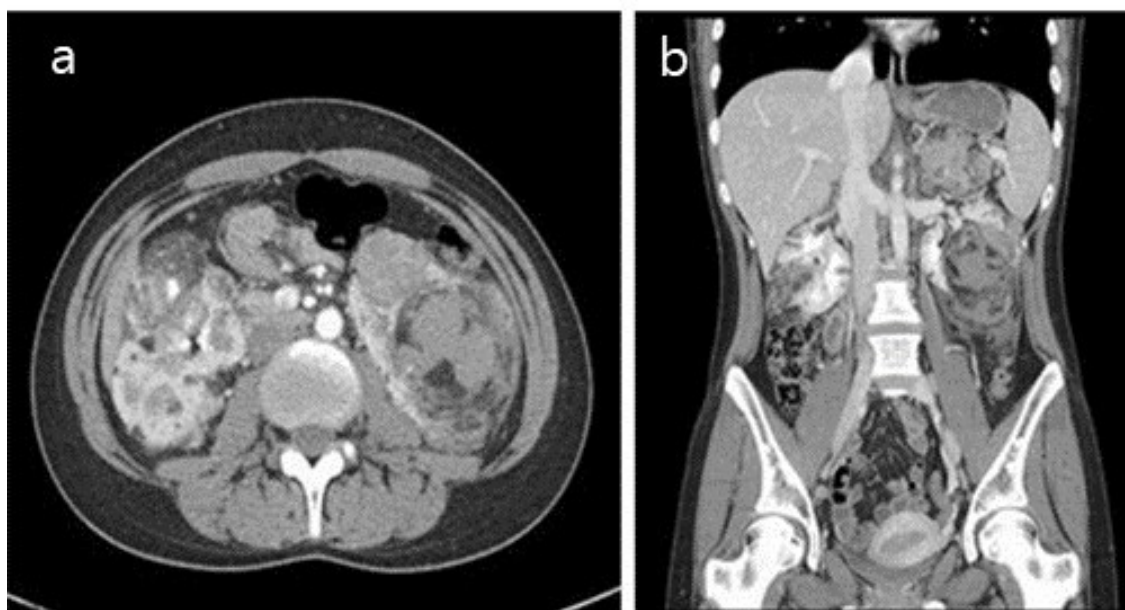
The co-incidence of systemic lupus erythematosus (SLE) and tuberous sclerosis with pulmonary lymphangiomyomatosis (LAM) and renal angiomyolipoma (AML) is rare. In these patients, AML rupture can be fatal, but it is preventable.

Case report

A 22-year-old woman with SLE was admitted to our hospital due to severe left flank pain. Imaging studies showed the rupture of multiple renal AMLs bilaterally (Figure 1). The patient underwent emergency selective transcatheter embolization (TE) of the left renal artery. After TE and massive hydration, she complained of dyspnea and post-embolization syndrome with fever. Chest computed tomography (CT) revealed pulmonary LAM, pulmonary edema with bilateral pleural effusions, and pneumonic consolidation. The patient received intravenous antibiotics, diuretics, and non-steroidal anti-inflammatory drugs for 10 days. She recovered favorably and was discharged 20 days after treatment. She was diagnosed with tuberous sclerosis complex (TSC) with renal AML and pulmonary LAM along with facial angiofibromas, although she had neither TSC1 nor TSC2 gene mutations.

Discussion

While rare, SLE may coexist with TSC along with LAM and AML, with a risk of AML rupture. The mTOR signaling pathway is shared in SLE and TSC. Thus, in SLE patients, clinicians should consider imaging studies, such as kidney sonography and chest CT, to screen for AML and LAM.



AP01-32

Transudative chylothorax - a rare manifestation of liver cirrhosis with portal hypertension

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Introduction

Chylous effusion is generally exudative in nature with lymphocytes predominance. Transudative chylothorax is rare. We report a transudative chylothorax case and emphasize the combination of treatment approaches.

Case report

An 84-year-old woman presented with dry cough, progressive shortness of breath, and abdominal distension of 1 month's duration. Respiratory system examination revealed reduced breath sound with stony dullness at the right hemithorax. The abdomen was mildly distended with the presence of shifting dullness. Ultrasonography of the chest revealed hypoechoic effusion (figure 1 A). Contrast-enhanced computed tomography scan of the chest and abdomen revealed moderate right pleural effusion, heterogenous liver with nodular appearance, and atrophy of the right liver lobe.

The right seldinger intercostal chest tube (figure 1 B) was inserted due to slow response to spironolactone, symptomatic dyspnea, and requires repeating thoracentesis. Given the milky appearance of the effusion, further studies were sent, revealing triglycerides at 1.40 mmol/L and cholesterol at 0.2 mmol/L, consistent with chylothorax.

Despite optimizing the diuretics and medium-chain triglyceride diet, there was a large daily volume of 1L to 1.5L of chest drainage. Subcutaneous (sc) octreotide of 50 mcg tds was initiated. On day 3 of the sc octreotide, the chylothorax reduced significantly to less than 200 ml over 24 hours. The chest drain was off by day 5 with repeated ultrasonography and chest radiograph showed complete resolution of the effusion (figure 1 C).

Discussion

This report describes a rare case of a transudative chylothorax responding to a combination approach medium-chain triglyceride diet, diuretics, and octreotide.

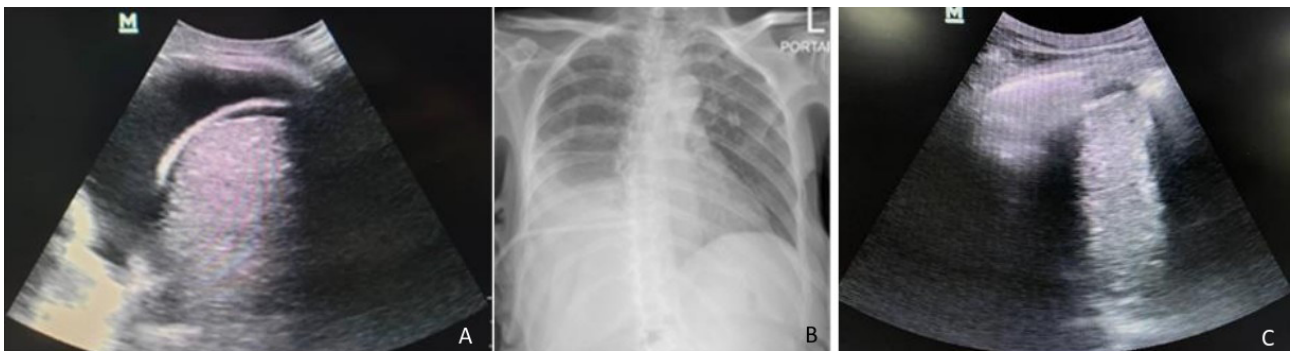


Figure 1: (A) Ultrasonography of the chest revealed hypoechoic effusion. (B) Chest radiograph post seldinger intercostal chest drain. (C) Ultrasonography of the chest after treatment shows resolution of the pleural effusion.

AP01-33

Pulmonary sequestration in adult patients: a single-center retrospective study

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Background and Aim

This study presents the clinical and imaging features of pulmonary sequestration (PS) in adults and compares the safety and feasibility of minimally invasive surgery versus open thoracotomy.

Methods

Adult patients with PS from 2011 to 2021 were included. Data regarding the patient demographics, clinical and CT features, arterial supply, and surgical outcomes were collected.

Results

97 patients were included. The most common CT findings were mass lesions (50.5%) and cystic lesions (20.6%). The vast majority of the lesions (96 of 97) were located close to the spine in the lower lobes (left vs right: 3.6 vs. 1). Arterial supply was mainly provided by the thoracic aorta (87.4%) and abdominal aorta (10.5%). Intralobar and extralobar PS accounted for 90.7% and 9.3% of the patients, respectively. Three (4.5%) patients who underwent minimally invasive surgery were converted to open thoracotomy due to dense adhesions. Though no significant differences regarding operative time ($P=0.133$), the minimally invasive surgery group was significantly better than the open thoracotomy group regarding intraoperative blood loss ($P=0.001$), drainage volume ($P=0.004$), postoperative hospital days ($P=0.017$) and chest tube duration ($P=0.001$). There were no cases of perioperative mortality. Only four (4.1%) patients developed postoperative complications, and no significant difference existed between the two groups ($P=0.399$). All 67 patients who received follow-up did not develop PS-related complications or relapse during a median follow-up time of 31 months.

Conclusion

Minimally invasive surgery is a safe and effective treatment modality for PS in an experienced center.

AP01-34

Metastatic pulmonary calcification: an exceptional complication associated with end-stage renal disease mimicking transbronchial infection

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Introduction

Pulmonary complications associated with end-stage renal disease are commonly found and are usually related to volume overload, cardiovascular disease, and infection. Although it's not repeatedly found, metastatic pulmonary calcification is one of the crucial conditions in patients with end-stage renal disease.

Case report

We reported a case of metastatic pulmonary calcification in an asymptomatic chronic renal failure patient with regular hemodialysis that was accidentally found on a chest CT scan during a check-up before kidney transplantation. Blood chemistry results revealed mild hypercalcemia (11mg/dL), normophosphatemia (4.6mg/dL), and an intact parathyroid hormone level of 141.3. Other laboratory results showed no significant abnormalities. Multiple centrilobular ground-glass nodules in both upper lobes and bronchial wall calcification along the distal trachea to the bilateral main bronchi were demonstrated on a chest CT scan. The bronchoscopic intervention was performed, which revealed negative results for infection, particularly tuberculosis. During bronchoscopy, an abnormal whitish submucosal lesion was seen along the main airway, which looked like calcified mucosal tissue. Transbronchial biopsy at RUL and random bronchial biopsy were initiated, which proved focal calcification on the pathological diagnosis. There was no granuloma or malignancy.

Discussion

Clinical manifestations of metastatic calcification can range from having no symptoms or mild dyspnea on exertion to fulminant respiratory failure. Early recognition and consideration as one of the differential diagnoses in patients with end-stage renal disease who present with centrilobular nodules on chest CT scan are pivotal to the patient's outcome and management.

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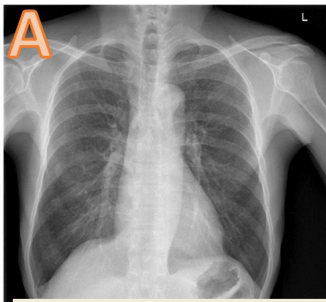


Figure 1 : Figure A-B showed abnormalities from chest radiography and chest CT scan at initial diagnosis. A chest radiograph revealed no significant abnormality. (A) Multiple centrilobular ground glass nodules in both lungs, more pronounced both upper lobes. (B)

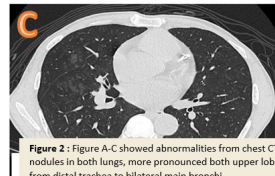


Figure 2 : Figure A-C showed abnormalities from chest CT scan which revealed multiple centrilobular ground glass nodules in both lungs, more pronounced both upper lobes. Figure D demonstrated calcified bronchial wall was detected from distal trachea to bilateral main bronchi.

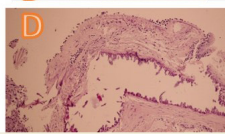
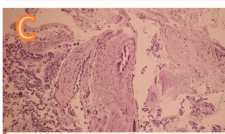
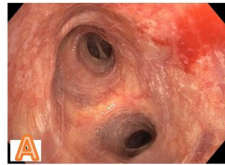
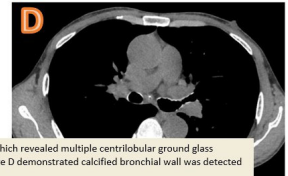
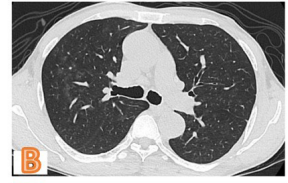


Figure 3 : Figure A-B demonstrated calcified bronchial wall from fiberoptic bronchoscopy. Figure C-D showed abnormalities from random transbronchial biopsy and bronchial biopsy which revealed focal calcification.

AP01-35

Plastic bronchitis presenting as incessant sputum expectoration: a case report

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INTRODUCTION

Chronic and incessant sputum production affecting activities of daily living warrants further investigation especially when it causes compromise to the airways.

CASE REPORT

This is a case of a 43 year old female, non-smoker, with no known co-morbidities coming in with a 3-year history of incessant sputum expectoration, with one instance of thick sputum taking the form of a bronchial tree. It was described as continuous secretion production prompting to expel every time and holding a cup readily to spit out her sputum, throughout her daily activities. She sought consult last December 2021 and underwent embolization of left upper lobe lymphatic leak and thoracic duct. Persistence of symptoms prompted a repeat CT scan with IV contrast which showed no leak. On the first week of June 2022, bronchoscopy was done which showed a fistula at the carina with continuous mucoid output more pronounced on Valsalva maneuver. Ligation of thoracic duct at the level of the aortic hiatus and carina was performed. On repeat bronchoscopy, there was absence of mucoid output from the fistula. Post operatively, she presented with significant improvement – only with minimal coughing episodes and with no recurrence of debilitating sputum production.

DISCUSSION

A rare and potentially life-threatening pulmonary disease, plastic bronchitis presents with formation and expectoration of bronchial casts. It is usually diagnosed in the pediatric population. The accumulation of the thick sputum can cause blockage of the airways. Mucus plug removal is usually done via bronchoscopy and interventional management include embolization and thoracic duct ligation. There is lack of evidence on its prevalence and available studies are limited to case reports.

Keywords

Plastic bronchitis; chronic sputum production; sputum expectoration

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AP01-36

The interest of bronchoscopy in diagnosis of the patients with non-resolving pneumonia in Calmette Hospital, Phnom Penh, Cambodia

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In Calmette Hospital, NRP is a daily common problem faced by physicians as well as the pulmonologists which is the topic of interest for whom need various diagnosis modalities to reach final etiological diagnosis.

This study aimed to assess the interest of bronchoscopy in diagnosis of patients with NRP at Medical ward A in Calmette Hospital.

We conducted a prospective study of 39 NRP patients who received bronchoscopy which carried out during 10 months period from November 2019 to August 2020 at Medical ward A in Calmette Hospital.

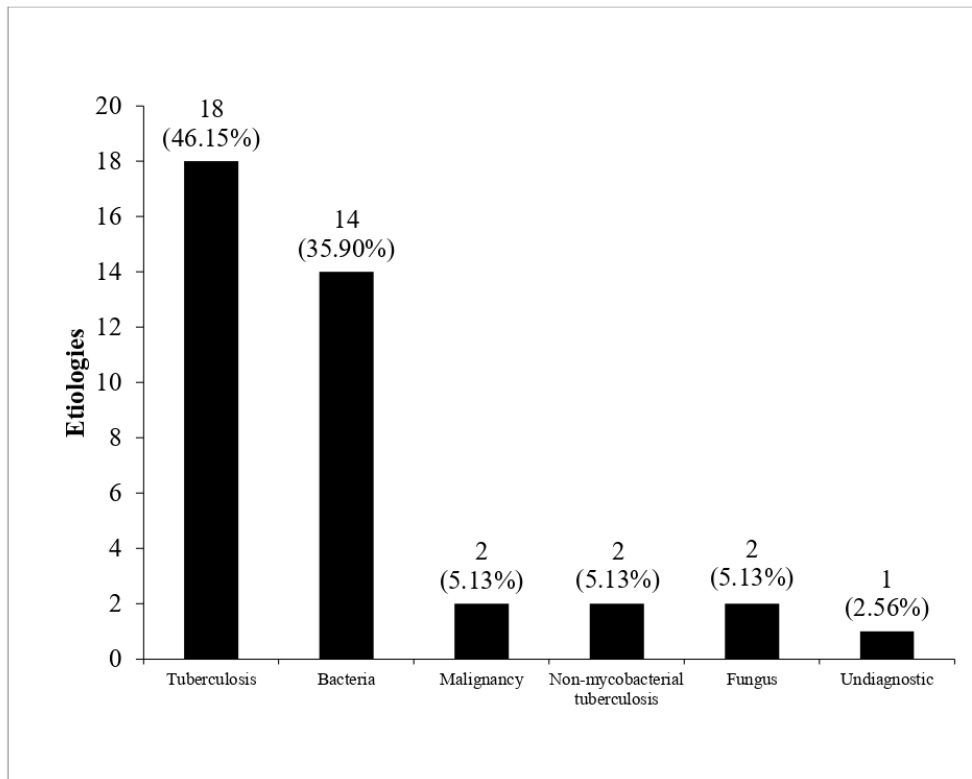
In our study, among of 39 cases, there was a male predominance with sex ratio of 2.25:1. Inflammation lesion was the most common which noticed in 20 cases (51.28%). Pulmonary tuberculosis 18 cases (46.15%) were found to be the most common etiology of NRP. BAL fluid results positive in 14 cases (35.9%) by gram stain and BAL fluid culture found Klebsiella pneumonia in 11 cases (28.22%) which were the most common bacteria in NRP. Mycobacterial culture of BAL fluid showed TB positive in 18 cases (46.15%) and non-mycobacterial culture positive in 2 cases (5.13%). BAL fungal culture was positive in 2 cases (5.13%). Cyto-histology of BAL fluid was positive in 2 cases (5.13%). Nevertheless, 1 case (2.56%) was undiagnosed.

Bronchoscopy is a safe, rapid, cost-effective and the great utility tool in helping to reach the final etiological diagnosis in NRP patients. Bronchoscopy should be recommended for all NRP patients who were not respond to antibiotic therapy after 10 days courses.

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Etiology of NRP diagnosed by bronchoscopy and BAL

Organism	Frequency	Percentage (%)
Bacterial pneumonia	14	35.90
Klebsiella pneumoniae	11	28.22
Streptococcus pneumoniae	1	2.56
Staphylococcus aureus	1	2.56
Pseudomonas pneumoniae	1	2.56
Mycobacterial tuberculosis	18	46.15
Non-mycobacterial tuberculosis	2	5.13
M. avium	1	2.56
M. kansasii	1	2.56
Fungus pneumonia	2	5.13
Candida albicans	1	2.56
Aspergillus	1	2.56
Malignancy	2	5.13
Squamous cell carcinoma	1	2.56
Adenocarcinoma	1	2.56
Undiagnostic	1	2.56

Etiologies of NRP of BAL fluid analysis

AP01-37

Case report and literature review of Plastic bronchitis characterized by refractory hemoptysis.

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Introduction

To share a case of Plastic bronchitis patient, analyze and summarize the clinical diagnosis ideas of this rare disease. Characterize the medical history, disease progression, and treatment of a patient with the rare diseases plastic bronchitis (PB).

Case Report

A 49-year-old female presented to our hospital with refractory hemoptysis on October 29,2021. The patient had been coughing and expectorating sputum for 5 years, with intermittent hemoptysis, which worsened for more than 20 days. and chest computer tomography (CT) was performed diffuse ground glass opacity{FIG1}.A histological analysis of the bronchial tree-shaped mucus plugs removed by bronchoscopy confirmed abundant fibrinous and mucinous material with blood cell infiltration, indicating plastic bronchitis (PB){FIG2} .The general information, characteristics of sputum and blood, course of disease ,medical history, and auxiliary examinations were collected and analyzed.Other common diseases leading to hemoptysis were excluded by imaging and laboratory examinations, and sputum pathology and TBLB supported the diagnosis of Plastic bronchitis {FIG3}. Summary and search Literature review.

Discussion

PB is a rare pulmonary condition characterized by the presence of casts in the trachea or bronchial tree.PB is a serious respiratory system disease,that requires early diagnosis. For patients with intractable hemoptysis with unknown etiology, it is necessary to be alert to the possibility of the disease. And active treatment should be performed to prevent suffocation, in order to achieve a better diagnosis and treatment effect.At present, it is believed that the disease is mainly treated with glucocorticoids, and can be treated by fiberoptic bronchoscopy if necessary.

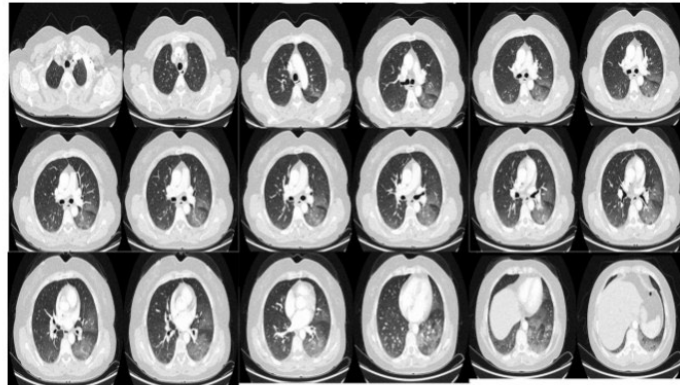


Figure 1. Lung CT: multiple patchy ground-glass opacities in both lungs, uneven permeability in the right lung, multiple subpleural micronodules in the lower lobe of the right lung, and micronodules in the lower lobe of the left lung.

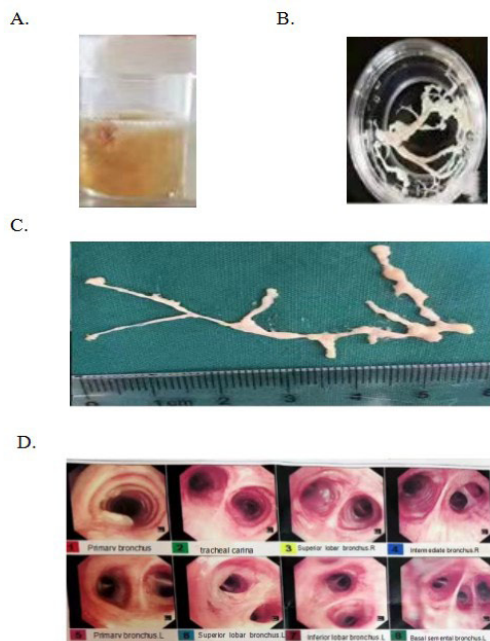


Figure 2. Sputum and mucus plugs are plastic A. Sputum is flocculent and branched, B. and C. Bronchial plasticity D. Bronchoscopy: the main trachea is unobstructed, and the tracheal mucosa can be seen with yellow-white jelly-like sputum attached. The bronchial lumen of each lobe segment of the left and right lungs is unobstructed, and the mucosa is slightly congested and edematous.

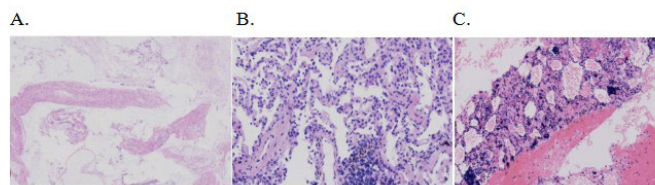


Figure 3. Pathology of sputum and lung biopsy .A.(sputum) 4*10, no tumor cells, more mucus and streak-like fibrin-like substances in the background, and histiocytes, lymphocytes, neutrophils infiltrates, fibrinoid exudates, mixed mucus, and inflammatory cells form the characteristic branching casts of plastic bronchitis. B. 10*10 (biopsy lung tissue) alveolar structure is relatively complete; focal alveolar septa are slightly widened with fibrous tissue hyperplasia; histiocytes and lymphocytes are infiltrated in the interstitium, and lymphocytes are focal aggregation in some areas. C. 10*10 (biopsy lung tissue) macrophage infiltration was seen in some alveolar spaces, edema fluid and red blood cells were seen in some alveolar spaces, and fibrin and chronic inflammatory cells exuded in the surrounding background.

AP01-38

Rapidly growing tracheal granulation causing tracheal obstruction: a case report

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Introduction

Tracheal tumors, benign or malignant, can cause life-threatening stenosis of the central airway. They can be difficult to diagnose because they are rare in clinical practice and in most cases grow slowly. Herein, we report a case of a rapidly growing tracheal tumor causing tracheal obstruction.

Case report

The patient was a 56-year-old woman without smoking history. She had a history of total arch replacement and thoracic endovascular aortic repair for acute thoracic aortic dissection. In 2021, she had undergone esophagectomy and esophageal reconstruction due to aorto-esophageal fistula caused by postoperative aortic stent infection. In 2022, she was admitted to Hiroshima City Hiroshima Citizens Hospital due to pneumonia. Despite the improvement of pneumonia, her dyspnea persisted. Chest computed tomography (CT) revealed a round mass occupying the tracheal lumen. Retrospective CT review showed that the mass had grown rapidly over 2 months. The following day, she developed sudden hypoxemia due to tracheal obstruction, and we initiated veno-venous extracorporeal membrane oxygenation (VV-ECMO). She was transferred to Hiroshima University Hospital and underwent tumor resection and laser ablation with rigid bronchoscopy under VV-ECMO support. Histopathological findings were consistent with granulation tissue. The patient was weaned off VV-ECMO and discharged breathing independently. However, 1 month post-tumorectomy, tumor regrowth was observed, and further therapeutic interventions are planned.

Discussion

This tracheal tumor is thought to have developed due to prolonged mucosal inflammatory irritation from the chronic aortic stent infection. We should note that tracheal tumors, including benign granulations, can rapidly grow and may lead to asphyxia.

AP01-39

Pulmonary Cement Embolism Post Hip Hemiarthroplasty: A Case Report

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Introduction

Pulmonary cement embolism (PCE) is a rare complication following a cement augmentation procedure for osteoporotic hip or spinal fracture. While the majority of PCEs were asymptomatic, symptomatic PCEs were often present with chest pain, respiratory distress, and may cause death if extensive. Diagnosis is mainly by radiographic means, commonly simple radiographs, and computed tomography angiogram (CTA) when comes to clinical suspicion of it. Despite the well-established diagnosis of PCEs through imaging, evidence of clinical management is unclear with limited treatment options.

Case report

We report a case of 70-year-old man who experienced a low-energy fracture of the neck of the left hip. He was also treated for concomitant pneumonia and electrolytes imbalance. He underwent cemented hemiarthroplasty on day 3 of admission. About a week post-operative, he developed shortness of breath at rest, tachypnea, and tachycardia requiring non-invasive ventilation (NIV) support. Pulmonary CTA revealed small focal hyper-densities in segmental/subsegmental pulmonary artery branches with features of superimposed lung infection. He was treated with bronchodilators, oxygen supplementation, empirical antibiotics, and incentive spirometry. The decision not for anticoagulation because of the high bleeding risk with bicytopenia (anemia with thrombocytopenia) and eventually patient succumbed due to hospital-acquired infection despite antibiotics.

Discussion

The incidence of PCE following hip cemented hemiarthroplasty is under-reported as the majorities were asymptomatic. High clinical suspicion for those patients who presented with respiratory distress following cement augmentation procedure warrants further imaging assessment to identify pulmonary cement embolism. Decision for anticoagulation or supportive treatment is case-by-case basis. Further studies are needed to outline the treatment strategies.

Keywords

Pulmonary cement embolism, hip cemented hemiarthroplasty

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Acknowledgment

Respiratory, Radiology and Internal Medicine Department

AP01-40

An incidental finding of an endobronchial lesion.

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Introduction

Primary tracheal and endobronchial lesions are usually uncommon and may be malignant or benign. Cases may present with symptoms of cough, dyspnoea or haemoptysis or they may be incidentally detected on lung imaging. We present a case of an unexpected finding of an endobronchial lesion during pulmonary tuberculosis (TB) screening.

Case Report

A 64-year-old male was seen at the TB Contact Clinic for household contact with pulmonary TB. He had a background of chronic smoking and was previously diagnosed with COPD. Chest X-ray performed for pulmonary TB screening showed left para-tracheal bulkiness. A computed tomography (CT) was then performed, showing partial collapse of the left upper lobe with compensatory hyperinflation of the left lower lobe as well as a soft tissue nodule in the left upper lobe bronchus. On flexible bronchoscopy, a polypoidal endobronchial mass was seen in the left upper lobe. The patient subsequently underwent a rigid bronchoscopy and histology examination of the endobronchial lesion confirmed an endobronchial lipoma.

Discussion

Endobronchial lipoma are rare benign tumours of the airways. These tumours may lead to partial or total bronchial obstruction and may cause symptoms of cough, exertional dyspnoea as well as recurrent pneumonias. Previous case reports have shown that endobronchial lipoma may also mimic obstructive airway disease and malignancy.

Radiology and histology findings of endobronchial lipomas are discussed. Role of rigid bronchoscopy as a diagnostic and therapeutic tool in managing this rare entity will also be discussed.

AP01-41

Bronchial mass in meningioma patient: A case report and review of literature

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Introduction

Pulmonary intervention using bronchoscopy examination may serve as a valuable tool to establish a diagnosis in bronchial mass, however, this method is often difficult and challenging especially in critical care setting. In a suspicion of brain meningioma pulmonal metastasis, we should also consider a differential diagnosis such as Primary Pulmonary Meningioma (PPM), a rare disease which may resembles other lung cancer on imaging technique.

Case Report

A 62-year-old female came to emergency department with loss of consciousness, patient was then admitted to intensive care unit and intubated. Patient had a history of craniotomy tumor removal followed by Ventriculo-peritoneal (VP) shunt one month prior to admission. Histopathological sections displayed a transitional and microcystic meningioma (WHO grade 1). During hospitalization, serial chest x-rays revealed a trapping effusion and worsening of pneumonia. Subsequently, the patient was assessed with Long Term Mechanical Ventilation (LTMV), sepsis and ventilator-associated pneumonia. Bronchoscopy via tracheostomy tube was performed which showed multiple stenosis followed by cytology evaluation from bronchial tissue biopsies and Broncho-alveolar Lavage (BAL). Unfortunately, both histopathological results showed only reactive bronchial epithelial with no malignant cells. Interestingly, bacterial cultures were positive for multi-drug resistant *Acinetobacter Baumannii* consistently in BAL, sputum and urine.

Discussion

Several differential diagnosis should be considered in case of bronchial mass and should be diagnosed based on a combination of clinical, radiological and histopathological features. In critical care setting, bronchoscopy intervention may be hard to perform yet remained to be a crucial step in diagnostic approach.

AP01-42

Pulmonary edema after propofol infusion in the operative and postoperative periods

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Purpose

Propofol is a relatively safe drug, commonly used in induction and maintenance of general anesthesia and procedural sedation. Though pulmonary edema after administration of propofol is a rare adverse effect, it can be fatal. The purpose of this study is to investigate the relationship between propofol administration and pulmonary edema in the perioperative period.

Methods

We retrospectively reviewed clinical records of patients who experienced anesthetic complications after propofol administration during surgery between January 2008 and June 2011 in a single university-affiliated hospital.

Results

We identified 12 patients with perioperative pulmonary edema which developed during or after induction of local or general anesthesia. Subsequent complications following pulmonary edema included respiratory failure and cardiac arrest in 5 patients (42%), dyspnea (33.3%), hypotension (25%), hypoxia (16.6%), hemoptysis (8.3%), seizures (8.3%), or cyanosis (8.3%) which developed within a few hours after propofol induction or during infusion. Laboratory findings included metabolic acidosis, hypoxemia, and neutrophilia or neutropenia in the peripheral blood. Eight patients showed bilateral pulmonary edema on the chest radiograph, and the rest showed localized infiltration in the left lung parenchyma. The mean time to recovery was 3.1 days, and the in-hospital mortality rate was 25% (8.3% within 48 hours, 16.7% after 48 hours).

Conclusion

Perioperative pulmonary edema caused by propofol is uncommon but can be lethal. Propofol-induced pulmonary edema should be considered as a cause of unexpected deterioration during the perioperative period to enable early detection and appropriate management to avoid serious complications including death.

AP01-43

Feasibility study of home-based Pulmonary Rehabilitation (PR) in Bangladesh

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Aim

PR is an integral part of chronic respiratory disease (CRD) management. Evidence on the effectiveness, applicable components, and deliverable models have been generated from high-income countries in a different clinical context from low- and middle-income countries. Informed by global PR guidelines, a systematic review and stakeholder engagement, we adapted a PR programme to home-based (because of COVID) in a low-resource setting. This feasibility study tested the PR programme in Bangladesh.

Methods

Intervention was, assessment at the PR centre, twice-weekly tele-supervised sessions for 8 weeks at home. The primary outcomes were Endurance Shuttle Walk Test (ESWT) and COPD Assessment Test (CAT). Nonparametric tests were used to compare pre-and post- outcomes using SPSS version 26.

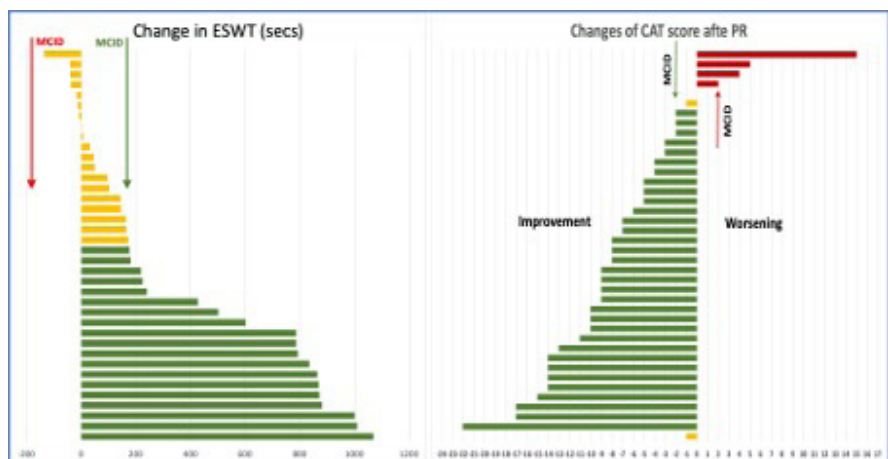
Results

51 participants (33 male; mean age 55yrs (SD 12)) were recruited with a range of CRDs. 40 completed the final assessment (COVID deterred eight follow-ups). Both ESWT and CAT improved by more than the minimum clinically important difference (MCID). Individual changes in ESWT and CAT are illustrated in the figure.

Conclusion

Home-based PR is feasible in the Bangladesh context and associated with significant improvements in functional exercise capacity and health-related quality of life.

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AP01-44

Effectiveness of an outpatient pulmonary rehabilitation program in patients with chronic obstructive lung diseases; a pilot study

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Background and Aim

Chronic obstructive lung diseases are progressive systemic diseases which affect lungs and organs outside the lungs. Pulmonary rehabilitation programs for patients with chronic pulmonary diseases have existed for years. However, a mandatory continuous rehabilitation program which is feasible to apply for low-middle income countries where resources are limited has become essential. Therefore, this pilot study was conducted to evaluate the possibilities of conducting successful outpatient pulmonary rehabilitation programs in Sri Lanka.

Methodology

Retrospective experimental study was conducted at University of Peradeniya, Sri Lanka among patients with chronic obstructive lung diseases (n=6) (73yrs±7.96). Patients were assessed based on five outcomes; pulmonary function using lung function testing, exercise capacity using the six minute walking test, muscle function, level of dyspnea using Modified Medical Research Council Dyspnea Scale and the quality of life (QoL) using VQ11 Questionnaire at the beginning and after 12 weeks(3 days/week) of individually tailored Pulmonary rehabilitation program. Wilcoxon Signed Rank test was used for data analysis.

Results

Significant improvements were found in muscle function; grip strength, quadriceps strength, 5 time sit to stand (p=0.036), level of dyspnea (p= 0.0036), and QoL (p=0.036). There were no significant improvements in lung function and exercise capacity (p> 0.05), nevertheless upward trends noted in both the parameters.

Conclusion

Outcome parameters of the patients in COPD have improved following 12 weeks pulmonary rehabilitation program. Following the modifications, a clinical trial can be conducted to assess patient improvements that can be implemented throughout the country.

Acknowledgements

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AP01-45

Patient's perception of Pulmonary Rehabilitation in Bangladesh

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Background and Aim

Pulmonary rehabilitation (PR) is an integral part of chronic respiratory diseases (CRDs) care. However, PR services are new to most patients in Bangladesh. We, therefore, aimed to assess the perceptions of patients about their respiratory condition, about PR as a part of disease management, and to identify challenges and facilitators to implementing PR in Bangladesh.

Methods

We conducted qualitative interviews with 15 people living with CRDs who had participated in the PR feasibility pilot. We used purposive sampling to capture a broad range of perspectives about common CRDs in Bangladesh and used a grounded theory approach to analyse our findings.

Results

Ten male and five female patients with COPD, post-TB, asthma, bronchiectasis, or interstitial lung disease were interviewed. Acceptability and attending the supervised exercise session were the major concerns. Three major themes emerged. Understanding of disease by the patients was symptom-based and the disappearance of symptoms was considered to represent a 'cure' of the disease. Their perception of PR varied. Some were surprised with being offered an exercise programme that triggered breathlessness (the symptom they were trying to cure). Others believed exercise was good for diseases (e.g., diabetes) but not for treating their symptoms. Hearing about the benefits of PR from other patients helped overcome this barrier. Regarding the implementation of PR, their views reflected the context of Bangladesh. Most patients were concerned about the acceptability, affordability, and availability of the service. To overcome these challenges, they suggested a massive awareness programme, individual motivation in discussion with their clinician, and making the service easy to access and affordable.

Conclusion

The patient's understanding of CRD is different from that of the bio-medical definition. This in-depth understanding of patients' views on their disease and perceptions of a new intervention will inform strategies to implement PR in Bangladesh.

This research was commissioned by the UK National Institute for Health Research (NIHR) Global Health Research Unit on Respiratory Health (RESPIRE), using UKAid from the UK Government. The views expressed in this publication are those of the author(s) and not necessarily those of the NIHR or the UK Department of Health and Social Care

AP01-46

A Case of Necrotizing Sarcoidosis with Reversible Cognitive Disorder and Mimicking Cushing syndrome

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Introduction:

Sarcoidosis is generally characterized by a non-necrotizing granulomatosis. Necrotizing sarcoidosis is uncommon and it is frequently difficult to distinguish between miliary tuberculosis (MT) and sarcoidosis. Neurological findings of sarcoidosis affect prognosis, and therefore we need to diagnose as soon as possible. Our case is rare in terms of pathology, neuroendocrine findings and MRI brain images.

Case report:

We present a 56-year-old woman who had dementia and empty sella. Ten months ago, she had an episode of dry-cough for one month followed by ceaseless hiccups. She had two cerebral infarctions in five months. She had multiple lung and hepatic nodules with mimicking-Cushing syndrome, subacute dementia and personality changes. Suspecting a hormone-producing tumor, we performed hepatic needle biopsies. MRI brain images and hepatic biopsy findings suggested MT with meningitis. We started treatment for MT. However, unaccountable fevers came out and anti-tuberculosis drugs did not work to improve the abnormal CT findings. We performed the additional hepatic biopsies and the findings led to the final diagnosis of sarcoidosis. Her personality and cognitive function dramatically improved with prednisolone.

Discussion:

Patients with necrotizing sarcoidosis may be recommended to have cerebral and meningeal check-ups. To the best of our knowledge, this is a rare case of sarcoidosis with empty sella. We report with some literature review.

AP01-47

Guillain-Barre syndrome as a rare initial presentation of Antiphospholipid syndrome

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Introduction

Antiphospholipid syndrome (APS) is a systemic autoimmune disorder characterized by venous or arterial thrombosis in the presence of persistent laboratory evidence of antiphospholipid antibodies. Neurologic disorders are among the most common and important clinical manifestations associated with the APS however, peripheral nervous system involvement is rare in APS. Guillain-Barre syndrome (GBS) is a rare acute paralytic polyneuropathy, with an incidence of about 1 in 100000. It is an autoimmune disorder of the peripheral nervous system often triggered by acute infections, vaccination or surgery.

Case report

A 30 year old woman with previously diagnosed hypothyroidism was presented with 2 week history of ascending weakness and stocking glove hypesthesia. After the rapid investigation she was diagnosed with GBS. At the admission her condition was fine with glasgow coma score 15. Later, in the same day she suffered with sudden cardiac arrest. Patient resuscitated for 6 minutes and admitted to medical intensive care unit. Due to lack of obvious trigger of GBS and cardiac arrest, an extensive workup was launched. Computed tomography pulmonary angiogram revealed extensive bilateral pulmonary thrombosis, primarily involving both main pulmonary arteries and their segments. Further laboratory investigations showed anti lupus antibodies and APS diagnosis was made.

Discussion

This case presentation shows that the GBS may accompany with antiphospholipid syndrome. This is a rare entity in the literature.

AP01-48

The Sleeping Giant Finally Awakens: Diagnostic and Therapeutic Dilemmas of A Large Solitary Fibrous Tumor of the Diaphragm

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Introduction

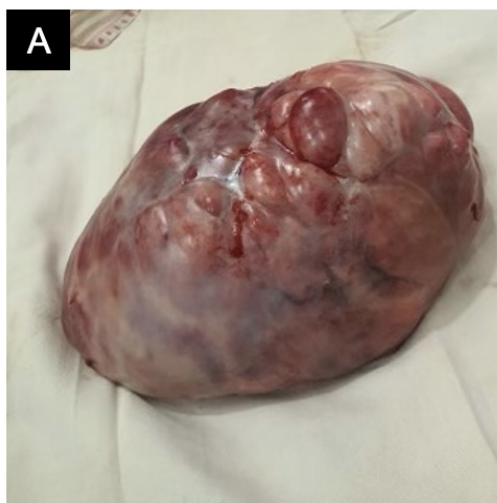
Solitary fibrous tumors (SFTs) are rare spindle cell tumors accounting for less than 2% of soft tissue tumors. They commonly occur in the pleura but rarely seen in the diaphragm. They make up 5% of all chest tumors, and only 10% of that 5% originate from the diaphragm.

Case Report

We present a 49-year-old female who was asymptomatic throughout her life – until a year ago when she developed progressive dyspnea. A series of chest radiographs consistently revealed an incidental finding of elevated right hemidiaphragm. Computed tomography (CT) scan of the chest showed a huge intrathoracic mass in the right hemidiaphragm. CT-guided biopsy revealed a low grade spindle cell neoplasm. The patient's progressive dyspnea warranted urgent intervention. However, several dilemmas arose: first, was the mass pulmonary or extrapulmonary, second, was it benign or malignant, and third, can complete resection be done. The mass showed no malignant features on biopsy, and a curative resection was planned. She underwent a right sternothoracotomy and the mass was completely resected from the diaphragm (Figure 1). Post-operatively, the diagnosis was established on histopathology and immunohistochemistry. Five months post-operatively, patient is well with no recurrence of symptoms.

Discussion

SFTs rooting in the diaphragm is very rare clinically. They pose a diagnostic and therapeutic challenge and should be considered as differential in patients with atypical or recurrent respiratory symptoms despite adequate medical treatment. Though preoperative diagnosis is challenging, the aim for curative resection was successfully done in this patient.



AP01-49

Low frame rate dynamic chest radiography as a tool for investigating diaphragm dysfunction

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Background and Aim

High resolution (15 frames per second [fps]) and ease of setup (0.3mSv for fluoroscopy). To reduce this, we explored the utility of DCR at 6fps (EED up to 0.048mSv over 10s) in 6 adults with diaphragm palsy, where diaphragm speeds >50mm/s occur during sniffing.

Methods

Posteroanterior (PA) DCR at 15fps and 6fps were acquired in 6 adults. Subjects were instructed to take three sniffs, a breath to full inspiration then end-expiration. Software automatically calculated diaphragm midpoint motion and projected lung area (PLA).

Results

Both 6 and 15fps DCR were adequate for visualisation of paradoxical motion during sniffing, with agreement between a radiologist and respiratory physician in all cases. Software identified paradoxical motion correctly in all cases, and was confirmed by diaphragmatic M-mode ultrasound; mean \pm standard deviation difference in observed paradoxical motion between 6 and 15fps was 6 ± 4 mm; mean difference in PLA at full inspiration was 11 ± 8 cm², and PLA at end-expiration 5 ± 3 cm².

Conclusion

DCR sniff test images of comparable diagnostic quality can be achieved at 6fps. Inter-rater reliability is good, and differences in measured diaphragm motion and PLA are small. 6fps DCR shows promise as an even lower-dose alternative to 15fps DCR or standard fluoroscopy.

AP01-50

A lady with blistering skin rash and “Lungs on Fire”

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Introduction

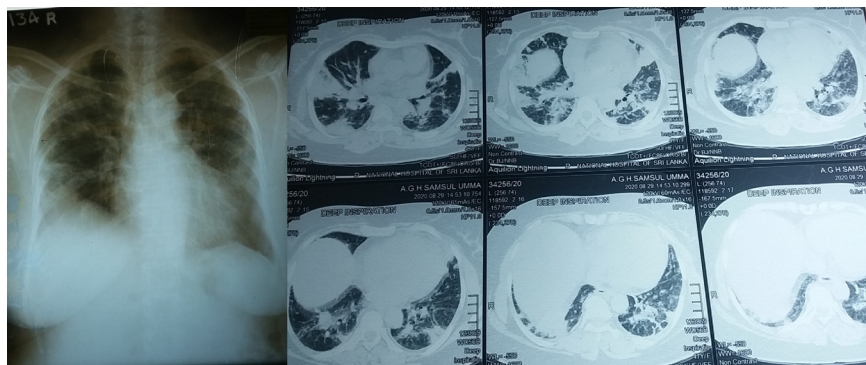
Hyper Eosinophilic Syndrome (HES) is a group of disorders characterized by sustained overproduction of eosinophils leads to eosinophil-mediated organ dysfunction. The commonest organ involved in HES is skin and 25% of patients demonstrate pulmonary involvement. We describe a case of HES manifest as bullous pemphigoid followed by severe eosinophilic pneumonia.

Case Report

A 47 years old lady, who had history of bronchial asthma, presented with 1 month history of generalized pruritic blistering rash, loss of appetite and generalized malaise. The rash involved whole body without mucosal surfaces. FBC exhibited hypereosinophilia (99,000/ μ L) with leukocytosis (115,000/ μ L) but other cell lines were normal. Dermatologist managed her as bullous pemphigoid and started high dose steroids, local skin applications and Albendazole. She developed respiratory distress (mMRC4) with high fever spikes and general wellbeing deteriorated with time. Clinically she was tachypnoeic, febrile and SpO₂ was 92% on air and there were coarse crackles in both lung bases. Investigations revealed ESR- 48mm/hr, CRP- 107mg/dl, blood picture/bone marrow-marked eosinophilia without blast cells, Chest radiograph- reverse bat wing appearance, Echocardiogram – Normal, Cultures and serology- Negative for bacteria, fungi and parasites, ANA/ANCA- Negative, skin biopsy – eosinophilic infiltration on dermis and BAL eosinophils – 21%. HES with pulmonary and cutaneous involvement was diagnosed and further investigations not revealed evidence towards myeloid/lymphoid or familial variants thus concluded as “Idiopathic”. She was started IV methyl prednisolone 1g/daily pulses followed by prednisolone 1mg/kg/day, Imatinib 400mg/daily, hydroxyurea 1g/daily and cyclosporin 50mg bd following expert opinion. Patient clinically improved with treatment and eosinophil count gradually declined.

Discussion

Clinicians should aware on different manifestations of HES. Exclusion of other possibilities for hypereosinophilia is important before the diagnosis of HES (Eosinophilic leukemia, parasitic/fungal manifestations. Eosinophilic granulomatosis and polyangiitis and drug induced pneumonitis).



AP01-51

The impact of colony morphotype on clinical courses of patients with *Mycobacterium avium* complex pulmonary disease

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Background and Aim

Recent animal and in vitro studies have shown that *Mycobacterium avium* complex (MAC) virulence is associated with its colony morphotype.

However, the clinical impact of colony morphotypes has not yet been elucidated. This study describes the impact of MAC morphotypes on the clinical course and prognosis of pulmonary disease.

Methods

Patients with *Mycobacterium avium* complex pulmonary disease (MAC-PD), who submitted respiratory specimens for mycobacterial culture from January 1, 2020 to December 31, 2021 at Seoul National University Hospital, were included in the study. Their colony morphotypes were classified into four groups (smooth, sliding, glue, and rough types) after examination by a microbiologist at the Korea National Institution of Tuberculosis. The disease severity, requirement for antibiotics, and treatment outcomes were compared according to colony morphotypes.

Results

The study included 200 patients. On examination, 174 patients had smooth or sliding morphotypes; glue and rough types were observed in 13 patients each. Cavities were more frequently detected in glue (N=3, 23.08%) and rough (N=4, 30.77%) types when compared with smooth and sliding types (N=16, 9.20%) (P=0.027). Antibiotics were administered to 48 patients from smooth and sliding types, 6 from glue type, and 3 from rough morphotype (P=0.361). Culture conversion was achieved in 59 patients from smooth and sliding types, 7 from glue type, and 6 from rough morphotype (P=0.433).

Conclusion

Cavities were more frequently observed in the glue and rough morphotypes. However, there was no significant difference in the clinical course and outcomes of disease among the various morphotypes.

AP01-52

Understanding the implementation of PR in Bangladesh using Normalization Process Theory

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Background and Aim

Despite the proven effectiveness of pulmonary rehabilitation (PR) for managing people with chronic respiratory diseases (CRDs), at present, only three centres provide PR services in Bangladesh. To embed and integrate PR in routine clinical practice we aimed to understand the views of healthcare professionals and other relevant stakeholders for the implementation of this new intervention in the Bangladesh context. We chose to use normalisation process theory (NPT) for the framework analysis as the constructs provided tools to explore how PR can be normalised into routine clinical practice.

Methods

Semi-structured interviews (30 to 45 minutes) were conducted with a purposive sample of healthcare professionals and other stakeholders. The audio-recorded interviews were transcribed and codes were generated against the 16 domains of the four constructs of NPT. A videoconference was arranged with our multidisciplinary research team to discuss and interpret the findings using the NPT toolkit to generate a radar plot that depicts a visual impression of each of the constructs of NPT.

Results

We interviewed 16 stakeholders (7 clinical practitioners, 4 PR providers, 2 policymakers, and 3 other relevant stakeholders). Apart from the three pioneering PR centres, the predominant activity amongst professionals and other stakeholders was evaluation (informal monitoring and formal research). There is some evidence of sense-making amongst stakeholders, sporadic participation, but no translation into action. The barriers are no policy support, confusion about existing chest physiotherapy services, lack of clarity over referral mechanisms, and no official training/career pathways for PR staff. The strengths of these themes are illustrated in figure 1

Conclusion

PR is a new intervention in Bangladesh. Stakeholders are aware of the evidence and are watching the impact of the pioneering PR services in Bangladesh before deciding about policy and implementation of PR in their practices

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AP01-53

Can we combine advances in evidence based medicine and behavioural economics strategies to improve diagnosis in respiratory medicine?

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Background and Aim

Physicians show highly variable probabilistic thinking which contribute to diagnostic errors in clinical practice.(1) Experts in the field of behavioral economics suggest that reducing variability may be an effective way to improve complex decision making.(2)

Thus, we hypothesize that combining evidence based medicine and behavioural economics strategies may improve diagnosis in respiratory medicine.

Methods

We implemented “hygiene toolkits” to reduce variability in decision making appropriate for common diagnostic problems in respiratory medicine. (2) We evaluated their effects qualitatively and quantitatively.

Results

We implemented “hygiene toolkits” in the “evidence based” diagnosis of: (1) pulmonary tuberculosis(PTB), (2) acute pulmonary embolism(PE) and (3) diffuse interstitial lung disease(ILD). In PTB the routine use of pooled induced sputum efficiently replaced bronchoscopy. (3) In PE there was improved adherence to the YEARS protocol with increased positivity of CT pulmonary angiograms.(4) In ILD a higher degree of confidence was noted during multi-disciplinary rounds.

Conclusion

We conclude that diagnostic problem solving in respiratory medicine may be improved by selectively implementing decision economics strategies to reduce variabilities in probabilistic thinking.

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AP01-54

Clinical outcome and patient characteristics of community acquired pneumonia in a secondary care hospital in central Sri Lanka; are severity indexes and scores universally applicable?

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Background and Aim

The clinical outcomes of community acquired pneumonia depend on number of variables. Severity of pneumonia at presentation, patient age, co morbidities, and patient demographics. There is a paucity of data in Sri Lanka in this regard. Aim of this study was to compare the outcomes and clinical characteristics, as measured by severity indexes, in a local setting.

Methods

All adults admitted with community acquired pneumonia were recruited over six-month period. Clinical characteristics, investigations, Pneumonia severity index (PSI) and CURB 65 severity score were analyzed against the patient outcomes of cured, not cured (Readmission within 30-day, In hospital mortality, Death within 30 days (after discharge)

Results

91 patients were evaluated. There were moderate to large association between age >65, blood urea nitrogen >7mmol and blood gas pH of ,7.35 and prevalence of not cured.

There was an association between presence of comorbidities and prevalence of not cured the strength of association is moderate to large.

Patients with PSI score ≥ 4 and CURB65 ≥ 3 was 50.5% and 18.7% respectively. Both groups were significantly associated ($p > 0.001$) with 30 days mortality.

Association between Presenting PSI score of 4 or more and prevalence of not cured was moderate to large in strength.

Association between Presenting CURB65 score of 3 or more and prevalence of not cured was large in strength.

Conclusion

Increased age, co morbidities and higher severity indexes, scores were well associated with poor outcomes, compatible with existing data. Use of such in patient management locally should be encouraged.

AP01-55

Impacts of clinical training on experience and knowledge of respiratory diseases among post-graduate year (PGY) 1 and 2 residents.

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Background and Aim

To evaluate experience and knowledge of respiratory disease among PGY 1 and 2 residents.

Methods

PGY 1 and 2 residents at Kitano Hospital were included and asked to answer self-reported questionnaire about experience and knowledge of respiratory disease. The questionnaire contained 33 questions about 4 fields (physical examination (PE), laboratory and physiological examination (LPE), imaging examination (IE), and clinical condition (CC)).

Results

The level of experience in fields of PE, LPE, and CC were significantly higher among residents who had completed pulmonary clinical training (post-trained residents) than residents who had not completed pulmonary clinical training (pre-trained residents), ($p=0.024$, 0.043 , and 0.031 , respectively). The level of knowledge is higher in residents who have experiences through patients than residents who doesn't have experiences through patients, i.e. they have experiences through such as text books or lectures, in both pre- and post-trained residents in 4 fields; PE, LPE, IE, and CC ($p = 0.0001$, 0.034 ,

AP01-56

MALT Lymphoma Masquerading as Organizing Pneumonia as the First Manifestation

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Background and Aim

Organizing pneumonia (OP) can be classified into cryptogenic and secondary OP. Common causes of secondary OP includes connective tissue diseases, infection, and drugs with rarer causes such as MALT Lymphoma being described.

Methods

A 64-year-old woman presented to multiple centres with recurrent unresolving pneumonia since 2015. Initial CT scan done in 2015 showed features suggestive of OP and a right perinephric soft tissue density. She was referred to us in 2021 with symptoms of chronic cough, reduced effort tolerance and 4kg loss of weight over 2 months. Her SpO₂ was only 84% under room air. Repeat CT scan showed persistent dense consolidation at bilateral superior segment of right and left lower lobes suggestive of OP and worsening perinephric collection with adjacent enlarged lymph nodes.

Results

Biopsy of the perinephric collection confirmed diagnosis of Marginal Zone B Cell Lymphoma of associated Lymph Tissue (MALT Lymphoma). Her stay was complicated by COVID-19 pneumonia of which she received IV Dexamethasone 8mg for 10 days and had recovered well. Connective tissue disease screen was negative. BAL done had ruled out infection. TBLB showed lymphoid aggregates with positivity for CD20 and BCL2 (diffuse), CD21 (patchy) and CD3 and CD5 (variable) with low proliferative index. She was subsequently treated with chemotherapy and prednisolone (R-CHOP regime) and had significant radiological and clinical improvement.

Conclusion

MALT Lymphoma is typically slow growing and can persist for years as in this patient's case. This case highlights the importance of biopsy in OP to rule out important secondary causes.

AP01-57

Clinical audit on Discharge Summary Post-Non invasive ventilation

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Background and Aim

It is recommended that following an acute non-invasive ventilation episode, a structured plan for future treatment should be discussed with the patient and/or carer either at the point of discharge from hospital or at subsequent follow-up. This must be documented and a copy of the plan given to the patient and to the patient's general practitioner. This audit assessed whether discharge summary include the structured plan for future treatment / follow up, plan of future treatment has been discussed with the patient/carers, copy of the plan/discharge letter given to the patient, and plan copied to/ shared with GP.

Methods

20 discharge letters following NIV was studied retrospectively.

Results

(uploaded as a graph)

Conclusion

NIV was used for correct indications in all patients. Significant percentage of discharge summaries had a follow up plan. 100% documentation of commencing home NIV. No documentation at all about NIV in 20% cases. Documentation on discussion about the plan of management with the patient/family is not adequate. All the discharge summaries copied to the GP and provided to patient.

Recommendations

Clear documentation of the follow-up plan should be included in the discharge letter. A copy of clearly documented plan need to be given to the patient and shared with GP. A "dedicated post NIV discharge summary" was proposed and implemented in the unit to be included to the routine discharge summary (under the section of "clinical summary"). Re-audit was planned in 3 months.

Results	
Correct indication for NIV	100%
Mode of NIV (CPAP/BiPAP) documented	81.25%
Provided a follow up plan	81.25%
Follow up not been arranged	18.75%
documentation of commencing home NIV	100%
no documentation at all about receiving NIV	20%
discharge summaries documented the discussion of plan with the family/patient	00
Discharge summary copied to the GP	100%
Discharge summary copied to the GP	100%

AP01-58

Oxygenation Parameters as Predictors of Clinical Outcomes among Non-oxygenated Hospitalized Adult Patients with Moderate Covid-19 Infection

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Background and Aim

Moderate COVID-19 comprises majority of cases reported in terms of severity. Prediction of deterioration among these should be prioritized. To date, oxygenation parameters in relation to clinical outcomes haven't been well studied. We aimed to evaluate the association of Alveolar-arterial Oxygen Difference (AaDO₂), Arterial-Alveolar Oxygen Ratio (aAO₂), and Arterial Oxygen Tension Fraction Inspired Oxygen ratio (PF ratio) with mortality and initiation of oxygen therapy among patients with moderate COVID-19.

Methods

305 admitted moderate COVID-19 adults were included. Baseline profiles were reviewed. The admission arterial blood gas on room air was recorded and oxygenation parameters were calculated. The occurrence of clinical outcomes was reviewed. ROC curves were generated, followed by the derivation of cutoff values, simple logistic regression analysis, and determination of sensitivity (Sn) and specificity (Sp).

Results

There was a significant association in terms of initiation of oxygen therapy. With high sensitivity and specificity, those with aAO₂, AaDO₂, and PF ratio cut-offs of <0.71 (Sn 88.82, Sp 90.20), >31.86 (Sn 90.82, Sp 93.46), and <366.67 (Sn 85.57, Sp 83.01) respectively were likely to be initiated on oxygen therapy. In terms of initiation of high flow oxygen therapy, there was noted association, however with lower sensitivity and specificity. Those with aAO₂, AaDO₂, and PF ratio cut-offs of <0.68 (Sn 80.65, Sp 66.42), >34.38 (Sn 83.87, Sp 67.15), and <350.95 (Sn 77.42, Sp 60.22) respectively were likely initiated on high flow oxygen therapy. In terms of mortality, there was no significant association.

Conclusion

AaO₂, aADO₂, and PF ratio can be effective tools to predict the initiation of oxygen therapy among adults with moderate COVID-19 infection. Integration in COVID-19 management is recommended.

Figure 2. Cut-off per severity in terms of Prediction of Initiation of Oxygen Therapy

	aAO₂	AaDO₂	PF ratio
Moderate (Not started on O ₂ therapy)	>0.71	≤31.86	>366.67
Severe/Critical (Started on O ₂ therapy)	≤0.71 (0.69 - 0.71) (AUC 0.90 Sn 88.82 Sp 90.20)	>31.86 (31.86 - 34.38) (AUC 0.91 Sn 90.82 Sp 93.46)	≤ 366.67 (351 - 366.67) (AUC 0.86 Sn 85.57 Sp 83.01)
Critical (Started on HFNC/MV)	≤0.68 (AUC 0.74, Sn 80.65, Sp 66.42)	>34.38 (AUC 0.76, Sn 83.87, Sp 67.15)	≤350.95 (AUC 0.69, Sn 77.42, Sp 60.22)

AP01-59

Recurrent spontaneous pneumomediastinum in adolescents: a rare case in healthy adolescents with an infrequently reported entity.

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Introduction

^{1,2}Spontaneous pneumomediastinum (SPM) is a condition in which air is present in the mediastinal space and is a rare disease in adolescents without a history of a potential predisposing cause and normal lung parenchyma and self-limiting condition. It's not associated with trauma. ^{3,4}Almost patients presented with pleuritic chest pain, dyspnea, neck pain, and subcutaneous emphysema. ⁵SPM may occur in healthy young men in whom an increased intraalveolar pressure leads to the rupture of marginal pulmonary alveoli. Occasionally, ⁶asymptomatic spontaneous epidural emphysema has been incidentally described in asthmatic patients.

Case report

We reported the case of a male adolescent who had not had a history of pulmonary diseases before and presented with pleuritic chest pain and dyspnea within 6 hours before visiting an emergency department with no history of trauma. A physical examination and confirmation diagnosis with chest radiography showed pneumomediastinum but no definitive causes. After high oxygen concentration therapy without surgical management, pneumomediastinum is complete resolution. Three weeks later, he had the same clinical and revisited the emergency department with recurrent spontaneous pneumomediastinum. Then we sent him to perform further investigations, including thoracic CT and undergoing a bronchoscope to localize an anatomical defect in this patient. The study showed only a tiny shallow tracheal hole from the bronchoscope and mild diffuse bronchial wall thickening from thoracic CT.

Discussion

In conclusion, we hypothesized that the patient's potential to have early asthma due to evidence of diffuse bronchial wall thickening might be the leading cause of spontaneous pneumomediastinum in this patient.

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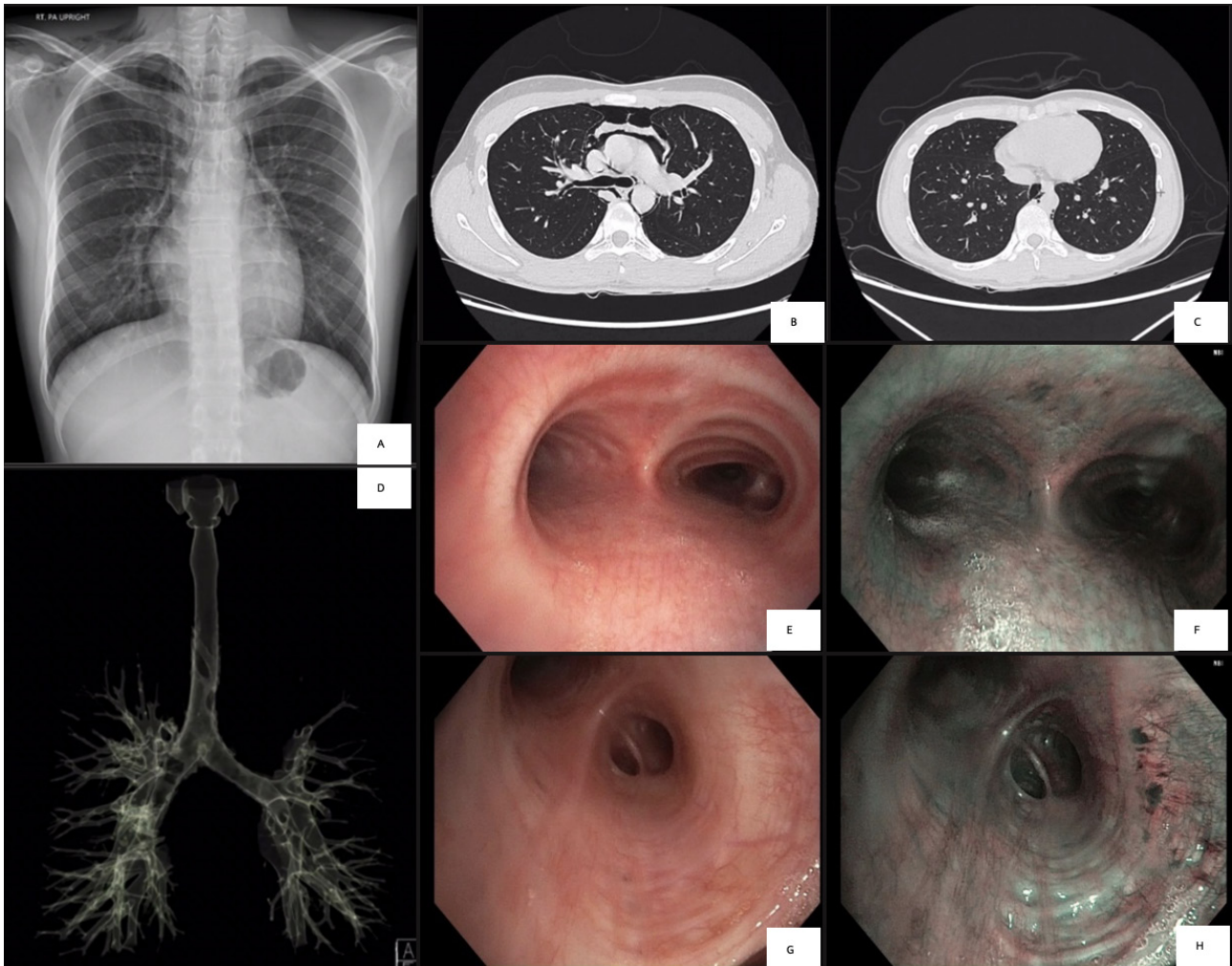


Figure. (A) PA chest radiography of this patient showed lucencies along the left heart border, aortic arch, mediastinal structure, and right supraclavicular fossa without pneumothorax. (B) Thoracic CT section of this patient showed free air in the mediastinal structure and subcutaneous tissue of the neck and right shoulder. (C) Thoracic CT section of this patient showed pneumomediastinum with mild bronchial wall thickening in both lungs. (D) Reconstruction chest CT scan of tracheobronchial tree in this patient not seen rupture area of the tracheobronchial tree. (E), (F) White light bronchoscopy with narrow-band imaging bronchoscopy saw a tiny shallow tracheal hole in a pre-carinal area without an air bubble, no demonstrable tracheal rupture, abnormal bronchial mucosal, and submucosal vascular patterns. (G), (H) White light bronchoscopy with narrow-band imaging saw a tiny shallow tracheal hole at the left upper lobe bronchus without an air bubble, no demonstrable tracheal rupture, abnormal bronchial mucosal, and submucosal vascular patterns.

AP01-60

Compliance of non-invasive ventilation among patients with myotonic dystrophy complicated with type 2 respiratory failure

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Background and Aim

Respiratory failure secondary to myotonia dystrophica (MD) causes significant morbidity. Non-invasive ventilation (NIV) improves the quality. There is no sufficient data regarding compliance of treatments and general acceptance is that the patients have poor compliance with NIV.

Methods

Retrospective descriptive study was conducted to analyse the compliance data of patients with MD with NIV. People who were supposed to use the NIV more than 6 months were analysed. Mask type, pressures, compliance with the treatment and reasons for poor compliance was analysed from clinical records.

Results

Seven patients were analysed who were supposed to be on NIV. Pressure supports varied from IPAP of 12 to 20 and EPAP of 4 to 9 in the cohort. Majority of the patients were using nasal masks (71%). Average usage of NIV is 6 hours and 52 minutes, and 5 patients were using their NIV machine >3 hours a day >95% of the time. Poor tolerance was given as the most frequent reason for non-compliance and all the patients believed NIV is beneficial.

Conclusion

Patients with MD and type 2 failure who are on NIV have a good compliance than anticipated. Average NIV usage was around 7 hours per day. Further studies with a large patient population is needed to further strengthen the data and to find out further non-compliance reasons. Long term follow up studies are recommended to aid in diagnosis of further non compliance data.

AP01-61

Comparing current treatment practice in patients with bronchiectasis in tertiary respiratory care setting with standard international guidelines - An audit

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Background and Aim

Bronchiectasis is a chronic respiratory disorder which is defined as permanent dilatation of proximal airways. Optimum treatment measures should be taken to prevent exacerbations, prevent recurrent infections and to delay disease progression.

Methods

An audit was conducted to understand the degree of adherence to the standard guidelines and to find out loopholes in the management. Education sessions were conducted to update on optimized treatment based on new guidelines and a tool in the form of questionnaire was introduced to complete when reviewing patients with bronchiectasis

Results

22 and 6 patients were diagnosed with COPD and asthma respectively. Two patients were diagnosed with rheumatoid arthritis and 22 patients were treated for Tuberculosis in the past. 22% of the population was detected to have 3 or more hospital admissions during previous year and this may be due to exacerbations or other cause. 45 patients were evaluated for an underlying cause. Majority had full blood count and TB screening and CXR in the initial period although other investigation use remained very low. Inappropriate steroid use was seen in the management of exacerbations.

Referral to the physiotherapy was at a very low standard and this has improved to 72% after intervention. Mucolytic use was very low among the population, and this remained low despite education sessions.

Conclusion

Most of the shortcomings were improved although using investigations such as connective tissue screening were limited due to acceptable reasons. Continuous follow up and supervision is highlighted in periodic audits to optimize the adherence to standard practice.

AP01-62

Outcome of telepharmacy service in asthma and COPD clinic in Thailand.

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Background and Aim

The outbreak of coronavirus disease 2019 (COVID-19) caused by novel coronavirus (SARS-CoV-2) affects the healthcare system in Thailand. Many asthma and COPD patients are unable to follow up at hospital. Telepharmacy service is the delivery of pharmaceutical care service to patients via telecommunication technology. The service is followed guidelines of The Pharmacy Council of Thailand, which includes medication review, medication therapy monitoring, patient counseling, and refill authorization for prescription medication. The purpose of this study was to determine the outcome of telepharmacy service providing to patients in asthma and COPD clinic.

Methods

The Quasi-experimental, single center study was conducted in patients who visited the asthma and COPD clinic at Srinagarind Hospital, Faculty of Medicine, Khon Kaen University, Thailand during January–December 2021. All the patients received home delivery of medications. Telepharmacy service was provided via TeleHealthRegion7 platform, which was the web/mobile application. The outcome evaluation of telepharmacy service was assessing the clinical asthma/COPD control and drug-related problems (DRPs) managed by pharmacists.

Results

Fifty-nine patients were eligible for the study with 118 times of telepharmacy service. The average age was 64±12.63 years and the average medication was 3.59±1.63 items. Fifty-eight patients (98.31%) were stable or improve asthma/COPD control after received telepharmacy service. There are all 57 DRPs which were solved by pharmacists for 51 DRPs (89.97%).

Conclusion

Telepharmacy service has the effects on asthma/COPD patients. Pharmacists can assess and manage patient's medication problems. This service should be required as a part of the healthcare system, especially in the pandemic situation.

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AP01-63

Association between circulating plasma exosomes and cytokine levels in obstructive sleep apnea

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Background and Aim

Obstructive sleep apnea (OSA) occurs is characterized by intermittent hypoxemia leading to systemic inflammation, and increased risk for cardiovascular diseases (CVD) and induced the endothelial dysfunction. This study aims to investigate the role of TNF- α expressions in patients with OSA.

Methods

Exosomes were purified from the plasma in 86 patients with 34 patients without CVD, 38 patients with CVD and 14 patients matched subjects with primary snoring (PS). Exosome were incubated in HUVEC to investigate the effect of exosomes from primary snoring (PS) subjects, OSA patients with and without CVD on TNF- α expression.

Results

Exosome particle number were increased in OSA patients with or without CVD versus PS subjects. OSA patients versus PS subjects, exosomes were incubated in HUVEC, the TNF- α and lactate dehydrogenase (LDH) were increased, however the cell viability was decreased. In HUVECs, TNF- α were increased in OSA patients with or without CVD versus PS subjects. OSA patients with CVD was increased TNF- α expressions in OSA without CVD. TNF- α release in exosome stimulation was a significantly positive correlation between snoring index and left atrial size, and a significantly negative correlation between minimum oxyhemoglobin saturation by pulse oximetry (SpO₂). Plasma-derived exosomes from OSA significantly decreased cell junction-related genes expression, and significantly increased endothelial monolayer permeability.

Conclusion

TNF- α release in exosome stimulation is associated with the development of CVD and disease severity in OSA patients, probably through destroyed cell barrier and enhance permeability.

AP01-64

High Flow Nasal Cannula in Hypoxemic Patients with COVID-19 in Philippine Heart Center: a cross-sectional study

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Background and Aim

COVID-19 is a systemic disease with high prevalence of hypoxic respiratory failure that may develop to ARDS and eventually multiorgan failure. The primary strategy for COVID-19 patients is supportive care, including oxygen therapy for hypoxemic patients, in which High Flow Nasal Cannula (HFNC) has been reported to be effective in improving oxygenation. Among patients with acute hypoxemic respiratory failure, HFNC was proven to avoid intubation compared to conventional oxygen devices. In this study, we analyzed the efficacy of HFNC in COVID-19 patients with hypoxic respiratory failure.

Methods

This is a cross sectional study among patients admitted and managed as COVID-19 Confirmed at Philippine Heart Center.

Results

A total of 211 patients were included into the study. Age, sex, smoking history and co morbidities were compared between success and failure groups. HFNC was successful in 128 (61%) patients while HFNC failure was associated in patients with diabetes mellitus (55.42%, p value = 0.003) and chronic kidney disease (38.55%, p value = <0.001).

Conclusion

High Flow Nasal Cannula (HFNC) can successfully be used to provide respiratory support to hypoxemic patients with COVID-19 and avoided mechanical ventilation in approximately 61% of patients, where HFNC showed improvement in oxygenation and patients were able to successfully tide over the acute respiratory event. Participants who were successfully weaned from HFNC were more likely to be younger, female and have no comorbidities. The presence of organ failure particularly diabetes mellitus and chronic kidney disease appeared to be a predictor associated with HFNC failure.

AP01-65

Diffuse Alveolar Hemorrhage After an Ovum Pick-Up Procedure Induced by Inhalational Sevoflurane - A case report

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Introduction

Diffuse alveolar hemorrhage (DAH) is a life-threatening syndrome which involves pulmonary microcirculation, causing hemoptysis and diffuse alveolar infiltration. DAH is mostly caused by systemic vasculitis and is rarely caused by drugs. Sevoflurane is a halogenated inhalational anesthetic widely used to induce and maintain general anesthesia. Like other halogenated anesthetics, exact mechanism of anesthesia by sevoflurane is unknown. To date, there are only 3 cases of DAH caused by sevoflurane. In this report, we report a first case of DAH caused by sevoflurane in Korea.

Case Presentation

A 40-year-old female visited emergency department with acute respiratory distress and hemoptysis after an ovum pick-up procedure using inhalational sevoflurane. The patient had no previous underlying disease and smoking history. This ovum pick-up procedure was her seventh; previous procedures were done only with propofol injection without sevoflurane and there was no event of acute respiratory distress or hemoptysis. Bronchoalveolar lavage result showed progressively more hemorrhagic BAL fluid with RBC count of 46000/ μ L. Infection and vasculitis were ruled out. The patient was treated with supportive care and intravenous methylprednisolone 1mg/kg for 5 days. Hypoxemia and hemoptysis resolved without recurrence.

Conclusion

To date, there are only 3 cases reporting DAH caused by inhaled sevoflurane and mechanism of how sevoflurane causes DAH is unknown. This case highlights sevoflurane must be considered as differential diagnosis for DAH after excluding other possibilities.

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AP01-66

Pulmonary rehabilitation in the time of pandemic: outcomes of online pulmonary rehabilitation in a tertiary institution.

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Background and Aim

The pulmonary rehabilitation program is a comprehensive program designed for patients with limitations in pulmonary function. Since the start of the pandemic, online platforms have made a significant impact on patient care. In March 2021, our institution started providing online pulmonary rehabilitation services.

This study aims to identify the outcome of patients who completed 16 sessions of online pulmonary rehabilitation in terms of mMRC score, CAT score, fatigue score by modified Borg scale, and SpO₂/Fio₂. The result of this study will help provide data on the benefits of online pulmonary rehabilitation.

Methods

An observational study including all patients who were enrolled and completed 16 sessions of online pulmonary rehabilitation in our institution from March 2021 to July 2022.

Results

In our institution, 75 patients enrolled and completed 16 sessions of online pulmonary rehabilitation from March 2021 to July 2022. Majority were enrolled due to long COVID-19 (n=63, 84%), followed by COPD (n=6,8%) and ILD (n=4,5%). The mean age was 62 years (range 29-83), and 40 (53%) were female. A decrease in mean difference in mMRC dyspnea score of 2.6, Fatigue score by modified Borg scale of 1, CAT score of 17, and increase in SpO₂/Fio₂ by 39 were observed among the patients.

Conclusion

Online pulmonary rehabilitation showed overall improvement in patients' pulmonary status, decreasing scores of mMRC, modified Borg scale, CAT, and increasing SpO₂/Fio₂. The online platform offers potential for the continuity of care for pulmonary patients. This study also opens research opportunities to explore proper assessment tools for long COVID.

AP02-67

M1 macrophages ameliorate pulmonary fibrosis and promote alveolar regeneration via paracrine actions

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Background and Aim

Idiopathic pulmonary fibrosis (IPF) is a chronic fibrosing lung disease that is caused by unknown causes. In previous studies, macrophages are known to play a key role in IPF pathogenesis and recovery mechanisms. Macrophages secrete a variety of biologically active substances. However, the exact role of macrophage subtypes that lead to fibrotic changes or regeneration is not fully known. In this study, we investigated the effects of M0, M1, and M2-derived secretions in IPF model and identified the mechanism by which secretions that are effective in the treatment of lung fibrosis.

Methods

Immortalized monocytes were polarized towards M0, M1 and M2. Bleomycin injured mice were injected on d7, d9 and d11 with macrophage-conditioned media (Mac-CM). Sacrificed was performed on d14. TGF- β 1-stimulated cell line were treated with Mac-CM for 48h.

Results

Fibrosis, alveolar epithelial cell (AEC) and proliferative markers were significantly increased in M1-CM treatment group compared with M0- and M2-CM treatment group. Importantly, M1 secretion suppressed epithelial-mesenchymal transition and increased proliferation of type II AECs and regeneration of type I AECs. Cytokine array revealed several candidates highly detected in M1-CM compared to M0- and M2-CM. These factors decreased fibrosis markers and improved the proliferation of type II AECs and regeneration of type I AECs.

Conclusion

Our findings suggest that M1 macrophage-derived secretion could be a promising therapeutic material for the treatment of IPF.

This research was supported by the Bio & Medical Technology Development Program of the National Research Foundation & funded by the Korean government, 2022M3A9E4016936.

AP02-68

Conventional and Electronic Cigarettes Aggravate Inflammation in Rats Induced High-Fat Diet

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Background and Aim

The existence of electronic cigarette as a substitute for conventional cigarettes because it is considered safer. Inflammatory mediators, such as TNF- α & IL-1, are well known for developing chronic obstructive pulmonary disease (COPD). This study aims to determine the effect of electronic and conventional cigarettes on IL-1 and TNF- α expression in high-fat diet (HFD)-induced rats.

Methods

Rats were divided into four groups for 6 weeks of treatment, including the Normal group (n=7), the HFD-induced [HI] group (n=6), and the group exposed to conventional cigarette [CC] (n=8) or electronic cigarette [EC] (n=7) that was previously induced by HFD. Exposure to conventional and electronic cigarettes was conditioned on the same nicotine levels using the exposure instrument adjusted to humans. In the end, inflammatory mediators, including IL-1 and TNF- α were assessed. Statistical analysis using One-way ANOVA followed post hoc was performed.

Results

Expression of IL-1 and TNF- α was significantly increased in EC and CC groups compared to Normal and HI groups, whereas those mediators were significantly higher in CC than EC groups. (Figure 1)

Conclusion

Both electronic and conventional cigarettes showed harmful effects inducing higher expression of the inflammatory mediators in rats previously induced by HFD. However, slightly less high in electronic cigarettes.

Acknowledgement

This study was not supported by tobacco company

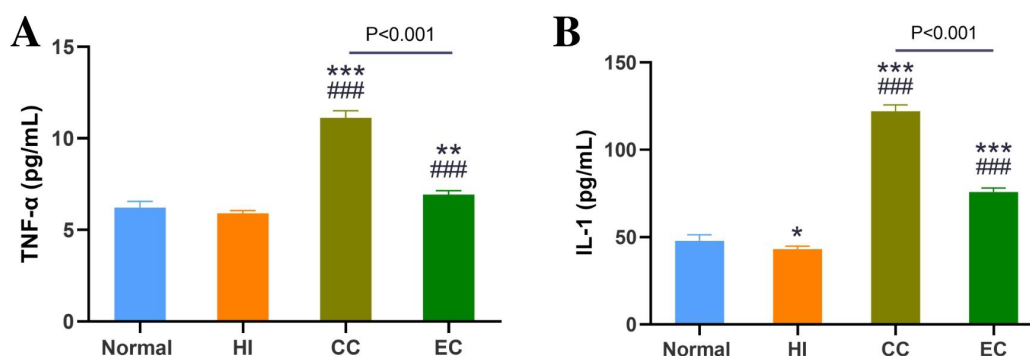


Figure 1. Effect of Electronic and Conventional Cigarettes on Inflammatory Mediators Expression (a) TNF- α and (b) IL-1.

AP02-69

Profibrotic role of high mobility group box1 in tuberculous pleural effusion

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Background

Tuberculous pleural effusion (TBPE) complicated with fibrosis may cause irreversible thoracic dysfunction. High mobility group box 1 (HMGB1) activates diverse growth factors, modulate matrix metalloproteinases (MMPs) synthesis, represses fibrinolytic activity and plays a vital role in various inflammatory and fibrotic disorders. However, the clinical relevance and profibrotic role of HMGB1 in TBPE remains unclear.

Methods

Pleural fluid levels of HMGB1 and MMP-1 in patients with TBPE (n=36) or heart failure (n=14) were measured. Radiological scores for residual pleural thickening (RPT) and fibrosis at 6-month follow-up were assessed. In human pleural mesothelial cells (PMCs), the M. tuberculosis H37Ra (MTBRa)-stimulated HMGB1 expression, and the effect of HMGB1 on MMP-1, α -smooth muscle actin (α -SMA) and collagen production were assayed.

Results

HMGB1 and MMP-1 were mutually positively correlated and significantly higher in TBPE than in transudative effusions. Moreover, both are distinctly elevated in TBPE with RPT \geq 10mm (n = 12) as compared with those without (n = 24), and positively associated with residual pleural fibrosis area. In vitro, MTBRa significantly upregulated HMGB1 expression via JNK/AP-1 signalling, and HMGB1 markedly induced the synthesis of MMP-1, collagen and α -SMA in PMCs.

Conclusion

HMGB1 is generated via JNK/AP-1 pathway upon MTBRa stimulation and elicits MMP-1, mesenchymal transformation and collagen production in PMCs, and positively correlates with TB pleural fibrosis, which may indicate the essential profibrotic role and the potential therapeutic targeting of HMGB1 in TBPE.

Acknowledgements

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AP02-70

Enhanced fatty-acid oxidation slows the contribution of AT2 stem cells in the lung repair process after a fibrosis-inducing injury

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Background and Aim

Mechanism of lung fibrosis involves a combination of factors. High-fat diet (HFD) was shown to induce lung inflammation, aberrant activation of stem cells, and lung mitochondria impairment. However, the effect of HFD on lung fibrosis is not yet identified.

Methods

Groups of mice were fed standard diet (SD) or HFD. Then they were given a fibrosis-inducing lung injury with bleomycin, then examined for fibrosis severity, repair, and resolution at 3, 6, and 9-weeks after injury.

Results

At 3-weeks, no significant differences in inflammation and fibrosis severity were observed between SD- and HFD-fed mice. However, infiltration of alveolar type (AT)-2 cells (the starting repair) was impaired in HFD-fed mice.

At 6-weeks, SD-fed mice showed near-complete resolution/repair of fibrosis and inflammation, while HFD-fed mice still showed residual fibrosis and inflammation. Infiltration of the fibrotic areas with AT2 cells was observed.

At 9-weeks, both groups showed complete resolution/repair of fibrosis and inflammation, indicating that HFD induced a delayed resolution of fibrosis and alveolar repair.

To further confirm the direct role of enhanced fatty-acid oxidation (FAO) in delayed resolution/repair, we administered etomoxir, a FAO inhibitor, to HFD-fed mice for 3–6 weeks after bleomycin. Inhibition of FAO abolished the HFD-induced delay in alveolar repair and fibrosis resolution at both time points.

Conclusion

HFD slows resolution of fibrosis/inflammation and delays alveolar repair by slowing AT2 stem cells' contribution in the repair process. FAO activation appears to be involved in this delay mechanism; thus, inhibiting FAO may be useful in the treatment of lung fibrosis.

AP02-71

In silico modification of TRPM8 ligand menthol

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Background and Aim

TRPM8 receptor protein represent a target for drugs for the treatment of bronchial hyperreactivity to cold. To detect low molecular weight ligands with a high affinity for particular protein in silico methods are used. However, these methods cannot discriminate whether the ligand is agonist or antagonist of the target protein. To solve the problem we use virtual modification of the TRPM8 classical agonist menthol.

Materials and methods

Menthol structure was modified by the PyMol computer simulation program. The meta-hydroxyl of menthol molecule was removed and two new ortho-hydroxyls were added. Galaxy7TM virtual molecular laboratory program was used to identify the features of the docking of menthol and its modified derivative to the TRPM8 molecular pocket, which allows to use flexible intermolecular docking methods to determine which amino acid residues of the ligand interacts with target protein.

Results

Both menthol and its modified derivative form stable complexes with TRPM8. However, the hydroxy groups of the natural and modified ligands interact with different amino acid residues. The modified ligand does not bind to the tyrosine 745, the key amino acid of the TRPM8 active site, and therefore should exhibit antagonist properties.

Conclusion

Using in silico methods it was possible to modify the structure of menthol and obtain the ligand, which binds to TRPM8 differently from menthol than natural exhibit antagonist properties. The proposed strategy is universal and will accelerate the search for ligands to various proteins and facilitate the accelerated search for potential drugs by in silico methods.

AP02-72

Myeloperoxidase activity and the percentage of neutrophils in the airways of patients with asthma depending on the airway responsiveness to physical stimuli

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Background and Aim

Inflammatory damage to the bronchi in asthma is associated with the production of reactive oxygen and halogen species by granulocytes. We aimed to assess the myeloperoxidase (MPO) activity and the level of bronchial neutrophils in patients with asthma, depending on the airway responsiveness to cold, osmotic stimuli and dosed physical loading.

Methods

The study included 142 patients with mild to moderate uncontrolled asthma. The airway response to a cold stimulus was detected by 3-minute isocapnic hyperventilation with cold (-20°C) air (IHCA); response to a hypoosmolar and hyperosmolar stimuli - by 3-minute ultrasonic inhalation of distilled water (IDW) or hypertonic saline (IHS), respectively. The response to 6-minute dosed physical loading (DPL) was studied on the treadmill. After bronchoprovocation, collection and cytological examination of induced sputum were performed. The cytochemical coefficient of MPO in neutrophils was calculated from its optical density (in pixels).

Results

Patients were divided into four groups: 1st - with a positive reaction to IHCA, 2nd - to DPL, 3rd - with a combined reaction to IHCA and IDW, 4th - to IHCA and IHS. The number of neutrophils in induced sputum was: 40.6±2.2% in 1st group, 37.1±4.7% in 2nd group, 32.3±3.1% in 3rd group ($p<0.001$).

Conclusion

The combination AHR to cold air and other physical stimuli in patients with asthma is associated with increased MPO activity and an increase in the percentage of bronchial neutrophils in induced sputum.

AP02-73

PINK1 Preserves Pulmonary Endothelial Barrier Integrity in Human Pulmonary Microvascular Endothelial Cells

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Background and Aim

Disruption of the pulmonary microvascular integrity and resulting permeability edema is essential pathophysiology of acute respiratory distress syndrome (ARDS). The exact mechanism of the pulmonary vascular integrity regulation is unclear. PTEN-induced kinase 1 (PINK1) initiates mitophagy and mitochondrial damage repair. We hypothesized that PINK1 has a crucial role in restoring vascular integrity.

Methods

We cultured human lung microvascular endothelial cells. siRNA and overexpression plasmid were used to control PINK1 expression. LPS 200 ng/ml stimulated HLMVEC for 6 hours to induce barrier disruption. Western blots tested ICAM-1/VCAM-1 and inflammatory markers. XperT visualization was performed using HLMVEC mono-layer and FITC-avidin.

Results

LPS stimulation of the human lung microvascular endothelial cells (HLMVEC) showed that LPS increased PINK1 expression and ICAM-1/VCAM-1, and MyD88 expression and si-PINK1 transfection decreased PINK1 and increased ICAM-1/VCAM-1, and MyD88 expression. In contrast, PINK-1 overexpression alleviated ICAM-1/VCAM-1 expression compared with the control plasmid. We also performed the XperT visualization tests with FITC-avidin. si-PINK1 aggravated LPS-induced FITC-avidin leakage, and PINK1 overexpression lessened it.

Conclusion

PINK1 protects against LPS-induced barrier disruption in HLMVEC, and the mitochondria have a role in restoring vascular permeability.

AP02-74

Single cell transcriptomics in blood of patients with COPD

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Background

Chronic obstructive pulmonary disease (COPD) is one of the leading cause of morbidity and mortality worldwide. Single-cell RNA sequencing (scRNA-seq) provides the gene expression profile at the single-cell level. Hence, this study evaluated the gene expression in peripheral blood of patients with COPD.

Methods

Peripheral blood samples of 7 normal control group and 8 COPD patients were enrolled in this study. Through utilized the 10X Genomics Chromium Instrument and cDNA synthesis kit to generate a barcoded cDNA library for single cell RNA-sequencing. We compared scRNA-seq data between the COPD and controls, using the computational analysis of scRNA-seq data. And we performed the functional analysis using Gene ontology (GO) and Kyoto Encyclopedia of Genes and Genomes (KEGG) pathway analyses.

Results

We used single-cell RNA sequencing (scRNA-seq) to analyze the transcriptome of peripheral blood mononuclear cells (PBMCs) from 7 normal control group and 8 COPD patients. We found increased monocyte-macrophages on COPD groups compared to normal control groups. Among the differentially expressed genes (DEGs) in monocyte-macrophages, we found 5 upregulated genes (HLA-DRB5, ITGB2, EGR1, CXCL8, CCL4 gene) and 7 downregulated genes (FOLR3, RPS4Yq, CD52, LY6E, HLA-DQB1, G0S2, CCL3L1 gene) in COPD groups compared to normal control groups.

Conclusion

Using scRNA-seq, we found difference in cell type distribution, especially, increased monocyte-macrophages. Several upregulated genes and downregulated genes were found in monocyte-macrophages of COPD groups.

AP02-75

Comparison of the phenotype of united airway disease between fungus-induced severe allergic lung inflammation and respiratory SARS-CoV-2 infection in mice

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Background and Aim

Although arbitrarily categorized and treated independently, upper and lower airways share similar cellular profiles and pathobiological behaviors, proposing the concept of united airway disease (UAD). However, upper and lower airways also exhibit substantially different behaviors under the same pathobiological conditions, partly due to differences in the anatomical locations and structural components. While these behavioral differences are likely to be more pronounced in specific disease contexts, not enough information exists on the different phenotypic features of UAD under various pathological conditions.

Methods

We performed transcriptome analysis in both upper and lower airways of mice, in response to the respiratory SARS-CoV-2 (SCV2) infection or *Aspergillus fumigatus* (Af)-induced severe asthma.

Results

Respiratory Af challenge induced substantially different gene expression profiles between upper and lower airways, while the effects of the respiratory SCV2 infection were similar in both airways. In Af-challenged mice, inflammatory cytokine signaling pathways such as IL-4, IL-10, IL-13, and IL-18 were significantly up-regulated in the lungs, while down-regulated in upper airway samples. Conversely, SCV2 infection resulted in significant up-regulation in inflammatory cytokine signaling pathways for both lung and nose samples.

Conclusion

Based on these data, severe allergic airway inflammation may induce substantially different immune/inflammatory outcomes in upper and lower airways respectively, making allergic UAD more difficult to be controlled by a single therapeutic strategy. However, phenotype of UAD seems to be more homogenous throughout airways under respiratory SCV2 infection, and thus expected to show more favorable response against therapeutic agent for a common druggable target in both airways.

AP02-76

Patient-derived lung organoid on a chip platform as a new alternative method for pulmonary disease modeling and drug discovery

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Background and Aim

With the advent of new respiratory diseases that cause lung tissue destruction, preclinical models for translational research of disease modeling and new drug discovery are being tried. We aimed to create a 3D chip platform in which lung organoids and endothelial cells were seeded in microfluidic channels and co-cultured to generate a microenvironment similar to the natural alveolus-blood barrier environment.

Methods

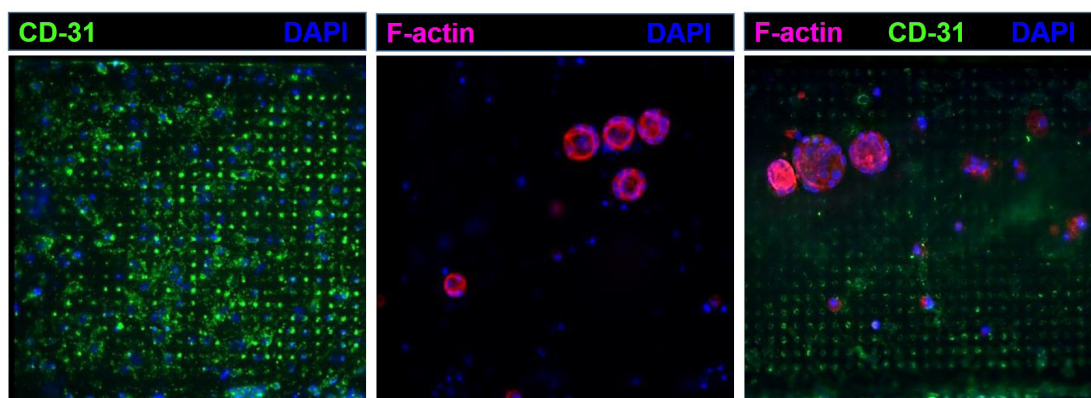
We obtained normal lung tissues from patients who underwent lobectomy to treat lung cancer. To establish normal organoids, including alveolar type 2(AT2) cells, we used a lung organoid medium with Wnt signaling factor. We confirmed AT2 cell markers (HTII-280, pro-SFTPC) and ACE2 expression by immunofluorescence staining and flow cytometry analysis. Patient-derived organoids were seeded in commercially available microfluidic chips followed by the addition of human umbilical vein endothelial cells (HUVECs). Seven days after co-culture, cells were fixed, immunostained, and analyzed to test the feasibility of a new alternative method.

Results

We isolated lung organoids from patient-derived lung tissue and confirmed the expression of AT2 markers and ACE2. Following expansion, we cultured organoid cells in the open top chamber, and combined the endothelial cells co-cultured in the microfluidic channel, which were maintained for 7 days. It was confirmed that the expression of F-actin, which plays a central role in maintaining the endothelial barrier function, and CD-31 in angiogenesis.

Conclusion

We developed a patient-derived lung organoid-on-a-chip platform. This could be used for translational research of disease modeling and new drug discovery for various respiratory diseases.



AP03-77

BioNTech (BNT) vaccine induced immune neuropathy

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Introduction

A coronavirus disease is a life threatening respiratory disease. Therefore effective vaccine against coronavirus is crucial. However, some people experience adverse immunological responses to vaccines.

Case report

A 25-year-old man presented with complaints of numbness, tingling, burning and shooting pain in both hands and the feet. His complaints started after the BNT vaccine which he had had a week ago. On the neurological examination a distal sensory loss in both hands and feet was found. Electromyography(EMG) of four extremities was compatible with sensory motor neuropathy. His cerebrospinal fluid(CSF) revealed elevated protein. Other CSF components were in normal limits. With the diagnosis of vaccine induced acute immune axonal neuropathy, the patient was treated with intravenous immunoglobulin(IVIG). Four days after the IVIG treatment the patients' complaints disappeared. Three weeks later he came to the follow-up examination. On EMG examination his motor and sensory conduction values were partially improved. The second patient admitted with similar complaints which occurred five days after the BNT vaccine. He was 35 years old and his medical records were unremarkable. The neurological and EMG examinations of the extremities were compatible with sensory motor neuropathy. His CSF also revealed elevated protein. Other tests were in normal limits. With the diagnosis of vaccine induced immune neuropathy, the patient was treated with IVIG for five days. The patient's pain was relieved. On the follow-up EMG examination his sensory conduction values were improved gradually.

Discussion

We presented these patients because the peripheral neuropathy after the BNT vaccine is a rare.

AP03-78

Anti Tuberculous Drugs, A double edged sword

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Introduction

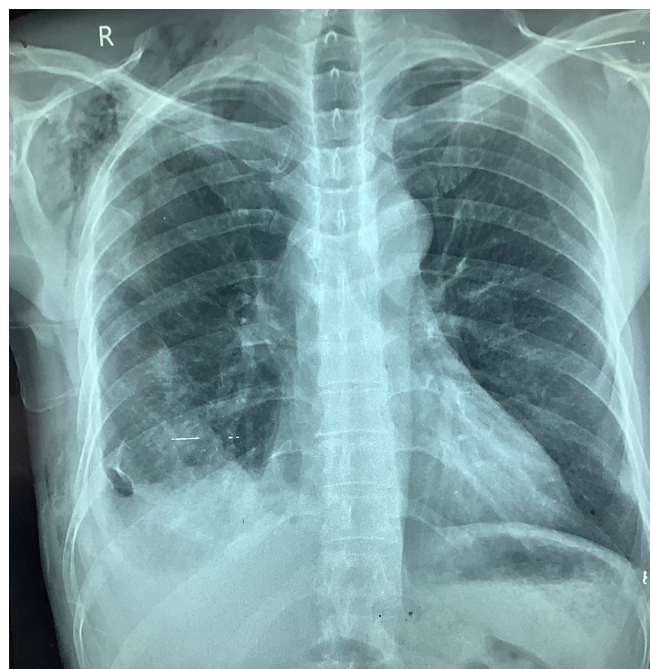
Multiple drug hypersensitivity (MDH) develops due to massive T-cell stimulations and is characterized by long-lasting drug hypersensitivity reactions to different drugs. Initially severe exanthems or drug rash with eosinophilia and systemic symptoms (DRESS) may develop.

Case report

A 47 year-old male who was started on ATT with Isoniazid, Rifampycin, Ethambutol, Pyrazinamide for left sided pleural effusion, presented with high grade fever, vomiting and generalised, itchy rash for one week. It was erythematous macular rash involving limbs and trunk, sparing mucosal surfaces. He had eosinophilia of 3470 / μ l, elevated liver enzymes, normal chest xray and diagnosed as DRESS. ATT withheld and he was started on steroids. Even after stopping ATT he had high fever, persistent eosinophilia, high Erythrocyte sediment rate, weight loss and new onset right flaccid foot drop. Following extensive investigations with bone marrow biopsy and Anti Neutrophil cytoplasmic antibodies, sural nerve biopsy re-introduction of individual first line TB drugs was failed due to worsening of eosinophilia and re-appearance of left sided pleural effusion which improved with oral steroids. After 4 months of failed re-introduction, appearance of right side pleural effusion was evaluated with pleural biopsy of which tuberculous culture became positive. He got anaphylaxis to Streptomycin and allergic reaction to Ethambutol. Treatment continued with Linazolid, Levofloxacin, Pyrazinamide and Clofazimine for six months.

Conclusion

Pleural effusion and neuropathy are rare manifestations of DRESS. And symptoms persisted even after stopping ATT leading us to consider Eosinophilic granulomatosis and polyangiitis as a differential diagnosis. This patient had DRESS as a part of MDH.



AP03-79

Effect of supplement vitamin C on IL-6 (interleukin 6) and IL-10 (interleukin 10) level health care worker in dr. soetomo academic hospital in COVID-19 pandemic

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Background and Aim

The coronavirus disease 2019 (COVID-19) outbreak, caused by SARS-CoV-2, has rapidly expanded to a global pandemic. However, numbers of infected cases, deaths, and mortality rates related to COVID-19 vary from country to country. The burden to fight with COVID-19 pandemic has lied to frontline health care workers that are putting themselves at a higher risk in the battle against the disease. This study aimed to assess effect supplement vitamin C on IL-6 and IL-10 level health care worker in dr. soetomo academic hospital in COVID-19 pandemic.

Methods

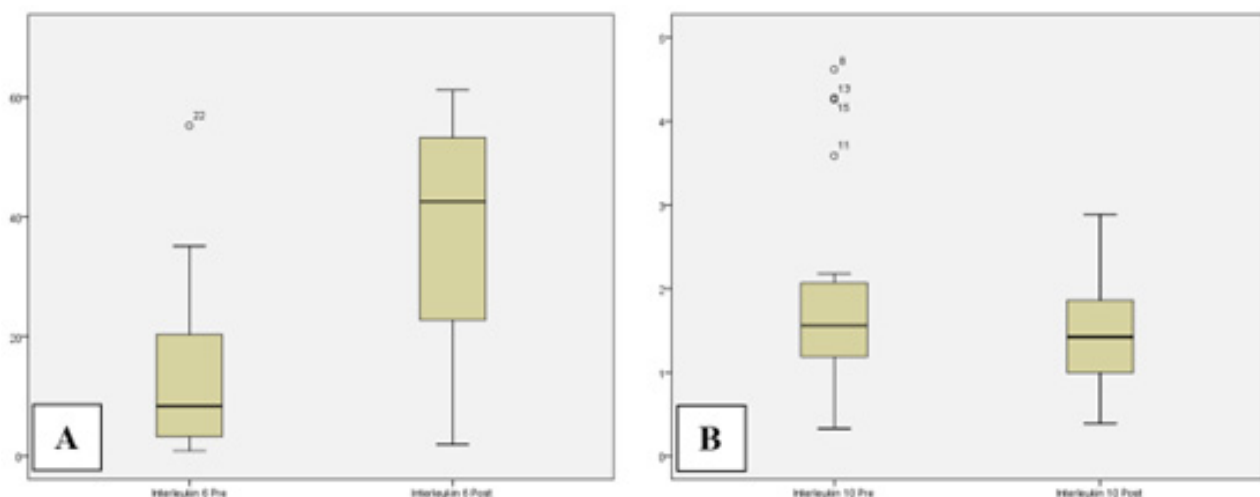
This is a pre-experimental study with one group pre-post-test design in health care worker in dr. Soetomo general hospital from July to August 2020. From 35 subjects only 34 eligible for this study. Test for IL-6 and IL-10 serum perform before and after subject consumed supplement vitamin C for 30 days.

Results

There are significant differences before and after consumed supplement vitamin C for 30 days in IL-6 ($p < 0,001$) and there are no significant differences before and after consumed supplement vitamin C for 30 days in IL-10 ($p = 0,073$). After consumed supplement vitamin C there are increasing of IL-6 in 30 subjects and decreasing of IL-10 in 21 subjects with low incidence of common colds (Figure 1).

Conclusion

Supplement vitamin C have effect on immune system especially on IL-6 and IL-10.



AP03-80

The impact of one-year treatment with dupilumab in patients with severe asthma

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Background and Aim

It is well known that dupilumab inhibits the exacerbation of asthma by blocking IL4/13 signaling. A variety of subsets of the lymphoid cell, including helper T (Th) cell and innate lymphoid cell (ILC), are involved in asthma. We investigated to evaluate the dynamics of various parameters including peripheral blood lymphoid cell subsets before and after administration with dupilumab.

Methods

Twenty-four patients with severe asthma were treated with dupilumab in our hospital from Apr 2019. Eighteen patients were eligible for the one-year efficacy analyses. We evaluated asthma control test (ACT) scores, pulmonary function tests, blood tests, and so on.

Results

One-year Dupilumab treatment significantly improved ACT scores, the number of unscheduled visits and asthma exacerbations, and airflow limitation. Dupilumab also significantly decreased FeNO, serum total IgE, and TARC levels, and increased peripheral blood eosinophil and basophil counts. Peripheral blood flow cytometry showed increases in the frequency of ILC3 ($p=0.0009$) and decreases in the frequency of ILC1 ($p=0.0007$) after 1 year.

Conclusion

One-year treatment with dupilumab improved asthma symptoms and airflow limitation. Further studies are needed to investigate a predictive biomarker for predicting therapeutic effectiveness, which will be added and presented.

AP03-81

The role of IL-1 β and IL-10 as a predictive factors for COVID-19 severity

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Background and Aim

COVID-19 has become a worldwide pandemic. The occurrence of ARDS in COVID-19 patients results from an exaggerated immune response commonly known as a cytokine storm. Elevated levels of pro-inflammatory and anti-inflammatory cytokines in cytokine storm characterized by two cytokines namely IL-1 β and IL-10 in COVID-19 have been reported in several clinical studies, but none has yet explained the relationship between the two. Researchers are interested in examining the relationship between IL-1 β and IL-10 ratio and the potential role of IL-1 β and IL-10 in COVID-19 severity which is carried out periodically.

Methods

This research is an observational analytic study with a time-series design. The population in this study were all patients with COVID-19 at RSUD Dr. Soetomo Surabaya from May 2020 to October 2020 that meet the inclusion and exclusion criteria. Severity was divided into severe and non-severe groups.

Results

The IL-1 β value in the severe group was higher than in the non-severe group on days 0, 3, and 6. The IL-10 value in the severe group was higher than in the non-severe group on days 0, 3, and 6. The IL ratio value -1 β and IL-10 in the severe group decreased on days 3 and 6 compared to day 0.

Conclusion

There was a change in the values of IL-1 β and IL-10 on days 0, 3, and 6 in each of the severity of COVID-19 patients, but there was no relationship between the ratio of IL-1 β and IL-10 with severity.

IL-1 β	Non-severe				Severe			Non-severe dan Severe	
	Min	Max	Median	*P-value	Min	Max	Median	**P-value	***P-value
D 0	1,23	8,17	2,92	0,035	1,87	96,92	2,94	0,088	0,513
D 3	0,98	214,19	1,72		0,90	121,63	2,10		0,646
D 6	1,53	47,02	2,05		0,61	18,01	3,31		0,113

IL-10	Non-severe				Severe			Severe dan Non-severe	
	Min	Max	Median	*P-value	Min	Max	Median	**P-value	***P-value
D 0	0,17	27,45	0,90	0,047	0,12	6,85	1,30	<0,001	0,417
D 3	0,99	18,98	1,88		1,24	20,29	2,30		0,255
D 6	1,36	6,51	2,02		1,29	58,87	2,39		0,065

IL-1 β /IL-10	Non-severe				Severe			Severe dan Non-severe	
	Min	Max	Median	*P-value	Min	Max	Median	**P-value	***P-value
D 0	0,08	20,54	3,12	0,086	0,31	73,51	3,07	0,002	0,751
D 3	0,08	64,58	1,18		0,13	60,82	1,10		0,865
D 6	0,36	19,05	1,05		0,03	8,86	1,18		0,891

AP03-82

NLRP3 inflammasome is critically implicated in SARS-CoV-2-induced aggravation of severe asthma in mice

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Background

Conflicting data exists concerning the relationship between asthma and COVID-19. The outcome of COVID-19 may depend on asthma subtype and severity; however, limited information exists on the outcomes of superimposed SARS-CoV-2 (CoV2) infection in asthma.

Methods

We investigated the effects of respiratory CoV2 infection on severe asthma using a novel mouse model of COVID-19 in *Aspergillus fumigatus* (Af)-induced severe allergic lung inflammation. We performed transcriptome analysis and compared it with those from public COVID-19 datasets.

Results

Greater inflammatory cell infiltration was noted in the lungs after CoV2 infection in Af-challenged mice. Significant increases of cytokines involved in the pathogenesis of fungal asthma and/or COVID-19 were noted after CoV2 infection in the lungs of Af-challenged mice. In the COVID-19 datasets, NLRP3 inflammasome-related genes had significantly greater expression levels in the nasopharyngeal specimens. Similarly, single-cell RNA sequencing dataset obtained from four COVID-19 patients revealed NLRP3 inflammasome activation in macrophages and dendritic cells that infiltrate airways during early disease. Finally, transcriptome analyses of lung tissues of mice showed that CoV2 infection in mice having severe fungal asthma led to further upregulation of genes involved in NLRP3 inflammasome, COVID-19 inflammation, and eosinophilic allergic lung inflammation, suggesting that CoV2-induced lung inflammation occurred in severe fungal asthma is associated with worsening of eosinophilic asthma as well as COVID-19. Blockade of IL-1 β remarkably reduced the CoV2-induced pulmonary increases of various inflammatory cells in Af-challenged mice.

Conclusion

These data suggest that NLRP3 inflammasome-derived IL-1 β is critically implicated in CoV2-induced aggravation of severe fungal allergic inflammation and COVID-19.

AP03-83

Aero allergen sensitivity pattern in patients with Allergic Rhinitis and Asthma in Southern India

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Background

Allergic Rhinitis and Asthma are common conditions throughout the world and prevalence has increased tremendously due to increase in indoor and outdoor pollution. Skin Prick is easiest simplest and instant tool in identifying the offending allergen

Methods

1600 patients with features of Allergic Rhinitis and Bronchial asthma subjected to Skin prick test with Kit containing various Airborne and food born allergens after getting proper consent. Oral antihistamines and steroids were stopped 3 days prior to the procedure. 990 patients were males and 610 were females. Among total patients 41% had a strong family history of Atopy,

Results

Out of 1600 patients 1264 {79%} showed positive reaction for atleast one or more allergens..1120 {71%} patients showed positive reaction for House Dust Mites .352 {22%} patients showed positive reaction for Citrus mix { lemon orange and grapes mix }. Cockroach were positive in 176 patients [11%] and Mosquitos were positive in 144 patients {9%}.

Conclusion

Most common ALLERGEN responsible for Allergic Rhinitis and Bronchial Asthma in southern part of India were HOUSE DUST MITES{ D. Farinae and D. Pteronyssinus}

AP03-84

Lungs and kidneys tying the knot in the era of covid pandemic

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Introduction

Pulmonary – renal syndrome is characterized by co-occurrence of diffuse alveolar hemorrhages and glomerulonephritis. In tropical countries infections like Leptospirosis and Hantavirus are more common etiologies for reno-pulmonary syndrome than vasculitis.

Case report

A 63-year old male patient presented with hemoptysis and progressive shortness of breath and fever for two weeks. He complained of new onset right sided lower limb weakness over one week duration. These symptoms started after one week of having second covid vaccination. He denied chronic cough, cutaneous rash, inflammatory type joint pain and hematuria.

On examination he was dyspneic and peripheral oxygen saturation was 92%. There was fine end inspiratory crepitations in the bi lateral lower zones. His right lower limb flaccid foot drop. He had high inflammatory markers, elevated serum creatinine and p- Anti Neutrophil Cytoplasmic antibodies became positive, Renal biopsy showed evidence of small vessel vasculitis with Complement C3 deposition. His Computed Tomography of the chest showed evidence of diffuse pulmonary hemorrhage. The patient was diagnosed with microscopic polyangiitis and started induction and maintenance of immunosuppression with Rituximab which gave resolution of pulmonary hemorrhages and improvement of renal functions.

Conclusion

There are several published case reports demonstrating the association of ANCA associated vasculitis and BioNtech, Pfizer vaccine, association with Sinopharm vaccine is rarely demonstrated. (1) And there is a case report of Sinopharm vaccine and leukocytoclastic vasculitis and glomerulonephritis. (2) Covid vaccination could be an innocent bystander in our patient or it may have augmented the already happening autoimmune process.

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AP03-85

Qualitative serologic antibody response using lateral flow immunoassay (Rapid IgG/IgM Diagnostic Test) in the different illness severity of COVID-19 Pneumonia

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Introduction

Serological responses in COVID-19 vary according to different disease severity at different time intervals. This study was conducted to determine the qualitative serologic antibody response (IgG/IgM) using lateral flow immunoassay (LFIA) in the different illness severity classification in COVID-19 pneumonia.

Methods

This was a prospective cohort study which included 85 admitted adult patients with COVID-19 pneumonia from March to July 2021. Blood samples were drawn from the subject for serological analysis using qualitative LFIA at weekly intervals from the onset of illness.

Results

The average sensitivity for qualitative serologic antibody test using LFIA for IgG was 47.19% and 10.24% for IgM. There was an increased in the seroprevalence from 75% to 94.12% in SARS-CoV-2 Ig using LFIA while a decrease in IgM seroprevalence from 17.86% to 4.49% from first to four weeks. SARS-CoV-2 IgG at first week was lower compared to the second week of illness sustaining its seropositivity from the second to the fourth week of illness (75% vs 92% vs 94.12% vs 93.75%, $p < 0.001$, respectively). The antibody response for SARS-CoV-2 IgM is decreasing from the first week to the fourth week from the onset of illness regardless of the disease severity (17.86% vs 14.67%, 8.82%, 4.69%, $p < 0.001$, respectively). No significant difference was noted in the seropositivity of IgG and IgM when grouped according to severity of illness.

Conclusions

Qualitative Serologic antibody response of SARS-CoV-2 IgG and IgM in COVID-19 using LFIA vary according to the time the serum was taken but temporal kinetics were similar, independent of the disease severity.

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AP03-86

CD2 shown to facilitate CD4+ cell differentiation in Visceral Leishmaniasis patients, a receptor based study

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Background and Aim

The inability of the VL patients to produce cytokines such as IFN-g, particularly from CD4+ cells is not only an immunological concern but also poses a major therapeutical obstacle as pentavalent antimonials and other antileishmanial drugs are also shown to require its presence to clear the infection. Recently we reported that most of the CD4+ cell functions progressed also under the influence of CD2 which when increased on CD4+ cells led these cells to proliferate and transduce efficient signaling necessary for the production of this cytokine in human VL patients (Bimal et al 2007).

Methods

To gain further insight on how CD2 deficiency can have an impact on functional maturation of CD4+ cells we examined the relation of CD2 on T cells with CD70 in the human subjects suffering from Visceral leishmaniasis and healthy controls which is an activation marker on T cells and TCRValpha-11, which appears prior to the differentiation of DP T cells into single positive cells.

Results

The results showed with the downregulation of CD2 expression there is a pronounced decrease of CD70 on CD4+ in human subjects and also TCRValpha11 on CD4+ cells in mice.

Conclusion

Hence it can be interpreted that probably CD2 plays an important role during maturation steps of CD4+ T cell differentiation during VL infection.

No conflict of interest

AP04-87

Lady with the Black lung; A case of Anthracosis associated with Pulmonary Tuberculosis

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Introduction

Anthracosis of the lung is blackish decolorization of bronchial mucosa due to deposition of the carbon in the lungs of various etiologies. When it's associated with endobronchial and parenchymal fibrosis, that leads to occlusion of bronchial lumen, called as bronchial anthracofibrosis (BAF).

Case report

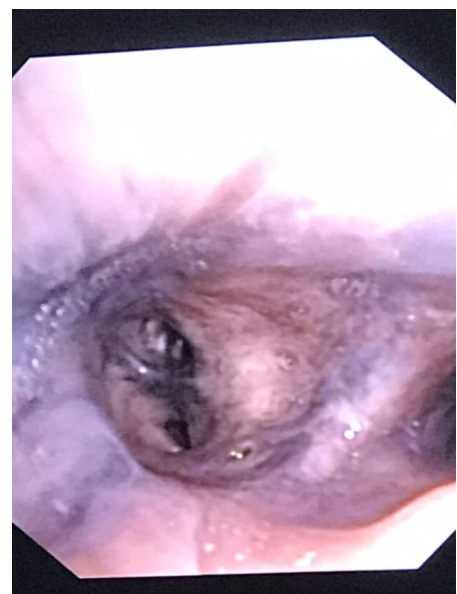
A 62-year-old lady presented with exertional shortness of breath associated with a dry cough for 6 months duration. She was having a limitation of her exercise capacity (MMRC 3). There was no associated fever, weight loss or constitutional symptoms and no history of ischemic heart disease, orthopnea, or leg swelling. There was no exposure to tobacco smoking, but she had a history of Silica dust exposure in the past for about 2 years. There was no history suggestive of connective tissue disorders or pneumotoxic drugs exposure. There was no history or contact history of tuberculosis.

She was dyspneic, and plethoric. On respiratory system examination there was bilateral rhonchi and crepitations in all three zones. Her initial evaluation was indicative of obstructive pattern of pulmonary function test, with a CECT suggestive of progressive massive fibrosis (PMF) probably due to silica dust exposure. Her biochemical profile was normal and the initial evaluation for TB was negative. Bronchoscopy showed a blackish discoloration of the mucosa, and the bronchial fluid was lymphocytic with positive Gene X-pert for MTB. Trucut biopsy histology was negative for associated malignancies. She was started on standard anti Tuberculosis Treatment (ATT).

Discussion

The exact reason for anthracosis and the etiological factors have not yet properly understood but exposure to dust particles like carbon and silica, biomass smoke, bronchogenic carcinoma and tuberculosis are the proposed etiological factors.

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AP04-88

Soil-Water Aspiration Pneumonia on Tin Miner: A Case Report

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Background

Bangka Belitung is one of the largest tin producers in the world. Some tin miners use conventional methods. This conventional method has a high risk of work accidents, one of which is getting hit by landslides. Aspiration pneumonia is an acute lung infection after aspiration of oropharyngeal or upper gastrointestinal fluid or external substance. This study describes a case of soil-water aspiration on a 25-year-old tin miner.

Case Report

A twenty-five-year-old man was brought to the hospital's emergency department due to shortness of breath after getting hit by landslides during his work for 15 minutes before being admitted to the hospital. On physical examination, the patient appeared moderately ill, GCS was 8, respiratory rate was increased and there were rhonchi in both lungs. Anteroposterior views of chest radiographs found pneumonia and supported by leukocytes of 27,200/mm³. Blood gas analysis showed respiratory acidosis with PaO₂/FiO₂ was 106.1. The patient met the criteria for moderate ARDS. The patient was intubated then underwent bronchoscopy, bronchial toilet was performed and antibiotics were administered. The patient recovered 24 hours after bronchoscopy, and a repeat chest X-ray showed improvement.

Discussion

Soil contains a lot of decaying organic matter and contains various microorganisms. Inoculation of organisms will result in an infection. ARDS and acidosis can complicate the patient's condition because of impaired ventilation due to aspiration of materials and the infection. The use of immediate oxygen and bronchoscopy (

Results

The respiratory symptoms that were asked from respondents include presence or absence of cough, phlegm, breathlessness, wheeziness, and sensation of chest colds and illnesses. Almost all except for one (1) respondent answered the questionnaire properly. Out of the 151 respondents, 119 (78.81%) had presence of one or more of the above-mentioned respiratory symptoms. The most common respiratory complaint was breathlessness (56.12%) followed by wheeziness (47.2%), sensation of chest colds and illnesses (40.43%), phlegm (44%) and cough (26.81%).

Conclusion

This study documented a potential relationship between smoking use and e-cigarette from developing respiratory symptoms such as wheezing and etc.

No disclosure

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Table 10. Respiratory symptoms

	Valid observation	Total	Non-smokers	Smokers	Vapers	Dual users	P-value
Cough	138	37 (26.81)	9 (25)	10 (25)	11 (32.35)	7 (25)	0.878
Phlegm	150	66 (44)	18 (40)	19 (46.34)	16 (45.71)	13 (44.83)	0.936
Breathlessness	139	78 (56.12)	17 (43.59)	23 (57.5)	21 (65.63)	17 (60.71)	0.278
Wheezing	125	59 (47.2)	9 (29.03)	22 (61.11)	18 (58.06)	10 (37.04)	0.024
Chest colds and illnesses	141	57 (40.43)	15 (36.59)	17 (42.5)	17 (53.13)	8 (28.57)	0.263
Total	151	119 (78.81)	32 (69.57)	35 (85.37)	26 (74.29)	26 (89.66)	0.119

AP04-89

Silicotuberculosis among Indonesian underground gold miner: a case report

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Introduction

The International Labor Organization (ILO) defines pneumoconiosis as a disorder that occurred due to the accumulation of dust in the lungs which caused tissue reactions.^{1,2} Silicosis is a pneumoconiosis characterized by granulomatous inflammation and pulmonary fibrosis induced by inhalation and deposition of free silica particles in the lungs.

Case Illustrations

A 41-year-old-male, non smoker, 14 years working in Indonesian underground gold mine came for his annual checkup. There were no respiratory symptoms. This patient underwent physical examination, ILO-classified chest X-ray and spirometry test. BMI was 16, auscultation revealed no abnormal breath sounds. From the chest X-ray he got small opacity with profusion dominant 1, and another symbol cv, pi, and tb. The result of spirometry obtained the conclusion of mild obstruction.

Discussion

Silicosis remains a severe health problem in many countries, and eliminating it by 2030 is nearly impossible. Patients with silicosis have a higher risk of developing pulmonary tuberculosis than those without the disease, and they also have a higher risk of both pulmonary and extrapulmonary tuberculosis. If a cavity is present in chest X-ray in a patient exposed to silica dust, tuberculosis should be presumed until tuberculosis infection is ruled out. A cavity image on a chest X-ray with parenchymal abnormalities consistent with pneumoconiosis is a sign that bronchoscopy should be done. Inflammation of the small airways and lung parenchyma can cause obstructive anomalies in silicotuberculosis. Because of the inflammatory process, secretion buildup, and constriction of the tiny airways, the FEV1 score drops in this obstructive condition.

Keywords

Lung function, obesity, silicotuberculosis

AP04-90

A Comparison of Atrial Fibrillation Incidence Among Physicians and the General Population

Weisyun Hu (Taiwan)*

The aim of this study is to explore the association of atrial fibrillation (AF) among physicians in Taiwan. We used Cox proportional hazards models to estimate the incidence rate and the adjusted hazard ratios (aHRs) with 95% confidence intervals (CIs) to determine the risk of AF in the physician study cohort relative to the comparison cohort. A total of 22,479 physicians and 22,479 matched controls for comparison were included in the study. The Cox proportional hazard regression model revealed that male physician was associated with a trend toward increased risk of AF than nonphysician after adjusting for potential confounders (aHR, 1.05; 95% CI: 1.00-1.11). In age-specific analysis, male physicians aged 45 years showed the stronger association with AF (aHR, 1.33; 95% CI: 1.22-1.45). Further stratification with medical categories, surgeons had a significantly higher risk of AF than nonphysicians group (aHR, 1.28; 95% CI: 1.18-1.39). We reported a pivotal study that showed possible relation between physician specialists and AF in the large cohort.

AP04-91

Comparison of respiratory symptoms among adults with versus without vaping, smoking, and dual-use: A cross-sectional study in a call center in quezon city

Catherine Joy R Tubig (Philippines)*, MA. Encarnita B Limpin

Background

Tobacco use is one of three major risk factors for disability and premature loss of life, the other two being alcohol and illicit drug use. In addition to warning health labels, other alternative methods to assist quitting arise, and utilization or transition to vaping or e-cigarette use was one of these. There was a perception that using e-cigarette posed less harm than tobacco cigarette smoking. However, its utilization has its share of adverse effects in terms of morbidity.

Methods

Descriptive statistics were used to summarize the demographic and clinical characteristics of the participants. Call center agents were recruited who fulfilled the inclusion criteria and was given access to an online survey. A total of 152 subjects completed the baseline survey. The exposure of interest were cigarette use in years, e-cigarette use in years and dose, number of vape puffs per day and duration of use. Respiratory symptoms were measured using the American Thoracic Society and Division of Lung Diseases of the National Heart and Lung Institute questionnaire. One-way ANOVA, Kruskal-Wallis test, and Fisher's exact test was used to determine the difference in mean, median, and frequency, respectively.

Results

The respiratory symptoms that were asked from respondents include presence or absence of cough, phlegm, breathlessness, wheeziness, and sensation of chest colds and illnesses. Almost all except for one (1) respondent answered the questionnaire properly. Out of the 151 respondents, 119 (78.81%) had presence of one or more of the above-mentioned respiratory symptoms. The most common respiratory complaint was breathlessness (56.12%) followed by wheeziness (47.2%), sensation of chest colds and illnesses (40.43%), phlegm (44%) and cough (26.81%).

Conclusion

This study documented a potential relationship between smoking use and e-cigarette from developing respiratory symptoms such as wheezing and etc.

AP04-92

Vaping Causes Lung Injury

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Introduction

E cigarettes or vaping devices aerosolize nicotine or cannabis concentrates mixed with solvents. While these have been touted as replacement for cigarettes, cases of lung injury associated with vaping debunk the myth of the safety of vaping.

Case Report

19 year old otherwise healthy male presented with high grade fevers, cough and dyspnea. Patient had recently started vaping cannabis products. He was tachycardic and tachypneic with normal saturations on room air. Lab work suggested mild leucocytosis and urine drug screen was positive for opiates and tetrahydrocannabinol. Computed tomography scan of the chest revealed diffuse micronodular ground glass opacities with a small confluent consolidative opacity in the right lung base and borderline mediastinal adenopathy. Bronchoscopy with bronchoalveolar lavage (BAL) and transbronchial biopsies (TBBX) revealed 598 wbc's with 39% neutrophils, 20% lymphocytes, 39% macrophages/monocytes and 1% eosinophils in the lavage and biopsies showed acute lung injury admixed with benign parenchyma with neutrophils and fibrin within alveolar spaces and negative stains and cultures. Treatment included antibiotics for community acquired pneumonia and steroids for 6 weeks for acute lung injury along with advice to cease vaping.

Discussion

Our otherwise healthy patient presented with pneumonia and was incidentally found to have acute lung injury attributable to vaping. It is likely that vaping lung injury increased susceptibility to pneumonia. Vaping is becoming more common due to widespread acceptance of vaping in place of smoking and relative ignorance of its ill effects along and paucity of long terms studies or literature and further investigation is needed.

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AP04-93

Racial/ethnic specific factors influencing cardiovascular symptoms of midlife women during the menopausal transition

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Background and Aim

The menopausal transition frequently results in drastic changes that could increase cardiovascular risks. Even indistinct racial/ethnic differences in hormonal changes could result in racial/ethnic differences in cardiovascular symptoms, and specific factors could differently affect cardiovascular symptoms of various racial/ethnic minority groups. The purpose of this study was to identify racial/ethnic specific factors that influenced cardiovascular symptoms of midlife women during the menopausal transition.

Methods

This secondary analysis used the data from an online survey among 542 midlife women. Cardiovascular symptoms were measured using the Cardiovascular Symptom Index for Midlife Women and the influencing factors were measured using multiple items on menopausal status, health/disease status, and sociodemographic features. The data were analyzed using multiple linear regression and logistic regression analyses.

Results

In multiple linear regression analyses, pre-menopausal status was a significant factor among Hispanics and Asians; BMI and pre-menopausal status were significant factors among Whites and Hispanics; medication, age, and employment were significant factors among Whites, Asians, and Hispanics; education was a significant factor only among Whites; and marital status was a significant factor only among Hispanics; ($p < .10$).

Conclusion

Racial/ethnic specific factors that could influence cardiovascular symptoms of midlife women need to be considered in healthcare for racial/ethnic minority midlife women.

AP04-94

Pulmonary function among rural residents in high air pollution area in northern Thailand

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Background and Aim

Air pollution has become a serious environmental and health issue in several countries including Thailand¹. This condition associated with asthma and chronic obstructive pulmonary disease (COPD)^{2, 3}. This study aimed to determine pulmonary functions and prevalence of respiratory diseases among people in northern Thailand with a high concentration of air pollution.

Methods

A cross-sectional study was conducted in people aged ≥ 18 years, living in Lamphun, Thailand in December 2021. Clinical data and pulmonary functions; forced vital capacity (FVC), forced expiratory volume in one second (FEV1), peak expiration flow (PEF), forced expiration flow rate at 25-75% of FVC (FEF25-75), and bronchodilator responsiveness, were collected.

Results

A total of 127 people (78.7% male) were included. Mean age was 43.76 ± 11.32 years. Smoking was 52.0% and 4.44 ± 5.45 pack-years. Self-reported respiratory diseases were allergic rhinitis (7.1%), asthma (0.8%), and COPD (0.8%). Respiratory symptoms were presented in 33.1%. Lung functions showed FVC in $96.74 \pm 12.91\%$, FEV1 in $97.52 \pm 12.99\%$, PEF in $102.46 \pm 19.18\%$, and FEF25-75 in $96.77 \pm 29.88\%$. Abnormal lung functions were found in 15.7%. Small airway disease (FEF25-75 < 65%) was 7.1%. Restrictive defect (FVC < 80%) was 6.3%. Airway obstruction (FEV1/FVC < 70%) was 2.4%. There was no BDR. Compared to people with normal lung functions, the abnormal lung function group was older (48.00 ± 8.68 years vs 42.96 ± 11.61 years, $P=0.036$), and had a higher proportion of breathlessness (20.0% vs 3.7%, $P=0.021$).

Conclusion

Abnormal pulmonary functions, especially small airway disease, were relatively common in rural residents in a polluted air area in northern Thailand. These abnormal pulmonary functions were associated with more respiratory symptoms.

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Acknowledgements

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Table 1. Lung function data of subjects living in air pollution area

Parameters	Data (n=127)
FVC, L	3.56±0.75
FVC, %predicted	96.74±12.9
FEV ₁ , L	2.97±0.65
FEV ₁ , % predicted	97.52±12.99
FEV ₁ improvement after BDR test, %	1.92±4.13
FEV ₁ /FVC, %	83.67±5.81
PEF, L/s	8.10±1.85
PEF, % predicted	102.46±19.18
FEF ₂₅₋₇₅ , L/s	3.28±1.17
FEF ₂₅₋₇₅ , %predicted	96.77±29.88
Abnormal lung function	20 (15.7)
FEV ₁ /FVC <70%	3 (2.4)
FVC <80%	8 (6.3)
FEF ₂₅₋₇₅ <65%	9 (7.1)
FEV ₁ improvement after BD test >12% and 200 mL	0 (0)

Data shown as n (%) or mean±SD

BD=bronchodilator responsiveness, FEV₁=forced expiratory volume in 1 second, FVC=forced vital capacity, FEF₂₅₋₇₅=forced expiratory flow at 25-75% of FVC, PEF=peak expiratory flow, L=liters, mL=milliliters, s=second

AP04-95

Evaluation of enzyme-linked immunosorbent assay for diagnostic accuracy of *Orientia tsutsugamushi*

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Background and Aim

Orientia tsutsugamushi, the pathogen of scrub typhus, causes a large number of infections every year. The mortality rate is high without treatment. Nevertheless, symptoms of patients with *tsutsugamushi* diseases are usually similar to those of other diseases such as dengue fever, malaria, leptospirosis and so on. Thus, a fast, simple, objective and accurate diagnosis method is needed. The present study evaluated the accuracy of enzyme-linked immunosorbent assay (ELISA) for the diagnosis of *tsutsugamushi* disease.

Methods

'ELISA' and 'scrub typhus' were used as keywords to search published studies in PubMed, Embase, the Cochrane Library, and The Web of Science. After data extraction, the pooled sensitivity and specificity were calculated using the Meta-DiSc software, and a summary receiver operating characteristic (SROC) curve was applied to evaluate the diagnostic accuracy of ELISA. Deeks' funnel plot was drawn by Stata 12.0 to observe the publication bias.

Results

A total of 36 studies were included and 79 sets of data were extracted by the researchers. The overall sensitivity of the *Orientia tsutsugamushi* detected by ELISA was 0.90 (95% CI, 0.89–0.90) and the specificity came to 0.87 (95% CI, 0.86–0.87). The AUC was 0.9734 (close to 1), and the P-value of Deeks' funnel plot was 0.269 (> 0.05), which implied the absence of any noteworthy publication bias in our study.

Conclusion

ELISA performed with high sensitivity and specificity in detecting *Orientia tsutsugamushi*. However, more studies are required to testify whether ELISA is comparable to culture for detecting the disease.

AP04-96

Cardiorespiratory Symptoms of Midlife Women During the Menopausal Transition: A Cluster Analysis

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Background and Aim

Midlife women experience changes in biomarkers (e.g., hormone levels, aortic pulse-wave velocity, distinct lipid/lipoprotein profiles) during their menopausal transition, which subsequently increase the risks of cardiorespiratory diseases. A cluster analysis can be used to identify the group of midlife women who experience high cardiorespiratory symptoms during the menopausal transition and identify the characteristics of this group of women. The purpose of this secondary analysis was to identify the cluster of midlife women with high cardiorespiratory symptoms and to examine the characteristics of the women in the cluster.

Methods

This analysis was done with the data from two Internet-based studies among 966 midlife women. The instruments included the Cardiovascular Symptom Index for Midlife Women and questions on background features and menopausal and health/disease status. The data were analyzed using a factor analysis, hierarchical clustering methods, and multinomial logistic regression analyses.

Results

Three clusters were identified: Cluster 1 with high cardiorespiratory symptoms (39%), Cluster 2 with low cardiorespiratory symptoms (45%), and Cluster 3 with high other symptoms (16%). Cluster 1 was more likely to be young, Asian, unhealthy, and pre-menopausal and to have insufficient family income compared with other two clusters ($p < .05$). Comparing with Cluster 2, Cluster 1 was more likely to have insufficient family income, pre-menopausal status, and an existing diagnosed disease (adjusted OR, 2.05, 2.30, and 1.59, respectively).

Conclusion

Healthcare providers working with midlife women need to consider specific characteristics of midlife women who have high cardiorespiratory symptoms during the menopausal transition.

The data came from two studies funded by the National Institute of Health (1R01NR008926 and R01NR010568).

AP04-97

Arsenic concentration in drinking water and risk of lung cancer

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Background and Aim

The International Agency for Research on Cancer (IARC) classifies arsenic in Group I carcinogen, which causes human malignant lung cancer, but the association remains inconsistent. Therefore, we aimed to conduct a systematic review and meta-analysis to summarize the association between arsenic concentrations in drinking water and risk of lung cancer.

Methods

A systematic search was performed on PubMed, Web of Science and Google Scholar to identify the observational studies with relevant search strings. The outcome measure was incidence and association of arsenic concentrations in drinking water and lung cancer risk. The generic inverse variance outcome type was used to estimate the pooled relative risk (RR) with 95% CI of included studies. A random-effects model was used to assess the overall pooled estimate meta-analysis using RevMan 5.3.

Results

The results from meta-analysis showed a significantly increased risk of lung cancer on exposure to arsenic in drinking water (RR: 1.41; 95% CI: 1.15-1.73). Based on level of exposure to arsenic concentration in drinking water; full concentration range (10 µg/L–1000 µg/L) was significantly associated with increased risk of lung cancer (RR: 1.32; 95% CI: 1.25-1.53). However, the concentration of arsenic in water below 100 µg/L, was not significantly associated with risk of lung cancer.

Conclusion

The current findings showed that, overall arsenic concentration in drinking water associated with increasing risk of lung cancer. As a public health concern, the state and regional/global organization must need comprehensive arsenic-mitigation policies and decision-making tools to prioritize safe drinking water.

AP04-98

Lung function and serum c-reactive protein level of non-asthmatic amateur marathon runners

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Background and Aim

It has been proposed that the prevalent respiratory symptoms among amateur non-asthmatic marathon runners may due to pulmonary infections and inflammatory conditions. Thus we conducted this study to document lung function of elder marathon runners aged above 50, and we explored the relationship between runners' spirometry results and serum c-reactive protein (CRP) levels.

Methods

This ongoing study was approved (2021(E2)-KS-085) by the research ethics committee of Hangzhou Normal University (HZNU). Runners were recruited from the institute of sports medicine of the affiliated hospital of HZNU. A self-administrated questionnaire was distributed to collect data on demographics, marathon training and running conditions. Spirometry and blood tests were done with clinic visit. Descriptive and regression analyses were performed as appropriate.

Results

A total of 30 runners (mean age: 54.0 ± 6.2 yrs., male: 70.0%) participated, from November 2021 to February 2022. The median habitual marathon years of the participants were 5.5 ± 3.2 yrs., and their average running speed (pace per mile) was 5.8 ± 0.8 minutes. 16.7% of the study participants were daily smokers, and 46.7% of the participants had weekly alcohol utilisation. As for lung function, the averaged FVC (% of predicted) was $121.9\% \pm 20.2\%$, FEV1 (% of predicted) was $114.9\% \pm 15.1\%$, FEV1/ FVC ratio (% of predicted) was $95.5\% \pm 7.0\%$, and the median of PEF (% of predicted) was 110.0% (85.0% - 125.0%). Furthermore, only FVC (% of predicted) was significantly associated with CRP levels ($p = 0.06$).

Conclusion

It is of clinical significance to monitor marathon runners' pulmonary health conditions as to prevent potential injuries.

None.

AP04-99

Risk Factors of Pediatric Extrapulmonary Tuberculosis from Highly Urbanized Barangays within Cebu City Admitted at Chong Hua Hospital

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Background

Extrapulmonary Tuberculosis (EPTB) is a disease entity that affects 7,190 cases in children for the past 15 years. As high as 20% succumb to death due to Miliary TB and TB Meningitis. BCG was discovered years back with promising results of disease reduction. Despite appearance for decades, EPTB remains 1 of the top of communicable disease entity.

Objective

To determine the risk factors of pediatric extrapulmonary tuberculosis among those coming from densely populated urban barangays for the last 10 years prior to Covid-19 pandemic.

Design

Cross-sectional Retrospective Chart Review

Setting

Chong Hua Hospital, Cebu City

Sources of Data

Chart records of patients (18 years old and below) diagnosed with EPTB admitted from 2010 to year 2019.

Methodology

After protocol approval, data collection commenced using the Structured Data Collection Form (DCF) to extract the data from the medical records section. The data were tallied with the data collection sheet, encoded in MS Excel Spreadsheet, and was analyzed by a biostatistician.

Statistical analysis

Association of categorical variables was computed using Chi-squared test and Fisher's exact test while independent t-test was used to compare difference between continuous variables when grouped according to clinical outcomes. P value of < 0.05 was considered as significant.

Results

Ninety-eight percent of the respondents received BCG vaccination, still 10% didn't survive. All of those who died were underweight.

Conclusion

Extrapulmonary TB affects all age group despite BCG vaccination.

none

AP04-100

A case of humidifier lung diagnosed after repeated admission

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Nonspecific clinical manifestations and the absence of universally accepted diagnostic criteria may lead to the under-diagnosis of hypersensitivity pneumonitis (HP).

A 79-year-old man was admitted because of dyspnea, fever, and cough for 1 week. He was treated with antibiotics with suspicion of an atypical pneumonia. On bronchoscopy, the results of bronchoalveolar lavage cellular analysis were nonspecific and cultures were negative. His symptoms were relieved and the findings of chest X-ray were improved. However, his symptoms recurred and he was re-admitted 10 days after the first discharge. Chest X-ray and HRCT showed ground-glass opacities (GGO), reticular shadow, and consolidation in the both lungs. He was suspected of having HP, but denied exposures to common offending antigens. He was admitted again due to relapsing respiratory symptoms and high fever 4 days after the second discharge. HRCT showed bilateral GGO and reticular shadows. Repeated careful history taking revealed that his symptoms developed after using a humidifier. He was treated with corticosteroid and his symptoms and radiologic findings were improved. After being instructed not to use the humidifier, he has not suffered from recurrence for more than 1 year.

This is an interesting case of humidifier-associated HP (humidifier lung) diagnosed by a detailed history taking after repeated admission. HP should be considered in a patient in whom respiratory symptoms and fever relapse. In addition, the most important step in the diagnosis of HP is taking a careful clinical history to find an offending antigen, especially in the case induced by rare causes.

AP04-101

Effect of fine dust on lung disease

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Background and Aim

It has been reported in different populations that increased Fine particulate matter (PM_{2.5}) concentrations cause elevated susceptibility to respiratory diseases, including acute respiratory distress, asthma, chronic obstructive pulmonary disease (COPD), and lung cancer. But those previous data were almost retrospective and using fine dust data using address based. In this study, we prospective collected indoor and outdoor fine dust using TSI sidePak and analyzed effect of fine dust on lung disease (COPD, Asthma, IPF, normal group).

Methods

COPD, Asthma, IPF and normal patients prospectively enrolled in five multicenter institution. Enrolled patients were asked live with a direct-reader, and to visit at 3 months, 6 months, 9 months, and 12 months. Every visit, we analyzed fine dust especially PM_{2.5} and their symptom and lung function.

Results

Total 353 patients were enrolled and 42 patients were excluded due to withdrawal their consent for study. Normal, COPD, Asthma, IPF were 68,92,79, and 62 respectively. Age of IPF patients were most oldest among 4 group (71.4±6.1) and COPD patients were more likely in male and current smoker. In COPD patients, 11% had previous exacerbation history. 1 year f/u there is no definite lung function change. The mean of PM_{2.5} concentration considering time-activity and hourly value of portable meter was 20.44 and among IPF patients these value was higher.

Conclusion

PM_{2.5} higher in IPF patients and we could suggest that PM_{2.5} may be associated with IPF.

AP04-102

Progressive Massive Fibrosis, a case of diagnostic dilemma.

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Introduction

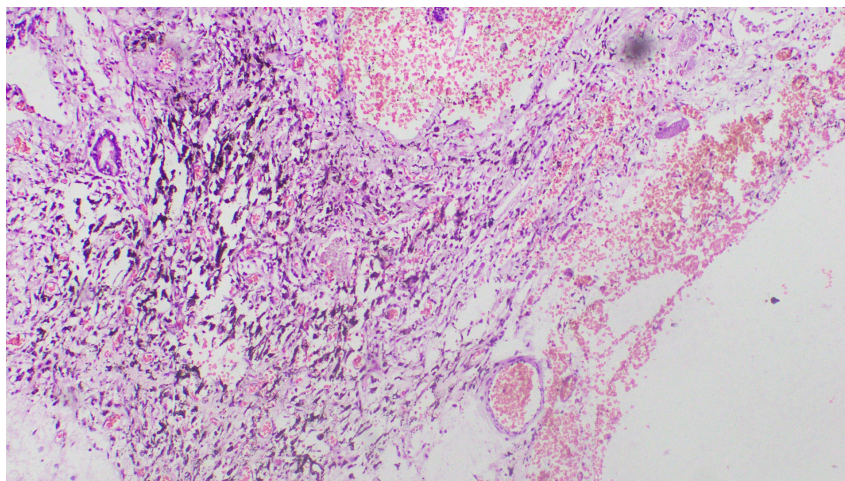
Progressive massive fibrosis (PMF) is large mass-like conglomerates of more than 1 centimeter size with outward radiating strands. Usually it is associated with Silicosis, pneumoconiosis and can occur in Sarcoidosis as well.

Case report

A 52-year-old patient presented with worsening of shortness of breath (SOB) for one month. 10 years prior to the presentation, he had worked with coal tar in road constructions for five years. He has had SOB for four years and initially was treated for Sarcoidosis with Progressive massive fibrosis based on high resolution Computed Tomography (HRCT) findings which showed nodular septal thickening, peribronchovascular and fissural nodules, reticulation traction bronchiectasis and areas of conglomerating fibrosis and enlarged pre tracheal and Sub carinal lymph nodes. There were no ground glass opacities, reticulations or honey combing. Lung functions showed restrictive pattern and there was no desaturation in six minute walk test. Bronchoscopy appearance was normal and bronchial wash cytology revealed heavy macrophage infiltration. Bronchoscopic transbronchial biopsy revealed polypoidal bronchial mucosa. Then we proceed with video Assisted Thoracoscopic lung biopsy which revealed multiple foci of parenchymal peri bronchiolar fibrotic nodules with non-specific chronic inflammation and carbon pigmentation. Sputum and bronchial wash for tuberculous culture was negative.

Conclusion

Pneumoconiosis due to hot tar fumes is a rarely reported. Presentation may be decades after the exposure. If the typical macroscopic appearance of black lung is not demonstrated during bronchoscopy, biopsy leads to the diagnosis



AP04-103

Can a Web-App based physical activity promotion program improve cardiovascular symptoms of midlife women?

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Background and Aim

With the recent COVID19 pandemic, the use of technology-based telemedicine interventions through computers and/or mobile devices has drastically increased. Technology-based interventions through Web-Apps could provide necessary information and coaching/support without face-to-face interactions or physical transportation to clinics. The purpose of this study was to examine if a Web-App based physical activity promotion program could improve cardiovascular symptoms of midlife women from four major racial/ethnic groups in the U.S.

Methods

This was a pilot study adopting a randomized control trial design among 26 Asian American midlife women (the intervention group using the Web-App and the Centers for Disease Control and Prevention (CDC) on physical activity and the control group using the CDC website). The intervention included social media sites, online resources, online educational sessions, and Fitbits. Cardiovascular symptoms were measured using the Cardiovascular Symptom Index for Midlife Women (CSIMW), and physical activity was measured using the Kaiser Physical Activity Survey (KPAS). The data were collected at pre-test, post 1-month, and post 3-months. The data were analyzed using a mixed-model growth curve analysis.

Results

There were no significant changes in the total numbers and total severity scores of cardiovascular symptoms over time (no significant group-time interaction). Yet, there were significant changes in physical activity over time only among the intervention group (significant group effect [$p < .05$]).

Conclusion

A Web-App based physical activity promotion program could increase physical activity, but it could not significantly enhance cardiovascular symptoms within a 3-month period.

Acknowledgements/Disclosure Statement

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AP04-104

A Retrospective Cohort Study on the Outcomes of Participants of the DOH-LCP Quitline Program from 2017-2020

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Background and Aim

Telephone quitlines provide support for individuals who want to quit smoking. In the Philippines, the DOH-LCP Quitline program was launched last June 2017 to provide counselling to smokers and help them to eventually become nicotine-free. This study aims to determine the outcome of participants of DOH-LCP Quitline program from June 2017 to June 2020, including those who successfully quit and those who relapsed. It aims to identify the participants' baseline characteristics; determine the quit rate and relapse rate; determine reasons of staying quit and relapse; and determine the stage of change among those with relapse.

Methods

This is a retrospective cohort study among participants of DOH-LCP Quitline program from June 2017 to June 2020.

Results

A total of 118 participants were included. Most participants who enrolled in the program belong to the 25 to 44 year old age group (50.1%), males (83.1%) married (51.7%), college graduate (41.5%), employed (65.2%), without comorbidities (75.4%) and at least 10 pack-year smokers (60.2%). As of year 2020, quit rate is 58.8% while relapse rate is 41.2%. The main reasons for staying quit was health-related (69%) while the main reason for relapse was due to cravings and withdrawal symptoms (56.8%). Among those with relapse, majority are in the preparation stage (72.7%).

Conclusion

The quitline program can therefore serve as an alternative intervention for smoking cessation.

The investigators have no conflict of interest.

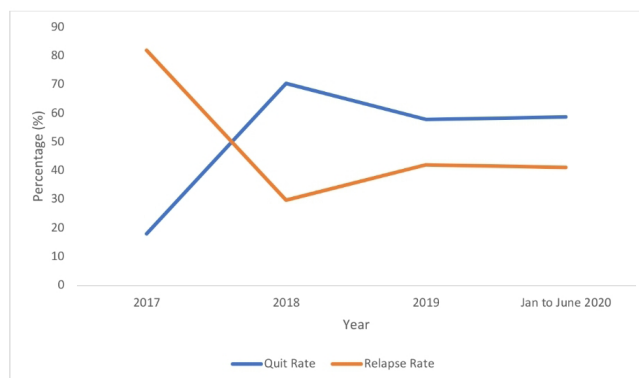


Figure 2. Quit rate and relapse rate among participants of the DOH-LCP Quitline program from June 2017 to June 2020

AP04-105

Toxicity evaluation of environmental pollutant using human small airway epithelial cells (SAEC) cultured under the air-liquid interface (ALI)

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Background and Aim

In general, inhalation toxicity evaluation of environmental pollutant depends on animal experiments which require high cost and considerable technical skill, so it is necessary to develop a more inexpensive, practical and universal test method for inhalation toxicity prediction. Thus, in this study, the three dimensional (3D) in vitro model using human-derived lung cells were established as inhalation toxicity prediction system, and the eight pollutants (particulate matter (PM), CMIT/MIT, Cadmium (Cd), Nickel (Ni), Benzo[a]pyrene (B[a]P), Benzalkonium chloride (BKC), Dibutyl phthalate (DBP), Bisphenol A (BPA)) were chosen, and to evaluate the inflammatory response in the 3D in vitro model.

Methods

Firstly, to investigate whether the established primary SAEC cultured under the ALI reflects the human situation in vivo, functional, morphological and transcriptional features were assessed. Secondly, to examine the inflammation response of environmental pollutant on the small airway epithelium, markers of inflammation were assessed by qRT-PCR and Enzyme-Linked Immunosorbent Assay (ELISA).

Results

We demonstrated that the established SAEC ALI models show similar gene expression profiles and secretory characteristics to human small airway epithelium in vivo. Whereas, the most of pollutants exposure during SAEC differentiation led to a number of pathological changes, such as goblet cell hyperplasia and a reduction of club and ciliated cells. Furthermore, PM, B[a]P, BKC, BPA, and CMIT/MIT of the pollutants significantly increased the production of pro-inflammatory cytokines (IL-6, IL-8) and the expression levels of inflammatory genes (IL-1 β , IL-6, IL-8, and MCP-1).

Conclusion

This study will be utilized as baseline data to investigate the pulmonary mechanism of toxicity caused by environmental pollutant.

AP04-106

Various daily health practices to reduce particulate matter in vulnerable and susceptible individuals

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Background and Aim

Air pollution has caused a variety of problems around the world, of which particulate matter (PM) has recently been recognized as the most serious problem. Long-term exposure to PM can affect the respiratory and cardiovascular systems, and increase the mortality rate of related diseases, especially in vulnerable people to air pollutants. This study investigated various daily health practices to reduce exposure to PM in vulnerable and susceptible individuals.

Methods

This study involved participants in living labs for development of personalized environmental health service to susceptible and vulnerable individuals. There are 6 types of living labs for the elderly, children, residents in industrial complex area, chronic airway diseases, arrhythmia, and stroke. Each participant answered the questionnaire on daily health practices to reduce PM. We statistically analyzed the factors that affect these daily practices.

Results

In a total of 808 subjects, the mean daily outdoor activity time was 113.8±150.0 minutes, the mean ventilation time was 299.0±427.1 minutes, and the air purifier was used at 55.4%.

The mean health practice score was 77.5±24.5 points. The respiratory cohort (87.5±20.1 points), the cardiovascular disease cohort (83.2±18.6 points), and the children's cohort (86.6±19.6 points) scored higher than the elderly cohort (66.0±26.3 points), and the industrial area cohort (66.4±24.8 points).

Factors that affect the health practices to reduce PM were age (B=0.261, p<0.001), low level of education (B=-6.778, p=0.006), respiratory disease (B=22.494, p<0.001), cardiovascular disease (B=13.137, p=0.001).

Conclusion

Daily health practices to reduce PM show significant differences depending on age, level of education, and presence of respiratory and cardiovascular disease.

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AP04-107

Gene expression changes in lung induced by subacute inhalation of PM10-rich particulate matter in mice

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Background and Aim

Particulate matter (PM) air pollution has been associated with an increase in the incidence of various lung diseases; however, the mechanisms underlying the effect of exposure to natural ambient air pollution in lungs have not been fully elucidated. We aimed to investigate the cellular responses and gene expression changes induced by exposure to natural ambient air pollution, employing a mouse model of subacute lung inflammation.

Methods

150 mg/m³ concentrations of road dusts were inhaled to C57BL/6J mice 8h/day during 21 days. Lung tissues were analyzed for expression of proinflammatory signaling, oxidative stress and fibrosis markers. RNA-sequencing analysis was conducted to determine the differently expressed genes (DEGs) and gene ontology (GO) over-representation analysis (ORA) was performed to identify the altered genetic pathway. Hub genes analysis were performed using GenClIP 3.0.

Results

We found IL-1, IL-6, TNF- α levels and MAPK signaling pathway in lung were significantly increased by PM exposure. NOX-2 and NRF mRNA levels were increased by PM exposure. Gene expression profile identified 95 downregulated and 13 upregulated genes by PM exposure. GO ORA disclosed DEGs were significantly enriched in fatty acid metabolism, acyltransferase activity, oxidative stress and apoptosis. Among the DEGs, forty-nine genes were identified from this PPI network, and literature mining gene network analysis showed 49 nodes and 142 edges, and hub genes were Mlxipl, Fasn, Lipe and Acaca.

Conclusion

This study identified key genes, signaling pathways and cellular responses in lung, which will deepen our understanding of transcriptional and cellular response to by PM exposure.

Acknowledgement

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AP04-108

Characteristics and advantages of silicosis utilized a murine model

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Background and Aim

Because accumulated dust particles such as yellow dust and fine dust in the lung of patients are increase in a worldwide, respiratory disease and occupational disease is increasing. Among these diseases, silicosis is less revealed pathogenesis and characterization of lung structure. The clinical phase of silicosis is divided into acute silicosis, accelerated silicosis and chronic silicosis according to the developing period. Acute silicosis develops within 5 years of exposure to high dose of silica, accelerated silicosis occurs 5-10 years after initial exposure and chronic silicosis develops at low concentration exposure after 10 years or more. Chronic silicosis is most common form of the disease and is associated with chronic inflammatory response within the alveoli. Although the incidence of silicosis has decreased in recent, there are still many patients suffering from these diseases.

Methods

C57BL/6 male mice were intratracheally injected with sonicated silica nanoparticles at 50mg/kg before treatment for 4 weeks. After 28 days, the mice were anesthetized and sacrificed and RNA and protein level was confirmed by real-time PCR and western blot.

Results

we have established a mice model for silicosis to define the pathology and disease characterization. In general, feature of silicosis is that progressive fibrosis by long-term disease caused by inhaling silica dust. However, in our study was revealed that silica-induced silicosis mice model has that chronic disease feature such as fibrotic change, additionally chronic inflammation response through confirmation of expression of related RNA and protein level.

Conclusion

In this study, we were suggested that our established silicosis model could be applied with potential candidate.

AP04-109

Long-term air pollution exposure are associated with PRISm and chronic respiratory symptoms: Predictive Value of Inflammatory Biomarkers and FEV1 for COPD (PIFCOPD) Study

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Background and Aims

To investigate the effect of long-term PM_{2.5} exposure on PRISm (Preserved ratio impaired spirometry) and chronic respiratory symptoms.

Methods

The PIFCOPD study (Clinical trial ID: NCT03532893) enrolled 10,389 people aged 40 to 75 years in 12 cities/urban areas of China from 2018 to 2021. Questionnaire were collected and spirometry was performed using Vitalograph-COPD-6 at baseline. PRISm was diagnosed according to FEV₁/FEV₆≥0.7 and FEV₁pred%<80%. The 18 years average annual PM_{2.5} was calculated by model at daily levels and 1km*1km spatial resolution in china according home address¹. The associations of long term PM_{2.5} exposure with PRISm and chronic respiratory symptoms were examined.

Results

8241 non-COPD subjets were included, including 1430 PRISm. The average 18 years annual PM_{2.5} is higher in PRISm subjects than non-PRISm subjects (81.89M/m³, IQR:59.08-90.57Mg/m³ VS 79.03M/m³, IQR:57.39-89.49Mg/m³, P<0.001). Every 10 Mg/m³ increase in 18 years annual PM_{2.5} concentrations was associated with 6% increase in PRISm incidence, 16% in chronic cough, 10% in chronic expectoration, 15% in shortness of breath and 18% in wheezing. Subgroup analysis found that, the long term PM_{2.5} exposure are more sensitive in women, smokers and never smoker with ETS (environmental tabacco smoke)than men and never smoker without ETS (table 1).

Conclusion

Long-term PM_{2.5} exposure are associated with increased incidence of PRISm and chronic respiratory symptoms, especially among women and tobacco smoke exposure. The smoking and PM_{2.5} exposure may have synergistic effects on respiratory systems.

AP04-110

Anti-fibrotic effect of dipeptide A during progression of chronic fibrosis

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Background and Aim

Environmental and genetic predisposing factors are associated with pulmonary fibrosis, and idiopathic pulmonary fibrosis (IPF) is one major chronic interstitial lung disease characterized by alveolar epithelial cell injury, collagen deposition and it eventually leads to a decline in lung function. Although major anti-fibrotic drugs including pirfenidone and nintedanib exist, it is limited their therapeutic mechanisms with specific cellular targets. In this study, we investigated the effect of Dipeptide A (DA) which consists of two individual amino acids and its anti-inflammatory and anti-fibrotic effects of DA utilizing in vitro and in vivo IPF models.

Methods

C57BL/6 (male, 8w) mice were injected intratracheally BLM (3mg/kg) and DA (150mg/kg) were injected per oral each day for 2 weeks. MLE-12 cells were exposed 0.25% cigarette smoke extract for 24 hours and DA was co-treated various concentration (5mM~30mM).

Results

During the BLM challenge, immune cell infiltration into alveolar area and fibrosis-related gene and protein expressions were increased, and it led to inflammation and fibrosis. Furthermore, anti-oxidant system was disrupted, consequentially, P53 and Caspase-3 protein were activated and it led to apoptosis of lung cells. Interestingly, continuous treatment of DA through oral rescued lung cells from BLM-induced apoptosis, fibrosis, and inflammation.

Conclusion

In this study, we demonstrated therapeutic potential of DA in pulmonary fibrosis. Judging from the proven effects, DA can be used as a therapeutic agent or an adjuvant therapy for chronic pulmonary fibrosis and its related diseases.

This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Korea government (NRF-2020R1A2C2010712 and NRF-2020R1A5A8019180)

AP04-111

Associations between particulate matter and COPD-related genes using RNA-sequencing analysis

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Background and Aim

Ambient air pollution is closely related to respiratory diseases, including chronic obstructive pulmonary disease (COPD). Biomarkers associated with diseases occurring after exposure to air pollutants are widely unknown. Therefore, applying RNA sequencing may help identify these markers and the underlying molecular processes that link exposure to respiratory disease risk. We aimed to evaluate the associations of particulate matter (PM) exposure based on land-use regression (LUR) and personal exposure models with COPD patients and specific gene/pathway sets.

Methods

RNA was obtained on blood samples from COPD patients (N=58). Personal exposure levels of PMs (PM_{total}, PM₁₀, and PM_{2.5}) or nitrogen dioxide (NO₂) were measured. We determined the expression of genes associated with PM_{2.5} by LUR at different exposure durations (1, 7, 14, 30, 60, 90, and 3-day and 1-year periods). Associations were evaluated using linear regression analysis, adjusting for age, sex, and smoking status.

Results

The relationship between personal PM_{2.5} exposure and the LUR model showed a positive correlation (r=0.40806). Positive associations were observed between PM_{2.5} and 16 genes among COPD patients in the LUR model, namely *ZBTB22*, *WARS1*, *ALDH1A1*, *HSPA1B*, *RAB40C*, *PIP5K1C*, *SSBP4*, *PRKD2*, *SMCO4*, *DUS3L*, *NUBP4*, *DPAGT1*, *ALKBH3*, *NOMO2*, *NEAK7*, and *AKAP1*, with most of them, found at 7 or 14 days of exposure (R² > 0.1). *DUS3L* and *NUBP4* expression was associated with PM_{2.5} exposure at 60 or 90 days. Further, by integrating gene expression with personal exposure levels, *MMP9* and *POMK* expression were found to be associated with PMs. Meanwhile, a negative correlation of *FIS1* expression was a significant overlap in the exposure to PMs and NO₂ group.

Conclusion

Our findings provide some insights into the role of gene expression in COPD patients in response to air pollutants, which may help to the development of new strategies to attenuate air pollution-associated respiratory disease.

Disclosure statement

This study was supported by grants from the Korea Environment Industry and Technology Institute through the Core Technology Development Project for Environmental Disease Prevention and Management, funded by the Korea Ministry of Environment (Grant number 2022003310009).

AP05-112

The clinical features and 6 month outcomes for SARS-CoV-2 patients in 2020 and 2021: A prospective cohort study in Sydney, Australia

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Background and Aim

Current knowledge of long-term sequelae of SARS CoV-2 is limited, and new variants have been emerging globally. Limited studies have compared clinical outcomes of SARS-COV-2 patients from the initial B.1.1.7 (Alpha variant) in 2020 to B1.617.2 (Delta variant) in 2021. Our study aims to compare the clinical outcomes of patients diagnosed with COVID-19 in 2020 to 2021.

Methods

This prospective cohort study was performed at South-Eastern Sydney Local Health District (SESLHD) in Australia. The initial cohort of patients were diagnosed with COVID-19 between March–November 2020 when B.1.1.7 was the main variant. The 2021 cohort consisted of patients infected with B.1.617.2 variant from July–September 2021. We reviewed the demographics, pulmonary function test (PFT), Depression Anxiety Stress Scale (DASS-21), and Kessler psychological distress scale (K10) scores at 6-months.

Results

Ninety-three patients with COVID-19 were identified, 45 (48%) were diagnosed with COVID-19 in 2020. Median age of 2020 cohort was 52 years (interquartile range [IQR] 32-65 years) compared to 42 years (IQR 29-54 years) for the 2021 cohort. 8% and 11% of the 2020 cohort had chronic lung disease and cardiovascular comorbidities respectively, compared to 16% and 12% in the 2021 cohort. At 6-months, both cohorts had comparable PFT, DASS-21, and K-10 scores.

Conclusion

This study provides a comparison of the demographics and clinical outcomes for COVID-19 patients with B.1.1.7 and B1.617.2 variants. Median age for patients infected in 2021 was significantly lower than 2020, and the measured psychological outcomes were similar in both groups. Mass vaccination program in Sydney may have played a role.

AP05-113

Risk factors for Pulmonary Fibrosis Followed by Severe Pneumonia in Patients with COVID-19 infection: A Prospective Multi-Center Study

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Background and Aim

Lung complication after COVID-19 pneumonia, especially the occurrence of fibrosis, is an important issue for patient management in the COVID-19 pandemic era. We aimed to investigate risk factors for pulmonary fibrosis development in patients with severe COVID-19 pneumonia.

Methods

Clinical and radiologic data were prospectively collected from 65 patients who required mechanical ventilation for COVID-19 pneumonia enrolled from 8 hospitals in South Korea. The presence of fibrotic change on chest CT was evaluated by visual assessment, and extent of fibrosis (fibrosis score) was measured by automatic quantification system.

Results

Of total 65 patients, the mean age was 64 years, and 63.1% were male. During follow-up (median 64 days, interquartile range [IQR] 49–79 days), ventilator-associated complications occurred in 45 (69.2%) patients, and 9 (13.8%) patients died after follow-up. On chest CT (median interval [IQR] 60 [41–78] days), 48 (73.8%) patients showed ≥ 2 fibrotic lesions. Median fibrosis score of them was 12.0% (IQR 5.4–40.3%). The most frequent findings of fibrotic change were traction bronchiectasis (N=47, 72.3%). Patients with fibrotic lesions had lower BMI, and lower initial respiratory rate compared with those without. In the multivariate cox-proportional hazard model, higher serum creatinine level at ICU admission (adjusted hazard ratio[aHR] 5.12, 95% confidence interval[CI] 1.78–14.69) and the use of neuromuscular blocker (aHR 0.25, 95% CI 0.08–0.79) were independently associated with consequent lung fibrosis.

Conclusion

Serum creatinine level and the use of neuromuscular blocker had an association with future pulmonary fibrosis in patients with severer COVID-19 pneumonia requiring mechanical ventilation.

Funding

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AP05-114

Implication of admission eosinophil count and prognosis of Coronavirus disease 2019 (COVID-19) in elderly patients – A territory wide cohort study

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Background

Chronic obstructive pulmonary disease (COPD) were reported to be poor prognostic factors in COVID-19 infection. There was limited evidence on the phenotype of COPD and its association with prognosis of COVID-19 infection, especially in elderly patients.

Methods

A territory wide retrospective study was conducted to investigate the association between COPD and the prognosis of COVID-19 and stratifying the patients with COPD base on the admission blood eosinophil count. Elderly patients admitted to public hospitals and community treatment facility in Hong Kong for COVID-19 from the 23rd January to 31st September 2021 were included in the study. Severe diseases were defined as those who develop respiratory complications, systemic complications and death.

Results

Among the 1925 patients included in the analysis, 133 had COPD. 40 had admission blood eosinophil count above 150 cells/ μ L and 40 had blood eosinophil count > 150 cells/ μ L. Patients with COPD and admission blood eosinophil count > 150 cells/ μ L, but not those with admission blood eosinophil count < 0.001), require invasive mechanical ventilation (OR = 2.433, 95% CI = 1.022 – 5.791, p = 0.045) and intensive care unit admission (OR = 2.214, 95% CI = 1.004 – 4.881, p = 0.049).

Conclusion

Patients with COPD and admission blood eosinophil count > 150 cells/ μ L, but not those with admission blood eosinophil count < 150 cells/ μ L, have significantly increased risks of developing respiratory and systemic complications from COVID-19 infection, when compared with patients without COPD.

AP05-115

Factors affecting Pulmonary and Cardiovascular Outcomes in Adult Covid-19 Confirmed Cases admitted at the Lung Center of the Philippines

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Background and Aim

Our study aims to determine the clinical profile of patients and its association with pulmonary and cardiac complications.

Methods

In this retrospective/cohort study, we included all moderate to critical adult inpatients (>18 y.o.) with laboratory confirmed Covid-19 tests at the Lung Center of the Philippines. Demographic, clinical, treatment, and laboratory data, were extracted from patient medical records.

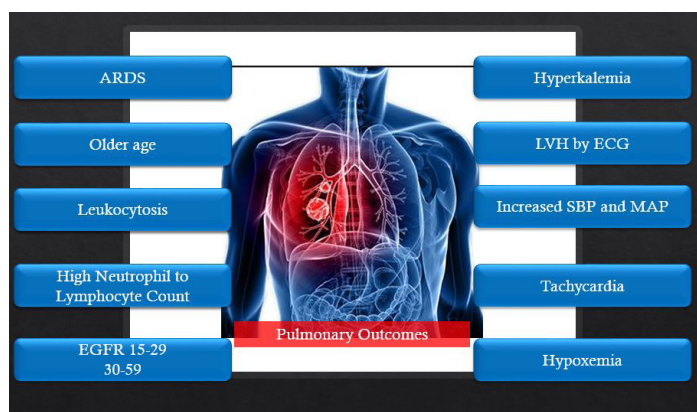
Results

Of the 355 patients included, most were male (N=225, 63.4%). Hypertension was the most common comorbidity (N=202, 56.9%). The top pulmonary complications were ARDS (N=52, 41.9%), followed by ARF (N=39, 31.5%) and HAP/VAP (N=30, 24.2%). Pulmonary complications were twice greater ($p < 0.007$) in patients with eGFR levels of 30-59 cc/1.73m² and 15-29 cc/1.73m² and those with Hyperkalemia ($p = 0.013$). The 3 most common cardiac complications are ACS (N=14, 53.8%), arrhythmia (N=6, 23%), and VTE (N=2, 7.6%). These patients were older (Mean: 64 y.o. vs. 58 y.o., $p = 0.039$), Diabetic (66.7% vs. 32.3%, $p = 0.027$), and Hypermagnesemic ($p = 0.05$).

Conclusion

ARDS and ACS were the most common pulmonary and cardiovascular complications respectively. Factors affecting pulmonary complications were age, male gender, hypertension, hyperkalemia, and lower eGFR levels. Cardiovascular complications were noted in older patients, diabetics, ARB/ACEI, bronchodilator, leukocytosis, high neutrophil to lymphocyte count, LVH on ECG, low EF and segmental wall-motion on echocardiography and mechanical ventilation.

Disclosure of Conflict of Interest: The investigators have no conflict of interest.



AP05-116

Predictors for Severity of Coronavirus Disease 2019 (COVID-19) Pneumonia in Patients Admitted at a Tertiary Hospital in Cebu City, PHILIPPINES: A Retrospective Single Center Cohort Study

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Background and Aim

As COVID-19 pandemic perpetuates, there is an urgency to determine risk factors of severe COVID-19 which can aid clinicians in risk-stratifying COVID-19 admissions and provide timely interventions. The study aims to determine various admission demographic, clinical and laboratory variables that are associated with the development of severe-critical pneumonia among COVID-19 patients admitted in a Philippine tertiary hospital from March-September 2020.

Methods

In this retrospective cohort, demographics, clinical features and laboratory work-up of adult inpatients with SARS-CoV-2 infection were obtained from chart reviews. Anonymized data were analyzed using univariate logistic regression to identify the possible severe COVID-19 predictors.

Results

Of 845 hospitalized patients analyzed, the mean age of the population was 55.9 years and 54.9% were male. Severe cases comprised majority of COVID-19 admissions at 49.36%, followed by critical cases (23.3%), then mild (12.87%) and moderate cases (14.47%). Overall mortality was 18.09% with majority from critical cases. Among patients who developed severe-critical COVID-19, elderly, male, previous/current smoker, hypertension, T2DM, CKD and decreased baseline peripheral oxygen saturation were noted potential predictive factors. Among laboratory values, factors associated with severe COVID-19 included leukocytosis, neutrophilia, lymphopenia, elevated ALT, BUN, creatinine, LDH, C-reactive protein, D-dimer and ferritin and decreased ALC and levels of partial pressure of oxygen and PO₂/FiO₂ ratio (Table 5).

Conclusion

In this cohort, various demographic data, clinical features and laboratory derangements were associated with severe-critical COVID-19 pneumonia. These findings can aid clinicians in the risk-stratification of subsequent COVID-19 admissions and investigators to develop region-based validation and prediction model studies.

Acknowledgement

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Table 5. Univariate logistic regression analysis of the significant predictors

Category	Estimate	Standard Error	Wald	p-value	95% Confidence Interval	
					Lower Bound	Upper Bound
Age	.049	.004	128.095	.000	.040	.057
Sex (Female)	-.552	.129	.000	.804	-.299	.000
Smoking	-.840	.301	7.798	.005	-1.429	-.250
Hypertension	-.552	.137	16.270	.000	-.820	-.284
Diabetes Mellitus	-.689	.144	22.935	.000	-.971	-.407
CAD	-.187	.262	.509	.475	-.701	.327
CKD	-.593	.242	5.999	.014	-1.068	-.119
DBP	-8.761E-05	.002	.002	.965	-.004	.004
RR	.016	.009	3.038	.081	-.002	.034
O2 Sat	-.119	.011	117.790	.000	-.140	-.097
Complete blood count						
WBC count	.32	.012	6.541	.011	.007	.056
ALC	-.008	.021	.144	.704	-.49	.033
Neutrophilic count	.030	.011	6.887	.009	.008	.053
Lymphocytic count	-.033	.014	5.319	.021	-.060	-.005
ALT	.003	.001	7.716	.005	.001	.005
AST	.010	.003	12.331	.000	.005	.016
Direct Bilirubin	-.094	.080	1.383	.240	-.251	.063
BUN	.015	.004	16.300	.000	.008	.022
Creatinine	.041	.020	4.052	.044	.001	.080
LDH	.004	.000	95.504	.000	.003	.005
CRP	.006	.001	44.280	.000	.004	.008
Procalcitonin	.005	.004	2.083	.149	-.002	.012
PT-INR	.009	.024	.140	.708	-.039	.057
D-dimer	.095	.025	13.964	.000	.045	.145
Ferritin	.000	3.803E-05	26.303	.000	.000	.000
PaO2	-.003	.002	2.077	.150	-.007	.001
pO2/FiO2	-.006	.001	99.160	.000	-.008	-.005

Abbreviations: ALC, absolute lymphocytic count; ALT, alanine aminotransferase; AST, aspartate aminotransferase; BUN, blood urea nitrogen; CAD, coronary artery disease; CKD, chronic kidney disease; CRP, C-reactive protein; DBP, diastolic blood pressure; LDH, lactate dehydrogenase; O2 Sat, oxygen saturation; PaO2, partial pressure of oxygen; PT-INR, prothrombin time and international normalized ratio; RR, respiratory rate; WBC, white blood cell;

AP05-117

Japan COVID-19 Task Force: a nation-wide consortium to elucidate host genetics of COVID-19 pandemic in Japan

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Background and Aim

Identifying the factors underlying severe COVID-19 in the host genetics is an emerging issue.

Methods

We enrolled a total of 2,393 cases and 3,289 controls. We conducted a genome-wide association study (GWAS) of COVID-19 in a Japanese population led by the Japan COVID-19 Task Force, as one of the initial discovery GWAS studies performed on a non-European population.

Results

We not only replicated previously reported COVID-19 risk variants (e.g., LZTFL1, FOXP4, ABO, and IFNAR2), but also found a variant on 5q35 (rs60200309-A at DOCK2) that was associated with severe COVID-19 in younger (-8 (odds ratio = 2.01, 95% confidence interval = 1.58-2.55). This risk allele was prevalent in East Asians, including Japanese (minor allele frequency [MAF] = 0.097), but rarely found in Europeans. Cross-population Mendelian randomization analysis made a causal inference of a number of complex human traits on COVID-19. In particular, obesity had a significant impact on severe COVID-19.

Conclusion

The presence of the population-specific risk allele underscores the need of non-European studies of COVID-19 host genetics.

AP05-118

Chronic respiratory disease and resource utilization associated with diabetes mellitus in COVID-19 patients: A meta-analytic synthesis of observational studies

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Background and Aim

We carried out a meta-analytic synthesis to evaluate the association between diabetes mellitus (DM) and healthcare resource utilization including the use of mechanical ventilation in patients with COVID-19.

Methods

The MEDLINE, and Web of Science databases were reviewed for identification of eligible studies. Meta-analysis was carried out using Review Manager 5.3. The random-effects model was used to compute the pooled estimates of odds ratio (OR)/mean difference and 95% confidence interval (CI).

Results

A total of 11 studies including 2556 individuals without DM and 787 with DM were included in the meta-analysis. Acute respiratory distress syndrome (ARDS) [OR 3.40, 95% CI 2.09, 5.55] were significantly associated with DM in COVID-19 infected patients compared with non-DM patients ($p < 0.05$) with no heterogeneity among the studies were observed [$I^2 = 0\%$, $p = 0.48$]. However, no significant association was observed with COPD in DM patients with COVID-19 compared to non-DM patients [OR 0.96, 95% CI 0.59, 1.56] with no significant heterogeneity among the studies were observed [$I^2 = 31\%$, $p = 0.15$].

Intensive Care Unit (ICU) admission and use of mechanical ventilation were significantly associated with COVID-19 patients with DM [OR 2.79, 95% CI 1.79, 4.34], and [OR 3.33, 95% CI 2.05, 5.42], ($p < 0.05$) respectively and with no statistical heterogeneity among the studies were observed. No significant difference was observed in the length of stay (LOS) and hospitalization, [MD 1.91, 95% CI -1.12, 4.94, $p = 0.22$] and [OR 1.45, 95% CI 0.51, 4.08, $p = 0.49$].

Conclusion

This meta-analysis shows that ARDS are significantly higher among DM patients with COVID-19 compared with non-DM patients. ICU admission and the use of mechanical ventilation were significantly associated with COVID-19 patients with DM. Further long-term, multinational and large sample size clinical studies are warranted to justify the current findings.

AP05-119

Clinical characteristics and outcomes of COVID-19 infection in lung transplantation recipients

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Background and Aim

The immune-compromised patients have been more influenced by the COVID-19 pandemic, especially solid-organ transplantation patients. As the respiratory system is the main target of the SARS-COV2 virus, the clinical characteristics and outcomes may be different from other solid organ transplantation patients.

Methods

We reviewed the electronic medical records of lung transplantation patients who suffered from COVID-19 between February 2020 and April 2022. The data about baseline demographic characteristics, symptoms, vaccination status, medication for COVID-19, medication for transplantation, use of oxygen, hospital admission, intensive care unit (ICU) admission, and mortality were collected and analyzed retrospectively

Results

The first COVID-19 infection was reported in December 2021. A total of 80 patients were diagnosed with COVID-19. Of those, 3 were infected twice, and 1 was infected three times. The patients who infected within 1 year after transplantation were accounted for 25% (N=20) of the overall population. The most common symptom was sore throat (32.5%, N=26), followed by myalgia (25%, N=20), and 37.5% of the patient were asymptomatic (only positive for the COVID-19 test). The clinical outcomes were represented as hospital admission (57.6%, N=46), and ICU admission (10.0%, N=8). A need for oxygen therapy was associated with mortality (Odds ratio 15.9, CI 1.84-137.1)

Conclusion

Lung transplantation patients affected by COVID-19 were requiring hospital admission and the use of oxygen is associated with COVID-19-related mortality in this population.

Nothing to declare

AP05-120

COVID 19 and pneumomediastinum: A case report from Sri Lanka

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Introduction

Pneumomediastinum is a rare complication of COVID pneumoniae and has poor prognosis. Pneumomediastinum is usually associated with positive pressure ventilation. Spontaneous pneumomediastinum is described in patients with no underlying respiratory illness, or evidence of barotrauma.

Case report

47 year old male with no past respiratory illness or history of smoking was admitted with fever and cough for 4 days. He was tachycardic with a respiratory rate of 32/minute with a saturation of 90%. Arterial blood gas showed type-1 respiratory failure. His COVID rapid antigen was positive and chest radiograph showed bilateral patchy infiltrates. He had a neutrophil leucocytosis and inflammatory markers, d dimer and lactate dehydrogenase was elevated. Patient showed clinical progression requiring 10L/min of oxygen. Severe COVID pneumoniae was managed with tocilizumab, steroids, enoxaparin and antibiotics.

There was poor response to treatment and repeat chest radiograph showed evidence of pneumomediastinum which was confirmed by computed tomography. Pneumomediastinum was managed conservatively and patient was weaned off oxygen on day 17 and discharged. Repeat computed tomography did not show evidence of organizing pneumonia and showed resolution of pneumomediastinum.

Discussion

Presence of extraluminal air in the mediastinum is defined as pneumomediastinum. Pneumomediastinum has been described in relation to COVID and is usually secondary to intubation, barotrauma and positive pressure ventilation. Spontaneous pneumomediastinum may occur due to diffuse alveolar damage in severe COVID pneumonia. Pneumomediastinum is associated with pneumothorax (40%) and subcutaneous emphysema (75%).

Pneumomediastinum can be managed conservatively but tension pneumomediastinum is managed with mediastinal drains. Pneumomediastinum has a poor prognosis and high mortality.

AP05-121

Association of severity with hospital mortality of COVID-19 at Persahabatan Hospital, Jakarta, Indonesia

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Background

Coronavirus disease 2019 (COVID-19) was biggest pandemic worldwide and resulted more than fifty millions death even 81% cases were mild and only 19% cases were severe and critical illness. Studies showed hospital mortality was 17-38%, but in our hospital showed hospital mortality was over 30%. Many factors influenced this situation include age, male, comorbidities and severity. Regarding these factors we evaluated association between severity with hospital mortality of COVID-19 at Persahabatan hospital, Indonesia.

Methods

This study was a retrospective study, which subjects were patients hospitalized in Persahabatan Hospital, Jakarta, Indonesia between March and June 2020. We determined the severity of the patients at first 24 hours and final outcome at discharge.

Results

There were 336 subjects but only 299 subjects eligible for the study's criteria and (54.18%) were males with median age 52 (20-84). Mild-moderate cases were 36% and severe-critical was 64%. Outcome of the subjects showed 30.77% death. There were 5 of 102 (4.7%) subjects with mild-moderate illness died compared between 87 of 192 (45.3%) subjects with severe-critical illness ($p=0.000$).

Conclusion

There were association between severity and hospital mortality of COVID-19 patients.

Ji D, Zhang D, Xu J, Chen Z, Yang T, Zhao P, et al. Prediction for Progression Risk in Patients with COVID-19 Pneumonia:the CALL Score. *Clin Infect Dis.* 2020;71:1393-9.

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AP05-122

A Case Report : Giant Lung Abscess - HIV, HIV Patient Survives With Giant Lung Abscess Without Surgery

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Introduction

Lung abscess is defined as an area of necrosis of lung parenchyma leading the cavity with air-fluid level. Secondary infection such as pulmonary TB underlies the occurrence of lung abscess. Patients with immunocompromised HIV-AIDS is the most common factor. Anaerobic bacteria are 60-80% of the pathogens causing lung abscess, but Klebsiella pneumonia (ESBL) is reported to be 33%. Abscesses more than 6 cm are unlikely to resolve with antibiotic therapy alone and may require surgical intervention. In poor surgical candidates, percutaneous, endoscopic drainage are considered. Secondary abscesses have a poor prognosis, especially in immunocompromised patients with mortality rate of 75%.

Case

F 20-year-old man is being treated at the Arifin Ahmad Hospital with complaints of Breathlessness, cough, fever and oral candidiasis on ATD and HIV reactive. Physical examination, a laboratory, chest X-ray and chest CT scan showed air fluid level 13,53 x 9,47 x 9,29 cm in diameter on right lung. Sputum culture found Klebsiella pneumonia (ESBL +) we decided to use meropenem combined metronidazole, routine ATD, ARV and cotrimoxazole showed improvement and the lung abscess disappeared.

Discussion

Management of lung abscess with adequate antibiotics in primary abscess, while secondary abscess is based on the cause. Klebsiella pneumoniae an important pathogen in lung abscesses. Surgical indications for lung abscess diameter >6 cm. Secondary abscesses in immunocompromised patients have 75% higher mortality rate than primary lung abscesses.

Conclusion

Adequate antibiotics and management of the underlying disease reduces the mortality rate from lung abscess, even without surgery.

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AP05-123

Pneumectomy for Long standing bronchiectasis with recurrent severe symptom in adult

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Introduction

Bronchiectasis is a chronic lung disorder characterized by presence of irreversible diffuse or partial dilatation, distortion of the structure of bronchial branches with bronchial and peribronchial destruction due to recurrent bacterial infections and inflammatory. Surgical resection in long standing bronchiectasis is used to resolve complications and improve a patient's quality of life

Case

A 36-year old male presented to the hospital with shortness of breath which was influenced by activities, cough phlegm, fever since 1 week before admission. Its were the presence of recurrent for 6 years. Weight loss since 1 week. History of tuberculosis and got antituberculosis treatment for 6 months in 2016. Smoking history was exist's. Physical examination revealed a rib retraction, the use of breathing aids muscles and rhonchi in the upper and lower left lung fields. Laboratory blood examination found an increase in lymphocytes and monocytes. Spirometry revealed moderate restriction. Thoracic Computed Tomography (CT) imaging found the impression of infected bronchiectasis and left lung collapse. Bronchoscopy revealed the opened orifisium, mucosal edema, hyperemia, partial stenosis, mucous plug on the left lung. Under such circumstances, left pneumectomy was performed in this patient with good result. Patient was discharge at 6th post operative day with active mobilization.

Discussion

A high recurrence, poor response during medical treatment to exacerbation and sputum retention of bronchiectasis is difficult to manage. In recent studies, pneumectomy has been frequently required. It has shown an acceptable morbidity and mortality with good outcome of the patient.

Keywords

long standing bronchiectasis, recurrent severe symptom, left pneumectomy

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AP05-124

Dual Pathology in one lung - An interesting case report

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Introduction

Dual pathology although rare can coexist in malignant conditions.

Case report

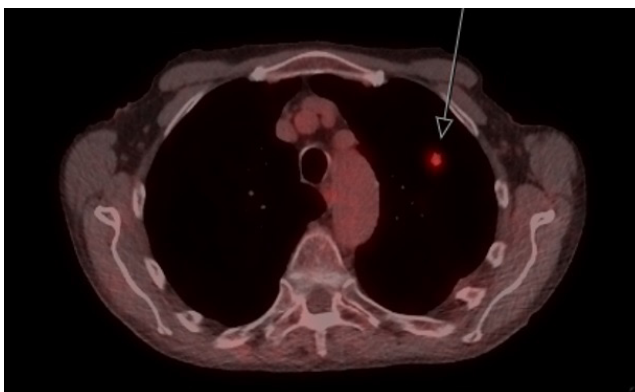
A 69-year-old smoker (46 pack years) was referred due to CT changes. He has experienced haemoptysis and features of chest infection few weeks back. He has been diagnosed with squamous cell carcinoma of soft palate, COPD, and recent pulmonary embolism.

His CT followed by PET CT showed intermediately avid 11-11mm left upper lobe pulmonary nodule. There were atelectatic changes with central necrosis involving the left lower lobe with high FDG activity and a fracture of the left 7th rib. After discussing in lung MDT he was subjected to a left upper lobe wedge resection and left lower lobectomy. Histology from left upper lobe was suggestive of metastatic squamous cell carcinoma and left lower lobectomy showed an ill defined unencapsulated lesion with some debris in the centre. Centrally this comprised of packed acute angled dichotomous branching septate fungal hyphae suggestive of an aspergilloma.

Further evaluation with aspergillus specific IgG was negative. As there was complete resection of the aspergilloma, antifungals were not started and he was referred to oncology for chemotherapy and is under surveillance CT.

Discussion

Pulmonary lesions can be from different aetiology in the presence of multiple lesions. High degree of suspicion and careful evaluation is important to diagnose them accordingly. Radiology pattern evaluation will provide clue to diagnose dual pathology in lungs. Fungal infections can mimic lung cancer and careful evaluation is mandatory to avoid fatal outcomes due to induced immunosuppression by chemotherapy.



AP05-125

Clinical case report of lung aspergillosis infection

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Introduction

Pulmonary aspergillosis is a disease caused by the fungal infection of *Aspergillus*. Pulmonary aspergilloma is a localized form of bronchial alveoli. *Aspergillus* is clinically asymptomatic when not in contact with the trachea.

A 73-year-old man is not a smoker and never been sick before and has never had lung disease. No allergies.

Severities

Liver cirrhosis, Child-Pugh B, MELD 20, Chronic liver failure, s / p TACE for HCC, Hyponatremia, hepatic encephalopathy, portal hypertension syndrome. During a 20-day stay in the intensive care unit and general ward, 1.1cm of central soft tissue density in CT increased after 20 days. 1.2cm of central soft tissue density and surrounding GGO halo nodule in the left upper lobe, enlarged interval, and cavitory metastasis. A bacteriological examination of sputum showed *Aspergillus* spp. Then, 2 months after treatment, the symptoms disappeared and the lung halo nodules returned to normal.

Case presentation

He was presented to the intensive care unit with poor urination and loss of consciousness. He had liver failure, hepatic encephalopathy, cardiac arrhythmias, and sepsis.

1.1cm of central soft tissue density in CT increased after 20 days. Initially, there was not enough sputum, the second test showed *Aspergillus* spp. Treatment should be started with Voriconazole prescribed for a month. CT scan was performed after 2 months, where complete resolution of previously seen multiple cavitory nodules & remained several ground-glass attenuations. Few side effects were reported and hyponatremia and sodium replacement therapy was performed several times. The follow-up examination showed no signs of recurrent cough with sputum, and a follow-up CT scan after 3 months showed no pulmonary changes and hyponatremia.

Conclusion

Patients with cirrhosis are more likely to develop localized aspergillosis associated with long-term neutropenia. The disease is clinically asymptomatic and can be diagnosed by computed tomography and sputum bacteriology. Patients with chronic immunosuppression should early screening of chest computer tomography.

AP05-126

Casirivimab–imdevimab and sotrovimab induce a stronger SARS-CoV-2 neutralizing antibody response than remdesivir

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Background

In patients with the coronavirus disease 2019 (COVID-19), severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) neutralizing antibodies enhance treatment effectiveness, although the effect of treatment on these antibodies remains unknown. We compared anti-SARS-CoV-2 antibody titers in patients with COVID-19 treated with casirivimab–imdevimab, sotrovimab, or remdesivir during the delta- and omicron-dominated epidemics in Japan.

Methods

This single-center, retrospective study included 30 and 34 (vaccinated: 15 and 5; unvaccinated: 15 and 29) patients who received casirivimab–imdevimab and remdesivir–dexamethasone–baricitinib (triple therapy), respectively, during the delta-dominated epidemic; and 16 and 13 (vaccinated: 14 and 12; unvaccinated: 2 and 1) patients who received sotrovimab and triple therapy, respectively, during the omicron-dominated epidemic. Both before and on day 3 of administration, Elecsys® Anti-SARS-CoV-2 Assay (Roche) was used to quantify anti-SARS-CoV-2 antibodies.

Results

Compared with patients who received triple therapy, higher anti-SARS-CoV-2 S antibody titers on day 3 were detected in casirivimab–imdevimab-treated (vaccinated, U/ml, median: 205 vs. 15036, $p=0.01$; unvaccinated: 8.4 vs. 157, $p<0.001$) and sotrovimab-treated (vaccinated: 7347.5 vs. 17042.5, $p=0.085$) patients. All, except one person vaccinated during the omicron epidemic, were cured.

Conclusion

Casirivimab–imdevimab and sotrovimab treatment induced higher anti-SARS-CoV-2 S antibodies than did triple therapy.

The authors have no conflicts of interest to declare.

AP05-127

A critically ill Covid-19 pneumonia case with concurrent polymicrobial (bacterial, fungal and viral) secondary infections

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Introduction

In the earlier phase of COVID-19 infection, high dose steroids remained the only possible treatment for those critically ill. This increases the risk of these patients being more susceptible to secondary infections. We report an unfortunate case of severe Covid-19 infection with culture and biopsy-proven polymicrobial infections.

Case report

A 55-year-old man presented with a one-day history of shortness of breath. He did not have any known comorbidities and was not vaccinated against Covid-19. Upon presentation, he had severe diabetic ketoacidosis (DKA) and was treated accordingly. His rapid test for SARS CoV-2 from a nasopharyngeal swab was positive. He was initiated on intravenous Dexamethasone due to hypoxia with chest X-ray changes showing typical Covid-19 pneumonia. Unfortunately, no other antiviral or immunomodulator was available at the time in the local setting. He continued to deteriorate with increasing oxygen requirements. The CT pulmonary angiogram (CTPA) showed no evidence of pulmonary embolism although there was severe and extensive pneumonia. His blood culture grew both *Pseudomonas aeruginosa* and *Candida grabata* for which intravenous Tazocin and Anulafungin were initiated. Bronchoscopy revealed an endobronchial lesion with histopathological study suggestive of Cytomegalovirus (CMV). Despite multiple ongoing antimicrobial therapies, he succumbed to the illness.

Discussion

The standard treatment with steroids used in Covid-19 pneumonia is a double-edge sword therapy, which requires diligent monitoring for and prompt treatment of secondary infections. The mortality risk is extremely high, particularly in unvaccinated patients with underlying medical conditions as illustrated in this case.

AP05-128

Foreign body aspiration mimicking an endobronchial mass: A case report

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Introduction

Foreign body aspiration is uncommon amongst adults especially in the elderly. Herein, is a case of a 72-year-old male who had non-resolving cough and dyspnea for 2 months despite adequate antimicrobial treatment and the presence of an endobronchial mass on chest computed tomography (CT) scan.

Case report

The patient was diagnosed with community-acquired pneumonia, treated with 1 week of antimicrobials with symptoms relief. The finding of endobronchial mass prompted for bronchoscopy and biopsy revealing reactive cells and possible malignancy. Cough with dyspnea recurred the following week hence readmission. Positron emission tomography (PET) scan showed a lobular density in the right bronchus intermedius and consequently referred to interventional radiology for biopsy showing inconclusive findings. Post-biopsy hemothorax warranted for video-assisted thoracoscopic surgery (VATS), repeat bronchoscopy and biopsy revealing foreign bodies (Figure 1) dislodged at the right bronchus intermedius with surrounding granulation tissue and necrosis. Final histopathology report confirmed the presence of reactive cells from the aspirated food particles and malignancy was ruled out.

Discussion

Foreign body aspiration may present obscurely in the elderly. Whatever the composition and size of the aspirated material, it serves as a nidus for inflammation and injury to the surrounding lung tissues.¹

Although there are numerous reports of aspiration pneumonia, those presenting as an endobronchial mass seems few. This case emphasized that a potential foreign body aspiration should be considered in the diagnosis of any patient with recurrent respiratory symptoms.² Prompt diagnosis and management, bronchoscopy-assisted foreign body removal were found to be successful to reduce morbidity and mortality.³

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Declaration of Competing interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Figure 1: Nuts, raisins, grains extracted from the right bronchus intermedius

AP05-129

Lung biomarker ACE2, IL6, IL10, KL6, TGF Beta of COVID-19 patients: Sex, Geriatric, Brixia, Severity, and Outcome Multi-Analysis Variables

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Background and Aim

Various factors often influence the mortality and severity of Covid-19 patients. We wish to analyze several factors and serum markers that influence this condition.

Methods

Adult patients hospitalized from June – to August 2021 at Universitas Airlangga Hospital who are not pregnant, have HIV/AIDS, and without a history of chronic lung disease. The levels of ACE2, IL6, IL10, KL6, and TGF-Beta were taken from the patient's serum when hospitalized and examined using ELISA. Plain radiographs of the patient's chest were assessed with Brixia. Respiratory function was assessed from FiO₂, PaO₂/FiO₂ ratio, and SpO₂/FiO₂ ratio. Multi-analysis was carried out on gender, elderly group, lung disorders, severity, duration of hospitalization, and mortality.

Results

A total of 74 samples participated in the study, mean age of 50.70 (12.14) years, female 45.9%, geriatric 18.9%, with comorbidities 35.1%, duration of hospitalization 12.00 (7.90) days, severe group 48.6%, and died 3.1%. Various variables are not related to gender and the elderly group. Increasing age was associated with increasing the IL6/IL10 ratio ($r=0.342$, $p=0.023$). The severe group had higher (IL6, IL10, Brixia) and lower (ACE2, KL-6, TGF-B) markers than the non-severe group, with $p>0.05$. The severity was associated with increasing age ($p>0.05$), Brixia score ($r=0.634$, $p=0.000$), FiO₂ ($r=0.548$, $p=0.000$), PaO₂/FiO₂ ($r=-0.375$, $p=0.004$), mortality ($r=0.0456$, $p=0.000$), and there was a significant difference in the two groups.

Conclusion

Increasing age and severity correlated with the IL6/IL10 ratio. There were differences between the two groups in the severity of pulmonary abnormalities, respiratory physiology, and mortality.

Keywords

COVID-19, Biomarker, Brixia, Outcome, Infection Diseases

AP05-130

A case of Mycobacterium abscessus treated with modified regime antibiotic in continuation phase

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Introduction

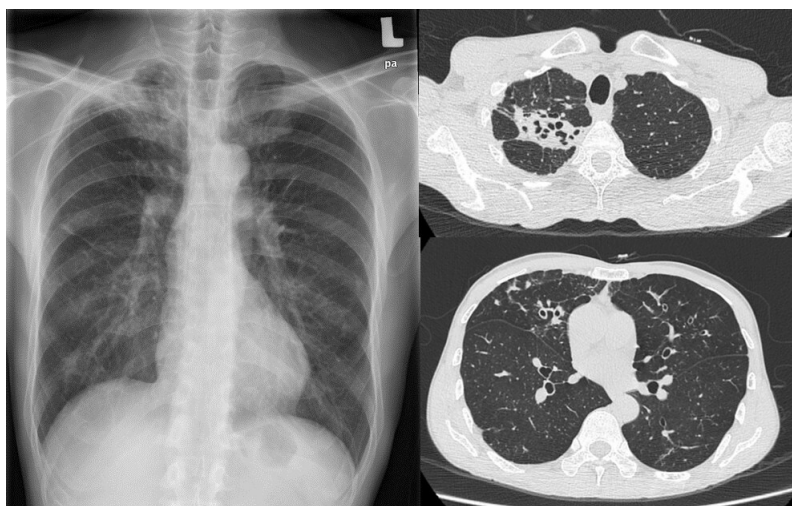
The optimal treatment regime of pulmonary Mycobacterium abscessus include an initial phase of intravenous and oral antibiotics followed by a continuation phase including inhaled and/or oral antibiotics. This case report described a successful treatment of pulmonary Mycobacterium abscessus with modified antibiotics regime.

Case report

A 60-year-old-man, background history of post tuberculosis bronchiectasis presented with haemoptysis on and off for 6 month and loss weight of 2 kilogram. He was afebrile and vital signs were stable. Lung examination showed crepitations at right upper lobe. Chest radiograph showed opacities at right upper lobe and contrast enhanced computed tomography (CECT) thorax showed right upper lobe bronchiectasis changes with multiple nodules. Bronchoscopy showed dilated right and left segmental bronchus. Bronchoalveolar lavage (BAL) for GeneXpert Mycobacterium Tuberculosis (MTB)/Rifampicin and MTB culture were negative and NTM liquid culture grew Mycobacterium abscessus complex susceptible to amikacin, clarithromycin and imipenem and linezolid. Percutaneous intravenous central catheter (PICC) was inserted and patient was started intravenous amikacin 1000 mg (15mg/kg) three times-per-week, oral clarithromycin 500 mg BD and oral linezolid 600 mg daily for one-month active phase and continued with amikacin and clarithromycin for continuation phase. Repeated sputum Mycobacterium tuberculosis culture post 1 month treatment showed negative culture and treatment continued for 12 months duration. Post treatment followed up showed patient clinically improved.

Discussion

Modified regime antibiotics at least 4 weeks intravenous amikacin and additional single oral agent without nebulized treatment are possible for the treatment of pulmonary Mycobacterium abscessus.



AP05-131

Necrotizing Pneumonia in a Patient with Tuberculosis Relapse

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Background

Necrotizing pneumonia (NP) is a severe and potentially fatal complication of CAP characterized by progressive necrosis of lung parenchyma. The rate of morbidity and mortality is significant. Early diagnosis and therapy is very crucial.

Case Report

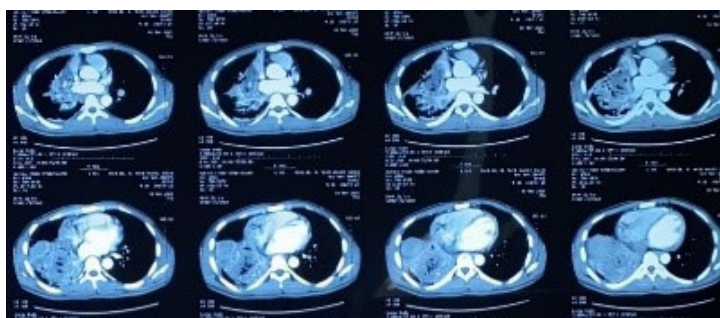
Our patient was a 31-year-old male presented with massive hemoptoe accompanied by right chest pain. The patient had a history of tuberculosis 5 years ago and was declared cured. Due to the suspicion of tuberculosis relapse, anti-tuberculosis drug (ATD) were restarted a month ago. Physical examination showed a cachectic male with dyspnea, asymmetrical chest movement, and desaturation, on the right hemithorax there was decreased vesicular breath sounds and dullness to percussion. No rhonchi or wheezing were found. Chest X-Ray showed a dense opacity on the right lower lobe suggestive of pneumonia. CT scan revealed consolidation in the right lower lobe and cavity with cystic lesion inside with cloudy density fluid suggestive for pneumonia with abscess formation in the right lower lobe. Gram and ZN stain of the sputum revealed gram positive coccus, gram negative bacillus, and negative for acid fast bacilli

Discussion

We report an interesting case of NP in a patient with tuberculosis relapse. The patient was treated with antibiotics as the first choice of treatment for NP with levofloxacin and metronidazole also ATD 4FDC for the tuberculosis relapse. There was no drainage or surgical treatment. On the 9th day of treatment, the patient showed clinical improvement and could be managed as an outpatient.

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The Clogged Airway : A Tough Roe to Hoe

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Introduction

Diffuse Pan Bronchiolitis is an idiopathic inflammatory disease affecting all layers of respiratory bronchioles and lead to suppurative and obstructive airways disease.

Case

We report a case of a 24-year-old girl with Myasthenia Gravis since age of 5 and had thymectomy. She presented with cough with greenish sputum and post nasal drip for 6 months. She was diagnosed with chronic rhinosinusitis and had FESS done. However, her symptoms worsened. Her sputum cultures grew *Pseudomonas Aeruginosa*. Spirometry showed obstructive ventilatory defect no reversibility demonstrable. CT Thorax revealed multiple centrilobular nodules with scattered thickened bronchial wall and presence of lucent areas at both lungs suggestive of diffuse airway disease. She was diagnosed with Diffuse Pan Bronchiolitis with chronic *Pseudomonas Aeruginosa* infection. The management for this patient includes airway clearance, P *Aeruginosa* eradication and immunomodulator. Since nebulized Aminoglycosides and colistin are contraindicated in patients with MG, the choice of nebulized antibiotics was limited to aztreonam. Macrolides which known to cause MG exacerbation was used cautiously as no other alternative available. Genetic and Immune dysregulation tests were sent to establish the cause of DPB.

Discussion

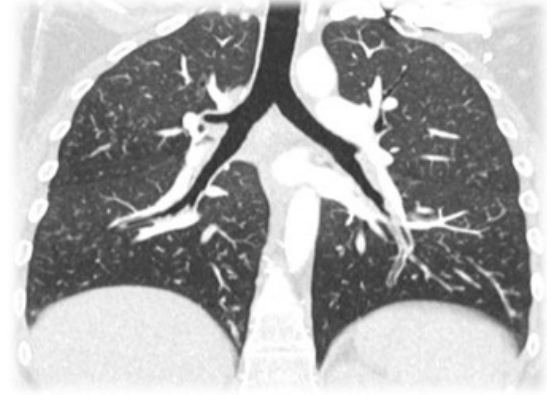
Diagnosis of DPB requires history of chronic productive cough, exertional dyspnoea and chronic sinusitis with supportive radiological evidence. There are few cases reported on DPB in patients with myasthenia gravis due to presence of thymoma. However, the exact association of these disease remains unclear. Macrolides use has improved the 10 years survival rate of DPB patients. There is limited data on management of chronic *Pseudomonas Aeruginosa* in DPB.

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Diffuse bronchiolitis. Axial image of CT Thorax shows multiple centrilobular nodules scattered in both lungs. Some of the nodules are branching (red arrows) indicating distal airway disease. The bronchial wall at right middle lobe is also thickened (yellow arrow). These findings are suggestive of diffuse bronchiolitis. Focal ground glass density at laterobasal segment of left lower lobe suggest focal infective changes (blue arrowhead).



Coronal image of CT Thorax shows diffuse centrilobular nodules through out the lungs associated with bronchial wall thickening in diffuse bronchiolitis. Note the presence of lucent areas at both lower lobes and right upper lobe suggestive of air trapping from diffuse airway disease.

AP05-133

HRCT chest findings in moderate to severe post COVID-19 patients at 4 to 8 weeks follow up.

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Background and Aim

Though RT-PCR (Reverse Transcription Polymerase Chain Reaction) is the confirmatory diagnostic test of COVID-19 disease, chest CT (Computed Tomography) also plays a crucial role, specially in severity assessment. Some previous studies suggest a risk of fibrotic consequences of COVID-19 disease but little is known yet. The present study aimed to explore the pattern of HRCT chest findings at 4-8 weeks follow-up of the patients recovered from COVID-19.

Methods

This cross-sectional study was carried out in the Department of Respiratory Medicine, Dhaka Medical College Hospital. A total of 70 patients were included in this study according to exclusion and inclusion criteria. Informed written consent was taken from each patient. Data collection was done through a pre-structured questionnaire. Collected data were analyzed by using the statistical software SPSS 22.

Results

The mean age of the respondents was 52.3±12.4 (SD) years with a majority in the age group 50-59 years (30%). Clear male predominance was observed (73%). HRCT chest during follow-up at 4 to 8 weeks showed 42.9% partial resolution, 31.4% complete resolution and 25.7% fibrotic changes. In order of frequency, ground-glass opacity (GGO) (65.7%), vascular dilatation (25.7%), consolidation (20%) etc. were the persistent radiological changes at 4 to 8 weeks follow up HRCT chest scan. The presence of hypertension, diabetes mellitus, coronary heart disease, liver disease is significantly associated with fibrotic changes and failure to complete resolution. A more severe initial CT score was associated with persistent radiological changes at follow-up.

Conclusion

Extensive study is recommended to validate the findings.

AP05-134

Recurrent hemoptysis in aspergilloma due to post tuberculosis patient

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Introduction

Pulmonary aspergilloma is a mass caused by a fungal infection. It usually grows in lung cavities with clinical symptoms are predominately hemoptysis that can be life-threatening. The most common condition for initiating aspergillosis is tuberculosis, especially in countries where tuberculosis is an endemic disease.

Case Report

A 24 years old male admitted to Ibnu Sina Hospital with recurrent hemoptysis since 6 years ago. History of complete tuberculosis treatment on 2015 and 2021. Physical examination vocal fremitus decreased in apex of left lung. MSCT Scan Thoraks showed a mass incavity with crescent sign (Fungus Ball) in apex of left Lung. Bronchoscopy showed narrowing with white patches on superior lobe left lung. Microbiological culture on bronchial fluid was found hypha that showed asperillosis appearance. The patient was given 2x200 mg Itraconazole antifungal therapy for 1st year and showed the clinically and radiologic improvement.

Discussion

Post Pulmonary tuberculosis can cause aspergilloma (*Aspergillus fumigatus*). Most aspergillomas are asymptomatic. Occasionally hemoptysis may be present, caused by erosion into bronchial artery may lead to life threatening hemoptysis. The diagnosis is usually based on clinical symptoms and radiological examinations. Several studies suggest the best therapeutic option remains surgery which allows surgical resection but nonsurgical treatment is performed in inoperable patients. Oral itraconazole can provide clinical and radiological improvement. This patient was given antifungal therapy itraconazole and improvement in clinical symptoms.

We greatly thank the Department of Pulmonology and Respiratory Medicine of Medical Faculty of Hasanuddin University, Dr. Wahidin Sudirohusodo Hospital, Department of Pulmonology and Respiratory Medicine of Medical Faculty of Indonesian Moslem University, and Ibnu Sina Hospital for supporting this study

AP05-135

Inhospital death and laboratory features of deceased COVID-19 patient in Dr. Moewardi Hospital, Surakarta, Indonesia

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Background and Aim

Corona Virus Disease-19 (COVID-19) still becoming a worldwide health concern until now. Difference outcome were found in COVID-19 patient, including death. Laboratory data are of importance to prevent an increasing of mortality caused by COVID-19. This study aimed to know the correlation between COVID-19 outcome and inflammatory or fibrin degradation marker.

Methods

A retrospective study is carried out using data from medical records of 84 COVID-19 positive patient at Dr. Moewardi Hospital who are died during hospitalization between January and March 2022. Cases were divided into deceased within 48 hours of admission and deceased after 48 hours of admission as an outcome. Laboratory features obtained including level of IL-6, high sensitivity CRP (hs-CRP), serum ferritin, D-Dimmer, PaO₂/FiO₂ ratio, and ratio of oxygen saturation (ROX) index.

Results

84 patients with confirmed COVID-19 were assessed. The average age of the patient was 58.92 ± 13.7 years. There were 50% (n=42) were below 60 years old, with more underlying comorbidity (95.2%, n=80). Males were 58.3% (n=49) and females were 41.7% (n=35). IL-6 level showed a constant value. There was a significant correlation between the outcome and ferritin, and hs-CRP level.

Conclusion

Laboratory features such as serum ferritin and hs-CRP as an inflammatory marker among COVID-19 patient can be the predictor for patient outcome. Early recognition of the laboratory marker may help to avoid more severe prognosis of the patient.

AP05-136

The frequency and clinical characteristics and incidence determinant of COVID-19 among pulmonologists and pulmonology residents working in the greater Jakarta Area, Indonesia

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Background and Aim

Coronavirus disease 2019 (COVID-19) is an infection with a high transmission rate in Indonesia. We concern that transmission rate of COVID-19 among healthcare worker whose contact with COVID-19 patients is high, about 3.8% occurred in China in February 2020. Data in Indonesia from the Indonesian Doctors Association recorded about 80 specialist doctors transmitted with COVID-19 from their patients in April 2020. High transmission can occur due to close contact, especially among healthcare worker.

Methods

This study uses descriptive study cross-sectional methods with consecutive sampling using secondary data from the main study in May 2020. The subjects were pulmonologist and pulmonology resident working in the Greater Jakarta Area, Indonesia, which belonged to the Indonesia Society of Respirology.

Results

The study involved 134 subjects who met the study criteria. Most subjects were females (87.65%), the mean age was 38.36 (± 9.54) years, and most of them resided in East Jakarta Municipality (52.39%). Median working duration in red zone was five hours a day. The incidence of COVID-19 was 6.7% (9/134), and most was mild degree. We found transmission of COVID-19 in three subjects those who use public transportation which is online taxi ($p=0.005$).

Conclusion

Our study found that the incidence of COVID-19 among pulmonologist and pulmonology residents working in the study site was 6.7%, with most exhibited mild degree. There was a correlation between using online-ordered taxis as mode of daily transportation and the incidence of COVID-19 in the study subjects.

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AP05-137

The Tropical Masquerader: Tropical Pulmonary Eosinophilia masquerading as military tuberculosis

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Introduction

Tropical Pulmonary eosinophilia (TPE) is a clinical manifestation of lymphatic filariasis, a parasitic infection, common in the tropics. It is caused by an immune hyper-responsiveness to microfilariae trapped in the lungs.

Case Report

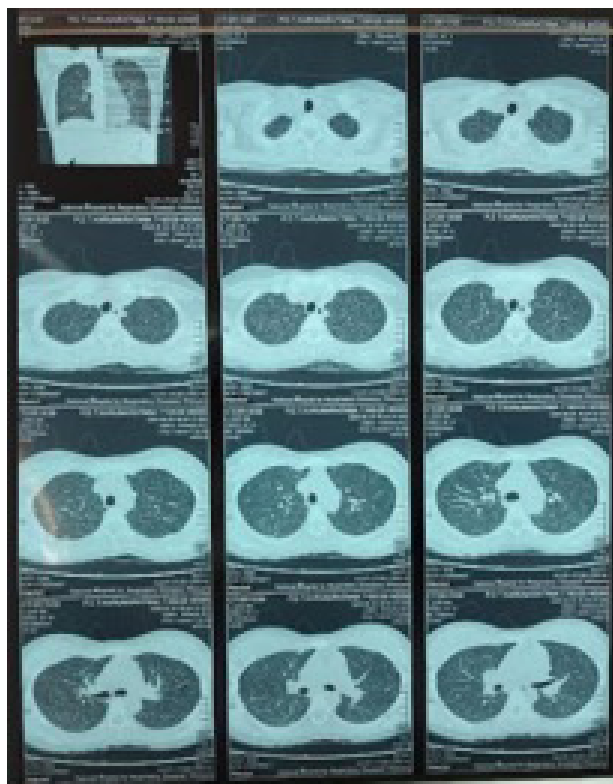
An 18-year-old girl presented with low grade fever and cough which was worse in the evening, without episodes of wheezing. She denied a history of shortness of breath, haemoptysis or loss of weight. There were no skin rashes, oral ulcers or joint symptoms. On examination she was not pale or febrile and did not have any stigmata of connective tissue disorders. There were no clinically palpable peripheral lymph nodes. Her respiratory system examination revealed bilateral coarse crackles. Abdominal examination revealed no hepatosplenomegaly.

Full blood count showed an eosinophilia (WBC 18,000-N 17%, L 13%, E 64%- absolute count 12,000) and ESR of 45 mm/1st hour. Chest X-ray showed bilateral military shadows. Sputum direct smears for acid fast bacilli and XpertTB/Rif were negative. HRCT chest had numerous minute soft tissue density nodules of random distribution in both lungs with no lobar predilection suggestive of military TB. Serum total IgE >1500 IU/ml, Serum filarial antibody (IgG) was positive in high titer (1:1024) and IgM negative.

Diethylcarbamazine (DEC) was started with the addition of a stat dose of albendazole 400mg. With only 6 days of DEC the patient's absolute eosinophil count dropped to 5000.

Discussion

Both tuberculosis and TPE are common in the tropics. TPE can be misdiagnosed as military tuberculosis if radiological interpretation is predominantly relied upon.



AP05-138

Oxidative stress and cataract in patients with COVID-19

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Background and Aim

COVID-19 is accompanied by various complications, including complications from the eyes. Oxidative stress plays a certain role in changes in the lens during the development of cataracts. The aim of the study was to compare the intensity of oxidative stress in the blood of patients with cataract in the presence and in the absence of COVID-19.

Methods

55 COVID-positive and 39 COVID-negative cataract patients participated in the study. The intensity of oxidative stress was assessed by the content of oxidatively modified lipids in the blood. The content of diene conjugates, conjugated trienes, and ketodienes was determined by the UV absorption spectra of lipid extracts from blood sera, lipid hydroperoxides by the colorimetric method.

Results and Conclusions

The content of oxidatively modified lipids in the blood serum had statistically significant differences between COVID-positive and COVID negative patients with cataract. In COVID-positive patients, the content of diene conjugates was higher by 64% ($9.7 \pm 0,46$ and $5.9 \pm 0,45$ $\mu\text{mol/l}$, respectively, p

AP05-139

Post COVID-19 symptoms at one month of discharge among a vaccinated population

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Background

Persistent illness and symptoms have been identified among a considerable proportion of individuals following acute COVID-19. However, the post COVID-19 condition in local settings is poorly described. This study aimed to quantify and evaluate post COVID-19 symptoms in patients diagnosed with COVID-19 in the first month after discharge from hospital and intermediate care centers.

Methods

The post COVID-19 symptoms of patients, with a confirmed diagnosis of COVID-19 infection between April - August 2021 who visited the post COVID clinic, Teaching Hospital, Peradeniya, Sri Lanka were cross-sectionally analyzed.

Results

The sample comprised 212 adults (55.2% females) with a median age of 52.8 years. Over 21% had an initial asymptomatic infection. Mild, moderate, and severe COVID pneumonia was present among 74.40%, 16.91%, and 8.70% respectively. Fatigue (61.79%), shortness of breath (56.13%), anosmia (46.70%), and ageusia (43.40%) were the most common symptoms identified one month after discharge from hospital. Depressed mood was prevalent in 8.94%, and advanced age (≥ 60 years) was identified as a significant predictor of persistent depressed mood (OR 3.6848, 95%CI 1.3607, 9.9785). No significant association was observed with the initial disease severity, need for supplemental oxygen during the hospital stay, and presence of comorbidities (diabetes, hypertension).

Conclusion

One month after acute COVID-19, 98.11% of patients still had at least one persistent post COVID-19 symptom, where the commonest were fatigue, shortness of breath, anosmia, and ageusia. Male sex and advanced age were poor predictors, whereas initial disease severity or presence of comorbidities did not associate with post COVID-19 symptoms.

AP05-140

Effectiveness of Corticosteroid Administration (Dexamethasone, Methylprednisolone, and Hydrocortison) on LDH, CRP, D-Dimer and PaO₂/FiO₂ Ratio in COVID 19 Confirmed Critical Degree at Ulin Hospital, Banjarmasin

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Background and Aim

Steroids are the standard recommended therapy for COVID-19, especially in critically ill patients. Previous studies have shown that steroids are beneficial for inflammatory markers such as C-Reactive Protein (CRP), Lactate Dehydrogenase (LDH) and D-dimer as well as the value of the PaO₂/FiO₂ ratio. This study aims to determine the differences in the effects of the steroids dexamethasone, methylprednisolone and hydrocortisone on inflammatory markers.

Methods

This research is a retrospective cohort study. The samples were all COVID-19 patients with critical degrees from January to June 2021. The independent variables were dexamethasone, methylprednisolone and hydrocortisone. The dependent variables are CRP, LDH, D-dimer and the ratio of PaO₂/FiO₂. The statistical test used was the Kolmogorov-Smirnov test and continued with the Kruskal-Wallis test and the Mann-Whitney U test.

Results

A total of 148 subjects with a total sample of dexamethasone 60, methylprednisolone 55 and hydrocortisone 33. The median age of each steroid was dexamethasone (55.08 + 12.03), methylprednisolone (55.2 + 11.22) and hydrocortisone (58.87 + 12.64). The statistical test results showed a significant difference in the effect of the steroid dexamethasone, methylprednisolone and hydrocortisone on the value of the PaO₂/FiO₂ ratio (p=0.04), and also found that hydrocortisone and dexamethasone were more potent than methylprednisolone in increasing the value of the PaO₂/FiO₂ ratio. The steroids dexamethasone, methylprednisolone and hydrocortisone gave different D-dimer, CRP and LDH values but there was no significant difference between the three.

Conclusion

Administration of hydrocortisone and dexamethasone was statistically superior to methylprednisolone for increasing the PaO₂/FiO₂ ratio.

Keywords

COVID-19, Dexamethasone, Methylprednisolone, Hydrocortisone, CRP, LDH, D-dimer, PaO₂/FiO₂ ratio

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Tabel 2. The significance value of CRP, LDH, D-dimer and the ratio of PaO₂/FiO₂ in the Kruskal-Wallis test

Dependent Variable	Asymp. Sig.
CRP	p=0,982
LDH	p=0,926
D-dimer	p=0,227
Rasio PaO ₂ /FiO ₂	p=0,041*

Tabel 3. Mann-Whitney U test on the PaO₂/FiO₂ . ratio group

Steroid	Asymp. Sig.
Hydrocortisone to Dexamethasone	0,552
Hydrocortisone to Methylprednisolone	0,027*
Dexamethasone to Methylprednisolone	0,43*

AP05-141

Geriatric with Atypical COVID-19 Symptoms

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Introduction

COVID-19 have affected older population disproportionately. Geriatric is prone to have more severe COVID-19. Clinical manifestation of COVID-19 in geriatric can be atypical and differs from younger population.

Case Report

We report a case of 80 years-old male with atypical manifestation of COVID-19.

Discussion

In this case report, we describe geriatric COVID-19 patient with sickness anorexia and gastrointestinal symptoms. We also describe multidisciplinary management in the patient. Clinical manifestation in geriatric with COVID-19 can be atypical. Symptoms experienced may include anorexia and gastrointestinal tract symptoms. Multidisciplinary approach is needed to manage geriatric with COVID-19 to get optimal outcome in the future.

Acknowledgement

Persahabatan Hospital COVID-19 Treatment Team

AP05-142

A COVID 19 confirmed patient who presented with cough and unilateral scrotal pain : A case report

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In the early days of June 2020, a 31-year old man works as a physician, known hypertensive with non-functioning pituitary macroadenoma and allergic rhinitis presented at the emergency department with complaint of 1 day history of non-productive cough this was associated with body malaise and undocumented fever but with relief after intake of Paracetamol. No other symptoms such as sore throat, difficulty of breathing or diarrhea. Laboratories were requested, a complete blood count showed normal leukocyte count with lymphocytosis (33%), Chest Xray showed no infiltrates. Patient remained stable and was given azithromycin as home medications.

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AP05-143

Chronic aspergillosis causing eosinophilia and invasive aspergillosis with bronchopleural fistula, a case report

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Introduction

Invasive aspergillosis occurs predominantly in patients with immune suppression. Histopathologic evidence of tissue invasion or isolation of an organism from a usually sterile site gives the most definitive evidence for invasive aspergillosis.

Case Report

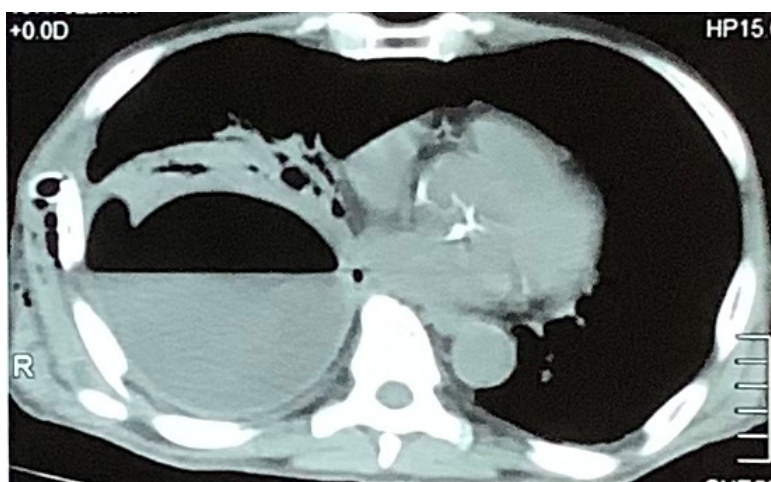
75-year-old male who was under evaluation for eosinophilia, presented with right side pleuritic type chest pain for one week. He was on treatment for seropositive rheumatoid arthritis and was on immunomodulators on admission.

Initially during evaluation for moderate eosinophilia, his bronchial wash fungal culture and Galactomannan antigen were negative. Serum total IgE was marginally elevated (138 IU/ml). Serum Aspergillus specific IgG was positive. Computed tomography (CT) of chest showed features compatible with fungal infection.

On admission there was evidence of right lower zone pleural effusion. Pleural fluid analysis revealed empyema and culture became positive for *Aspergillus Fumigatus*. Empyema was drained with Intercostal tube and started on oral Voriconazole. Contrast enhanced CT of the chest showed evidence of hydropneumothorax complicated with bronchopleural fistula. Upon commencement of antifungal treatment patient developed warm type autoimmune hemolytic anemia (AIHA) with positive Direct Coombs test, positive IgG 3+, negative C3d, increased retic count, and elevated indirect bilirubin levels. Hemoglobin dropped to 6.6g/dl and it responded to concomitant treatment with steroids.

Conclusion

Chronic *Aspergillus* infection is a cause for eosinophilia. Invasive aspergillosis can cause bronchopleural fistula and empyema in immunosuppressed population. AIHA in this patient could be due to either antifungals or fungal infection. Usually infections cause cold type AIHA, leaving Voriconazole as the cause for warm type AIHA in our patient.



AP05-144

An unusual complication in a case of COVID-19 : large para-aortic haematoma representing significant internal organ bleeding

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Introduction

COVID-19 is associated with high risk of thrombosis. However bleeding also described in recent studies. Here we describe a large para-aortic haematoma representing significant internal organ bleeding which is rarely described, especially while the patient is on standard prophylactic dose of anticoagulation.

case report:

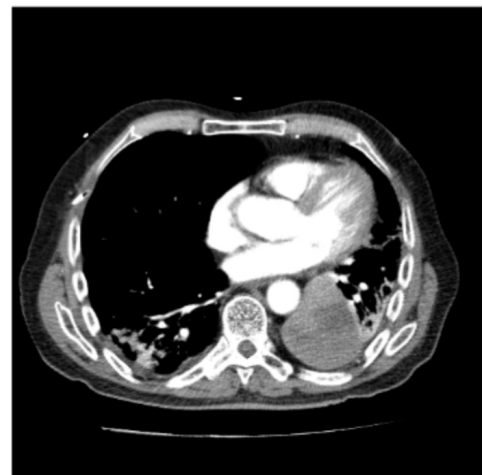
A 77-year-old gentleman with a background of ischaemic heart disease and hypertension admitted with fever, cough and shortness of breath for 5 days and tested positive for COVID-19. On examination he was dyspnoeic and had bilateral crepitations in the chest.

Initial chest imaging showed bilateral groundglass opacifications suggestive of pneumonitis and he was treated with dexamethasone, remdesivir, Ronapreve (imdevimab and casirivumab), Sarilumab, antibiotics and CPAP therapy for type 1 respiratory failure. He received standard recommended dose of enoxaparin for VTE prophylaxis (subcutaneous 40mg twice daily)

Repeat CT Chest performed due to persistent hypoxemia on day 15, which showed persistent pneumonitis and an unusual finding of large organised para aortic haematoma. At this point, coagulation profile and platelet count normal. No other bleeding manifestations. Mild haemoglobin drop noted. Patient was managed conservatively with stopping enoxaparin and regular monitoring. A repeat CT scan was planned in 3 months.

Discussion

Causes for bleeding in COVID-19 is multifactorial. A recent study showed an overall bleeding rate of 4.8%. Most of the bleeds happen while patients on treatment dose of anticoagulation or when developed DIC. Because the COVID-19 associated prothrombotic risk is known, prophylactic anticoagulation has become part of standard COVID-19 treatment. However, clinicians have to be cautious with anticoagulation as the coagulopathy of COVID-19 is complex and potentially dynamic.



AP05-145

An Analysis of Antibody Positive Rate after COVID-19 Vaccination in a Homeless nursing facility

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Background

In the COVID-19 situation, the homeless are facing a more serious threat in terms of health equity. However, there are few studies related to immune protection after COVID-19 vaccination.

Methods

The subjects were residents and workers of a homeless nursing facility, which were fully vaccinated groups and were not confirmed to COVID-19. Their data(BMI, underlying diseases, vaccination history and antibody test) were obtained.

Results

Of analysis subjects, 431 were homeless and 160 were workers. In the homeless and workers, the positive rates in the chemiluminometric immunoassay were 98.6% and 100%, respectively. And the antibody positive rates of rapid antibody kit test in them were 42.9% and 61.9%. In the case of underlying diseases, the antibody positive rate was low in both groups. The antibody positive rate significantly decreased after four months of vaccination. In the case of cross-vaccination, the antibody positive rate was higher than in the case of the same vaccine.

Conclusion

It is effective to perform cross-vaccination in the homeless and the rapid antibody kit test is not suitable as a screening test in the homeless.

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AP05-146

Lung Abscess development after administration of methylprednisolone in a critically-ill COVID-19 patient

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Introduction

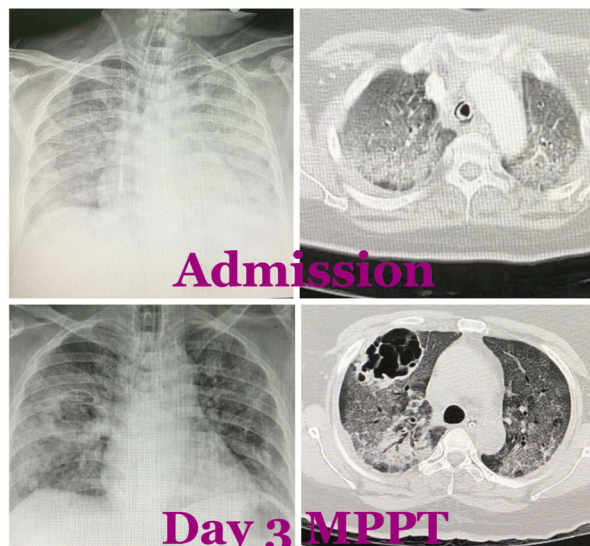
The use of high dose methylprednisolone in critically ill COVID-19 patients has been employed during the COVID-19 pandemic and initial reports have positive outcomes in terms of shorter recovery time, lower mortality and shorter days on mechanical ventilator. However, possible complications have not been well studied and documented.

Case Report

This paper reports a 64 years old female, known hypertensive and Type 2 Diabetes Mellitus maintained on Losartan and Metformin. She also received COVID-19 Vaccine 2 weeks prior to developing symptoms of nonproductive cough and progressive dyspnea and eventually testing positive for COVID-19 via RT-PCR. On admission, she was initially placed on face mask for oxygen support before she was shifted to high flow nasal cannula, but she was eventually put on mechanical ventilation due to progressive hypoxemia. Dexamethasone 6mg TIV once a day was started, remdesivir and tocilizumab were also given. Hemoperfusion was also initiated by Nephrology but with no improvement. She was then given Methylprednisolone 50 mg TIV q12. However, after the third dose of methylprednisolone, patient developed lung abscess as initially seen in chest radiograph and was also confirmed by CT scan. ET CS revealed heavy growth of panresistant *Acinetobacter baumannii*. Patient was given Meropenem and Polymixin and was eventually extubated and discharged without oxygen support.

Discussion

Although the use of high dose methylprednisolone in critical COVID-19 patients have shown positive effects, it is recommended that possible complications such as lung abscess should be taken into account especially in patients who have immunocompromising comorbidities such as diabetes mellitus.



AP05-147

COVID-19 outcomes associated with clinical and demographic characteristics in patients hospitalized with severe and critical disease in Peshawar

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Background and Aim

As a novel disease, understanding the relationship between the clinical and demographic characteristics of coronavirus disease 2019 (COVID-19) patients and their outcome is critical. We investigated this relationship in hospitalized patients in a tertiary healthcare setting in Pshawar, Pakistan..

Methods

In this cross-sectional study, medical records for 1087 COVID-19 patients were reviewed to extract symptoms, comorbidities, demographic characteristics, and outcomes data. Statistical analyses included the post-stratification chi-square test, independent sample t-test, multivariate logistic regression, and time-to-event analysis.

Results

The majority of the study participants were >50 years old (67%) and male (59%) and had the following symptoms: fever (96%), cough (95%), shortness of breath (73%), loss of taste (77%), and loss of smell (77%). Regarding worst outcome, multivariate regression analysis showed that these characteristics were statistically significant: shortness of breath (adjusted odds ratio [aOR] 31.3; 95% CI, 11.87–82.53; $p < 0.001$), intensive care unit (ICU) admission (aOR 28.3; 95% CI, 9.0–89.6; $p < 0.001$), diabetes mellitus (aOR 5.1; 95% CI; 3.2–8.2; $p < 0.001$), ischemic heart disease (aOR 3.4; 95% CI, 1.6–7; $p = 0.001$), nausea and vomiting (aOR 3.3; 95% CI, 1.7–6.6; $p = 0.001$), and prolonged hospital stay (aOR 1.04; 95% CI, 1.02–1.08; $p = 0.001$), while patients with rhinorrhea were significantly protected (aOR 0.3; 95% CI, 0.2–0.5; $p < 0.001$). A Kaplan–Meier curve showed that the symptoms of shortness of breath, ICU admission, fever, nausea and vomiting, and diarrhea increased the risk of mortality.

Conclusion

Increasing age, certain comorbidities and symptoms, and direct admission to the ICU increased the risk of worse outcomes. Further research is needed to determine risk factors that may increase disease severity and devise a proper risk-scoring system to initiate timely management.

Table 3. Multivariate logistic regression analysis of various characteristics					
Characteristics		aOR	95% C.I.s		p-value
			Lower	Upper	
Gender					
	Female	Ref			
	Male	0.725	0.483	1.086	0.119
*Fever					
	No	Ref			
	Yes	5.526	1.442	21.174	0.013
*Shortness of breath					
	No	Ref			
	Yes	31.302	11.873	82.525	< 0.001
*Rhinoirrhoea					
	No	Ref			
	Yes	0.302	0.183	0.500	< 0.001
Diarrhea					
	No	Ref			
	Yes	1.262	0.633	2.515	0.509
*Nausea and vomiting					
	No	Ref			
	Yes	3.347	1.688	6.639	0.001
*Diabetes Mellitus					
	No	Ref			
	Yes	5.079	3.153	8.179	< 0.001
Hypertension					
	No	Ref			
	Yes	1.546	0.963	2.481	0.071
*Ischemic Heart Disease					
	No	Ref			
	Yes	3.369	1.628	6.969	0.001
*Days of Hospitalization		1.048	1.020	1.077	0.001
*Unit of admission					
	HDU / Isolation ward	Ref			
	ICU	28.330	8.955	89.631	< 0.001

*p-value < 0.05 shows statistical significance

taOR= adjusted odds ratio

AP05-148

The influence of Gender on Characteristics and Outcomes of Coronavirus-19 Patients

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Background and Aim

The influence of gender on clinical outcomes of patients with COVID-19 is unclear. The purpose of this study was to evaluate the clinical characteristics and outcomes associated with COVID-19 management based on gender differences.

Methods

We retrospectively reviewed COVID-19 patients who admitted tertiary hospital between January 2020 and March 2021. Logistic regression analysis was used to evaluate factors associated with in-hospital mortality.

Results

During study period, 584 patients admitted the hospital. Among them, 305 patients (52.2%) were female, and 279 patients (47.8%) were male. Female was older [58.0 (48.0 – 68.0) vs. 55.0 (39.0 – 64.0), years, $p < 0.001$].

Conclusion

We found no definite sex difference in the clinical characteristics and outcomes of COVID-19 patients. However, a better understanding of gender-dependent differences in COVID-19 patients could help understand and treat patients.

AP05-149

Pulmonary Rhizopus in an Immunocompetent Adult Filipino: A Case Report

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Introduction

Mucormycosis generally is acute and highly devastating, but usually does not occur outside the context of severe immunocompromised state. It is less common than other fungal opportunistic infection which makes its incidence difficult to calculate accurately. Mortality from mucormycosis is high which makes mucormycosis one of the most important clinical entities. The genera most commonly found in human infections are Rhizopus, Mucor, and Rhizomucor.

Case Report

This is a case of pulmonary Rhizopus infection in a 57 year old female without evidence of immunodeficiency with a medical history of controlled hypertension and previous treatment for pulmonary tuberculosis. She presented with non-productive cough of 5-months duration and unintentional weight loss. Chest x-ray and Chest CT scan compared from 3 years baseline post 6 months treatment for pulmonary tuberculosis showed progression of densities in the right upper lobe, lingula and right lower lobe. Bronchoscopy with bronchoalveolar lavage were performed demonstrating dilated airways with bronchial pits in the right upper lobe and copious milky to purulent secretions. Lavage analysis demonstrated an inflammatory process. Culture grew Rhizopus species. Immunodeficiency panel were all negative. She was started with Posaconazole and amphotericin B until resolution of symptoms.

Discussion:

Diagnosis of Rhizopus infection is difficult and often necessitates an invasive procedure. Treatment is complex and involves multidisciplinary approach. Sparse literature portends to a poor prognosis, if untreated. Owing to its paucity of specific clinical picture, challenging diagnosis, treatment, and prognosis, the best approach entails a high index of suspicion to ensure early diagnosis and aggressive management.

AP05-150

Effect of vitamin D on the synthesis of cathelicidin in elderly patients with lung infections

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Background and Aim

Vitamin D may play a role in mediating interactions between innate and adaptive immune system pathways.

The aim of the study was to determine the effect of vitamin D on the synthesis of antimicrobial peptides in pneumonia in elderly patients.

Methods

The study involved 100 patients with pneumonia of moderate and severe course. The mean age of the patients was 68.8±4.8 years. The control group consisted of 50 relatively healthy volunteers without bronchopulmonary pathology. Serum LL-37 levels were determined by ELISA. Serum vitamin D levels were analyzed using high performance liquid chromatography.

Results

The total content of vitamin D was determined in patients with pneumonia, which was significantly lower, than in the comparison group ($p=0.001$). The negative correlation was found between the concentration of vitamin D and the age of patients with pneumonia ($r=-0.49$, $p=0.0009$). In severe pneumonia, the average level of vitamin D was significantly lower than in patients with moderate pneumonia (p

AP05-151

The Association Of Inflammatory Markers with Acute Respiratory Distress Syndrome in COVID-19 Patients

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Background and Aim

Acute respiratory distress syndrome (ARDS) is one of the most common complications of COVID-19 with a high mortality rate. ARDS appears as an organ dysfunction in the hyperinflammatory phase of COVID-19. There is a scarcity of information on the clinical features and inflammation markers of people with severe COVID-19 and ARDS. This research was aimed to investigate evaluate the association of inflammatory markers with COVID-19-associated ARDS among patients hospitalized with COVID-19 cases in H Adam Malik Hospital Medan.

Methods

This is an analytical cross-sectional study from 204 medical record on patients hospitalized with confirmed case COVID-19 with severe and critical degree in RSUP H Adam Malik Medan between February and July 2021. The chi-square test was carried out to analyse the data with SPSS version 25.

Results

We analysed laboratory tests to identify the inflammatory marker in 204 COVID-19 majority were male (119 vs 85) admitted to Department of Pulmonology and Respiratory Medicine, Adam Malik General Hospital. We investigated the association between inflammatory markers and ARDS. Statistical analysis revealed that the neutrophilia, higher neutrophil-to-lymphocyte ratio (NLR), and high levels of the procalcitonin were associated risk factor for ARDS event (respectively: PR:1.685, 95%CI:1.651-5.486, $p<0.05$)

Conclusion

There was associations between inflammatory markers with ARDS. Neutrophilia, elevated NLR, and high levels of procalcitonin prior hospitalization could be considered as risk factors for ARDS in severe COVID-19 allowing clinicians to adjust treatment strategies aggressively to reduce mortality.

Keywords

SARS-CoV-2; COVID-19; ARDS; inflammation markers; Indonesia

AP05-152

Prevalence and outcome of silent hypoxia in COVID-19 leading to intubation, A single-center retrospective cohort study.

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Background and Aim

In the early stages of COVID-19 pneumonia, hypoxemia without dyspnea have been reported. However, the mechanism of this is not clear. In addition, we have experienced that some patients do not complain of dyspnea at rest even in severe cases.

Methods

A single-center, retrospective cohort study of COVID-19 patients who underwent intubation due to hypoxemia, based on data extracted from an electronic hospital information system. The patients were divided into two groups according to the presence or absence of dyspnea at rest immediately before intubation, and symptoms, clinical indices, blood gases, and laboratory data were compared between the two groups.

Results

A total of 46 cases were analyzed. Half of the patients did not complain of dyspnea at rest, even immediately before intubation. (Non-dyspneic n=22, Dyspneic n=22) There were no significant differences in various clinical indices (age, gender, BMI, presence of olfactory impairment, and comorbidity) between the two groups. Non-dyspneic patients compared to the dyspneic patients showed a better PaO₂/FiO₂ ratio (130±48 mmHg vs 114±46 mmHg). Dyspneic patients had similar PaCO₂ but more respiratory rates (21.9±3.4 bpm vs. 27.1±8.3 bpm respectively).

Conclusion

Even in severe conditions, half of the COVID patients did not complain of dyspnea, but more severely ill patients with poorer lung compliance may have complained of dyspnea and increased respiratory rate.

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AP05-153

Hospital in the Home for the Management of Bronchiectasis

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Background and Aim

Patients with bronchiectasis often require parenteral antibiotics for the management of their lung disease. This has generally required inpatient admission. Recently, Hospital in the Home (HITH) services have become available as a potential alternative for the administration of domiciliary intravenous (IV) antibiotics.

This study assessed outcomes in both cystic fibrosis (CF) and non-CF bronchiectasis patients who were administered IV antibiotics via HITH.

Methods

A retrospective study of subjects was done in both CF and non-CF groups who had been managed with IV antibiotics by the HITH service at Monash Health.

Results

There were 51 episodes of care in the non-CF group (22 subjects) and 73 episodes in the CF group (13 subjects). The non-CF group were nearly all treated with once daily IV Ceftriaxone (49/51 episodes), with an average duration of 9 days via a peripherally inserted venous canula (84% of episodes). In contrast, the CF group generally required dual IV antibiotics (64% of episodes), with an average duration of 17 days via central IV access (100%). In the non-CF group, the admission rate to hospital after 1 month was 9.6% and in the CF group was 0%. At 3 and 6 months the readmission rate for the non-CF group was 15.7% and 19.6% and CF group was 21.9% and 31.5%. There was a low rate of side effects for the HITH admissions (2% for the non-CF group and 7% for CF group).

Conclusion

Hospital in the Home is a viable alternative for the management of bronchiectasis.

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Disclosure Statement

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AP05-154

A Case Report of a 29 year old male with Primary Extragonadal Germ Cell Tumor Presenting as anterior Mediastinal mass

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Introduction

Primary Mediastinal Seminoma is a rare extragonadal germ cell tumor which comprises only 10% of all mediastinal tumors. This tumor usually have a very slow growth pattern, where patients are often asymptomatic and would present as an incidental finding however the tumor may grow large enough that would present with compressive symptoms.

Case Report

This is a case of a 29-year-old-male who presented with a history of 2 month duration of cough. High Resolution Chest Computed Tomography was done which revealed a large anterior mediastinal mass. Anterior Mediastinotomy with biopsy of the mass was done. Fluid studies were done and an incidental finding of an Extrapulmonary Nontuberculous Mycobacterial Infection was seen. During the course, Superior Vena Cava Thrombus was also found. Patient was discharged stable and started on chemotherapy.

Discussion

The most common presenting symptoms are the following: chest pain, dyspnea, cough, weight loss, SVC Syndrome and nausea. Chest Xray, Chest Ct Scan, MRI or PET scan can be used to evaluate the mass depending on its origin and location. Germ Cell tumor usually secrete alpha fetoprotein, beta human chorionic gonadotropin and lactate dehydrogenase. These laboratory tumor markers can be used in the diagnosis and in evaluating the response of patient to therapy. The recommended chemotherapy regimen is 4 cycles of BEP Chemotherapy: Bleomycin, Etoposide and Cisplatin.

Nontuberculous mycobacteria infection are ubiquitous environmental organisms commonly found in water and soil. It can be categorized into slowly growing mycobacteria and rapidly growing mycobacteria, according to Runyon's classification (slow growing: >7 days and Rapid growing:

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AP05-155

Clinical experience and outcomes of critically-ill patients in a tertiary hospital who received Leronlimab for compassionate use as an adjunct therapy for COVID-19

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Background and Aim

COVID-19 remains a burden to the healthcare system worldwide and continuously poses threat due to its significant morbidity and mortality rates. Recommendations for treatment are evolving with the discovery of novel interventions. A humanized monoclonal antibody targeting CCR5 receptor known as Leronlimab has been included in the list of investigational medications considered for COVID-19. It binds CCR5 on T-lymphocytes, and regulates the influx of immune cells such as in cytokine storm. With limited literature describing its profile, we came up with this study which aims to describe the outcomes of COVID-19 patients who received Leronlimab.

Methods

After informed consent was secured, Leronlimab 700 mg was given as adjunct treatment once a week on open label compassionate-use basis to critical COVID-19 patients. Baseline characteristics, laboratory test results, side effect(s) and/or adverse drug reaction, oxygen requirement, complications and outcomes were extracted via review of electronic health records.

Results

Five patients who received at least one dose of Leronlimab were included. Leronlimab was well tolerated by subjects without significant adverse effect reported. Two were successfully extubated after a mean of 10 days of intubation. However, no significant change in inflammatory markers was noted.

Conclusion

Our findings may suggest benefit of early (within five days from the time of intubation) administration of Leronlimab as adjunct treatment among critical COVID-19 patients. However, due to the low sample size, results are still not conclusive. Randomized controlled trial to determine its effect among critical COVID-19 patients whether as adjunct or as stand-alone medication is still warranted.

AP05-156

Pyopneumothorax - a rare complication of tricuspid valve infective endocarditis with septic pulmonary embolism

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Introduction

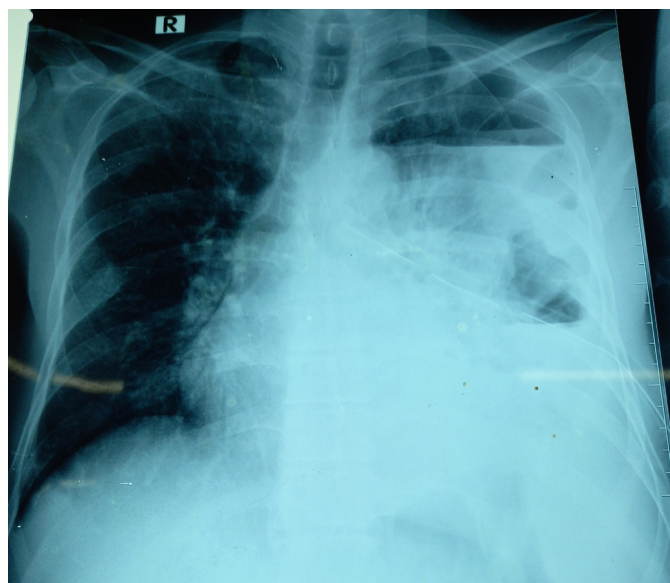
Tricuspid valve endocarditis commonly occurs in immunocompromised individuals such as intravenous drug abusers. Pyopneumothorax is an unusual serious complication of infective endocarditis. Timely diagnosis and early intervention is lifesaving.

Case report

A 46year old male presented with fever, productive cough, yellowish sputum, and haemoptysis for the one-week duration. On examination, he was emaciated and had tattoo marks and needle track marks on the forearm. His systemic examination revealed left side reduced breath sounds with coarse crepitation and holosystolic murmur on the left sternal edge. His investigations revealed high inflammatory markers and the chest x-ray showed left side hydropneumothorax which required intercostal tube drainage which revealed an empyema. Transthoracic echocardiography revealed a large vegetation attached to the tricuspid valve leaflet. His blood culture and pleural fluid culture were positive for methicillin-sensitive *Staphylococcus aureus* (MSSA). As he was poorly responding to antibiotics, he needed tricuspid valve replacement with lung decortication and pleurodesis.

Discussion

Pyopneumothorax is a life-threatening serious complication. This case highlights the need for a thorough assessment and evaluation of patients with fever and haemoptysis in intravenous drug abusers. Early treatment with broad-spectrum antibiotics and appropriate surgical intervention is lifesaving.



AP05-157

Severe COVID-19 pneumonia and pneumomediastinum case that complicated with CMV infection

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Introduction

Pneumomediastinum and concomitant cytomegalovirus (CMV) is rare in severe coronavirus disease (COVID-19). The diagnosis can be challenging. Here we present a COVID-19 patient with pneumomediastinum that complicated with CMV. Weakened interferon (IFN) response contribute to the severe forms of COVID-19(1). A reactivated CMV infection will also weaken the IFN response which is important in COVID-19, making the situation worse(1).

Case Presentation

A 41 years old female patient who had COVID-19 was admitted with shortness of breath and cough. She had been treated with immunosuppressive drugs for rheumatoid arthritis for 22 years otherwise her medical records were unremarkable. During the follow up her lung consolidations and oxygen requirement increased. She was treated with high dose steroids. On the 8th day of follow up she complained with a sudden increase of shortness of breath. On her physical examination subcutaneous emphysema was detected. With a subliminally diagnosis of pneumothorax chest computed tomography (CT) was ordered. CT revealed abundant pneumomediastinum. She was discharged with home oxygen when her lung infiltrations and mediastinal air leak reduced. During the follow up her lung consolidations were reduced gradually. In the 4th month of follow up with sudden increased consolidations in both lung fields and shortness of breath she was tested with all possible pathogens. She tested positive for SARS-CoV2 again and CMV was detected high in the blood test.

Discussion

This is a very complicated and severe case of COVID-19. We should be aware of concomitant pathogens in immunosuppressed patients with COVID-19.

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AP05-158

Relationship between Serum Levels of TGF- β , CTGF and Brixia Score in Covid-19 Pneumonia Patients

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Background and Aim

One of the causes of death in COVID-19 pneumonia is extensive lung damage. TGF- β and CTGF are pro-inflammatory mediators that are known to cause lung damage. The higher the Brixia score, the more extensive lung damage that occurs. The objective is to obtain relationships between levels of CTGF, TGF- β and Brixia Score.

Methods

This is observational analytic study using a cross-sectional design on patients with COVID-19 pneumonia at Government Hospital in Surabaya. Blood sampling was carried out within 3x24 hours from the positive PCR results. Nasopharyngeal/oropharyngeal swab was performed in the first 24 hours since the patient was admitted to the hospital. A chest X-ray was performed at the beginning of the patient's arrival at the hospital. The chest X-ray was then assessed by the Brixia method. The value obtained is then calculated statistically by the Spearman method.

Results

Total 62 patients with COVID-19 pneumonia, the serum level mean of CTGF and TGF- β was 304.39 ± 320.99 pg/mL and 975.82 ± 1079.85 ng/mL, respectively and the average of Brixia score was 11.81 ± 4.66 . From statistical analysis, the relationship between CTGF and Brixia score is $r = -0.170$, p -value = 0.093, while the relationship between TGF beta and Brixia score is $r = -0.293$, p -value = 0.010.

Conclusion

TGF beta and Brixia Score have significant negative relationship, but there is no significant relationship between CTGF and Brixia Score. This research will change our view of the role of pro-inflammatory mediators in lung damage in Covid-19.

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AP05-159

Role of MMP-9, TIMP-1 in Lung Abnormality and Functional Respiratory Disturbance of COVID-19

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Background and Aim

Pulmonary abnormalities in COVID-19 patients are common. The role of the extracellular matrix needs to be studied in these patients to determine pulmonary abnormalities and their clinical impact.

Methods

Adult hospitalized COVID-19 patient from March to November 2021 in Universitas Airlangga Hospital, Indonesia. Patients with Chronic Respiratory Disease, pregnancy, and HIV were excluded from the study. MMP-9 and TIMP-1 levels were measured from the blood. The Brixia index was assessed through X-ray examination.

Results

A total of 72 samples participated in the study, the mean age was 50.79 (12.29) years, male 54.2%, geriatric 19.4%. The sample was divided into two groups, namely severe and non-severe. The average level of MMP-9 was 1,124.99 (1212.21) ng/dl, TIMP-1 was 6.74 (7.09) ng/dl. The levels of MMP-9 in the non-severe vs severe group (1,430.09 (1,492.22) vs 819.90 (750.13)). TIMP-1 levels in the non-severe vs severe group (8.61 (9.09) Vs 4.88 (3.49)). Both MMP-9 and TIMP-1 showed a significant difference, $p < 0.05$. The increase in MMP-9 was comparable to that of TIMP-1 with a linear $R^2 = 0.945$. Pulmonary abnormalities from chest radiographs using normal Brixia index 6.9%, mild 23.6%, moderate 29.2%, and severe 40.3%. The values of FiO₂ in the two groups of COVID-19 severity were significantly different ($p < 0.05$). There is a significant relationship between $p < 0.05$ Brixia value with FiO₂ ($r = 0.544$).

Conclusion

Elevated MMP-9 and TIMP-1 enzymes are associated with pulmonary abnormalities in COVID-19 patients as assessed by the Brixia index. Brixia can describe abnormalities and respiratory function.

Keywords

COVID-19, Chest X-Ray, Extracellular Matrix, Respiratory Diseases, Infection Diseases

Acknowledgment

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AP05-160

Characteristics and treatment outcomes of patients with *Mycobacterium abscessus* in Hong Kong

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Background and Aim

Non-tuberculous mycobacteria infection (NTM) is getting more common nowadays. Of which, *Mycobacterium abscessus*, is notoriously difficult to treat. This is because of the poor understandings in drug susceptibility profiles, optimal treatment regimen and treatment outcome.

Methods

Patients data from 2016 to 2017 were retrieved via the Clinical Management System. Baseline demographics, drug susceptibility profiles, treatment regimen and duration, sputum culture conversion, clinical outcomes and mortality were recorded.

Results

Fifty-four patients who suffered from *Mycobacterium abscessus* pulmonary disease were recruited. The mean duration of follow-up was 1094 +/- 490 days.

In 32 cases drug susceptibility profiles were available. In sixteen cases (50%) resistance to clarithromycin was found. Inducible macrolide resistance was noted in all 16 macrolide resistance cases (100%).

Thirty-four patients were treated and the mean total duration of treatment was 273 +/-149 days. This included an initial intensive intravenous phase (45+/- 12 days of imipenem/cilastatin and intravenous amikacin plus oral macrolide and/or other drugs) followed by a macrolide-based maintenance phase. Sputum conversion rate was significantly higher in the treatment arm (23/34, 67.6%) than in the conservative treatment arm (6/19, 31.6%) (p=0.011). Treatment was not associated with any mortality benefit (p=0.347).

Conclusion

A macrolide based treatment regimen with a mean duration of around 39 weeks (273 +/-149 days), including an initial 6-weeks intensive intravenous phase (45+/- 12 days of imipenem/cilastatin and intravenous amikacin plus macrolide and/or other drugs) is associated with significantly higher sputum culture conversion rate than conservative treatment.

References

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Sputum Conversion rate

	No sputum conversion (%)	Sputum Conversion (%)	Total
Conservative Group	13 (68.4%)	6 (31.6%)	19
Treatment Group	11 (32.4%)	23 (67.6%)	34
Total	24 (45.3%)	29 (54.7%)	53

AP05-161

Cavitary lung lesion during COVID-19 pneumonia, two cases associated with uncontrolled diabetes

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Introduction

Coronavirus disease 2019 (COVID-19) pandemic has resulted significant morbidity and mortality.[1] Cavitary lung lesion in patients with COVID-19 disease is not uncommon(1.7% 12/612), and associated with morbidity and mortality.[2] Common organisms causing cavitary lesions are Staphylococcus aureus, Klebsiella pneumoniae, Streptococcus pneumoniae, Haemophilus influenzae, typical and atypical Mycobacterium, and Aspergillus. [3] October 2021 to April 2022, our hospital treated corona inpatients. For 6 months, 307 hospitalized patients with corona pneumonia were treated, and cavitary lung lesion was confirmed 2 out of 307(0.6%). We would like to report our experiences.

Case report

Case 1. A 59-year-old male with elevated procalcitonin [76.1 ng/ml] and CRP [14.62 mg/dl]. Glycated Hb(HbA1C, 16.9 %) was high at the time of admission. Treatment started with anti-viral agent(remdesivir), dexamethasone and antibiotics(moxifloxacin) together. The clinical course was stable and he was discharged. Additional CT was planned to check but patient refused. Chest X-ray was improved. [Figure 1.]

Case 2. A 65-year-old female with high glycated Hb(HbA1C, 13.5 %). Extensive ground glass opacity in both lung. Treatment started with anti-viral agent(remdesivir), dexamethasone and antibiotics(piperacillin/tazobactam). After 2 weeks, worsening was confirmed in the chest CT.[figure 2.] One week later, during ventilator care, the patient died.

Discussion

2 out of 307(0.6%) corona pneumonia inpatients had cavitary lung lesions. Both were patients with uncontrolled diabetes. We believe that further studies may be needed in the future whether uncontrolled diabetes mellitus and high HbA1C results can be a causative factor that can cause cavities in COVID-19 viral pneumonia and even for those of other general viral pneumonias.

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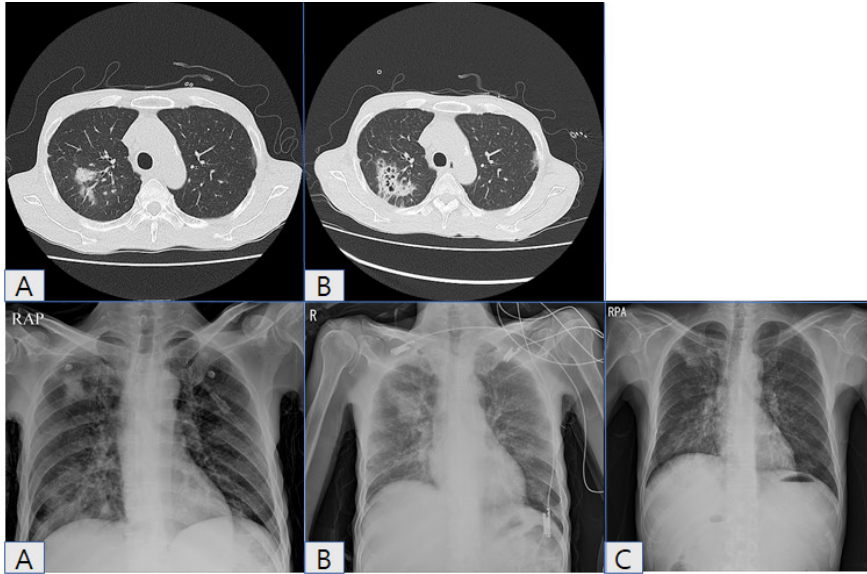


Figure 1. 59-year-old male, HbA1C 16.9%

A : Initial Chest image shows Consolidation of right upper lung.

B: 10 days after treatment, cystic cavity lesion appeared, right upper lung. Relatively stable vital signs and laboratory tests.

C : 21 days after treatment, improvement of chest X-ray was seen in right upper lung area. But patient refuse to check CT scan so can not distinguish improvement of cavity lesions in right upper lung.

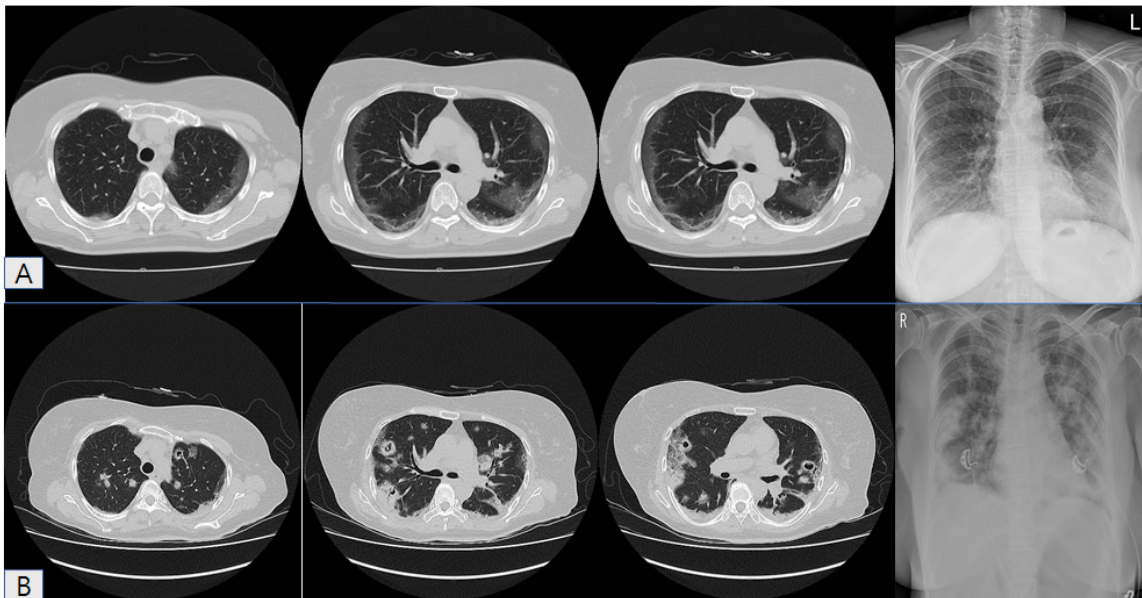


Figure 2. 65-year-old female, HbA1C 13.5%

A : Initial Chest image shows ground-glass opacities(GGO) in base of both lung.

B: 14 days after treatment, GGO lesions progressed to multiple cavity lesion and consolidations.

AP05-162

The effect of vitamin D and Vitamin D binding protein on the course of community-acquired pneumonia

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Background and Aim

Most of the vitamin D circulates in strong association with vitamin D-binding protein (VDBP) and weaker with albumin. It is of interest to study the concentration of vitamin D, taking into account the vitamin D binding protein and its effect on the course of lung infections, which was the purpose of the study.

Methods

The study involved 50 patients community-acquired pneumonia of moderate and severe severity. The level of vitamin D and VDBP was determined in all patients. Serum 25- (OH) D levels were analyzed by high performance liquid chromatography. VDBP was assayed in serum by enzyme immunoassay. The comparison group consisted of 50 patients without lung diseases.

Results

The average level of total vitamin D in the blood of lung infections patients was significantly lower than in the comparison group ($p=0.001$). At the same time, the lower the level of vitamin D, the more severe community-acquired pneumonia is. In our study, when studying the serum VDBP level in community-acquired pneumonia patients, the mean level was 1.66 ± 0.59 ng/ml versus 0.59 ± 0.13 ng/ml in the control group ($p<0.01$). In patients with severe lung infections, a negative correlation was revealed, that is, a high level of VDBP in pneumonia is associated with a lower concentration of vitamin D.

Conclusion

Since vitamin D is mostly associated with VDBP and is not active, this may indicate an inadequate assessment of vitamin D deficiency when studying the total concentration, which requires further study of the concentration of vitamin D and VDBP.

AP05-163

A case of glucocorticoid pulse therapy for post-COVID-19 acute respiratory distress syndrome

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Introduction

For 2 years since the World Health Organization declared Coronavirus disease 2019 (COVID-19) a pandemic, there has been no established therapeutic strategy. Though glucocorticoid proved therapeutic effect, the precise dosage or duration is still unclear. We report a case of post-COVID-19 acute respiratory distress syndrome (ARDS) representing resolving phase of COVID-19 pneumonia with diffuse alveolar damage pattern, showing clinical improvement after glucocorticoid pulse therapy.

Case report

An 81-year-old male admitted for diabetic gangrene complained of dyspnea on hospital day (HD) 2. Two months before admission, he was hospitalized with remdesivir and dexamethasone for COVID-19 pneumonia for 2 weeks, and intermittent dyspnea occurred thereafter. Initial arterial blood gas analysis showed severe hypoxemia (partial pressure of oxygen: 48.2 mmHg) on room air and computed tomography scan showed diffuse bilateral lung parenchymal opacifications, suggesting ARDS. We administered broad-spectrum antibiotics with a high-flow nasal cannula (fraction of inspired oxygen: 0.7). Repeated sputum studies for etiology revealed negative and clinical course did not improve. On HD 9, methylprednisolone (500 mg per day for 3 days) pulse therapy was initiated, followed by tapered dose of 1 mg/kg. Oxygen demand was gradually reduced after 3 days along with improvement of chest radiographs. On HD 22, steroid was tapered to prednisolone 5mg per day, and on HD 27, bilateral leg amputation was performed without complications on nasal prong 2L/min. The patient was transferred to another hospital for rehabilitation on HD 41.

Discussion

This case describes the brief course of post-COVID-19 ARDS with clinical improvement after glucocorticoid pulse therapy.

AP05-164

Profile of COVID-19 Patients Based on Vaccination Status at Ulin General Hospital Banjarmasin

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Background

COVID-19 has become a pandemic for two years with millions of confirmed cases and death worldwide. Vaccine development has started in response to the pandemic. Prior studies showed that vaccines are effective to reduce disease symptoms, hospitalization, and death but are not effective at preventing infection. Epidemiologic data of COVID-19 patients based on vaccination status is still limited.

Methods

A cross sectional observational study was conducted using medical record data from 155 patients who have been vaccinated and treated in the COVID-19 isolation room at Ulin Regional Hospital Banjarmasin from February to September 2021.

Results

COVID-19 vaccine had been received by 23.7% of confirmed COVID-19 hospitalized COVID-19 patients. Of the 155 patients who had been vaccinated, 41.9% had 1 dose, 57.4% had 2 doses, and only one patient (0.6%) had 3 doses. Demographically, the patient was dominated by male patients (61.3%) aged 20-60 years (70.3%). We found the majority of patients were in critical condition (47.1%). Only 37.4% patients had comorbidity, the most common comorbidity were hypertension (60.3%) and diabetes mellitus (41.4%). Death was found in 6 patients (3.9%) with single or multiple comorbidities and advanced age (>60 years) (Figure1).

Conclusion

Fully vaccinated patients are still at risk of contracting COVID-19. Among vaccinated hospitalized COVID-19 patients, men were more likely than women in requiring hospitalization, the most common comorbidities were hypertension and diabetes mellitus, and death was found in 6 people with comorbidities and advanced age (>60 years).

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Figure 1. Clinical characteristics of COVID-19 patients based on vaccination status

Characteristics	Total (n = 155)		Vaccination Status					
	n	%	1 Dose (n = 65)		2 Doses (n = 89)		3 Doses (n = 1)	
			n	%	n	%	n	%
Age (years, Mean = 52.4)								
20-60	109	70.3	51	78.5	57	64.0	1	100.0
>60	46	29.7	14	21.5	32	36.0	0	0.0
Gender								
Male	95	61.3	36	55.4	58	65.2	1	100.0
Female	60	38.7	29	44.6	31	34.8	0	0.0
COVID-19 severity								
Mild	12	7.7	3	4.6	9	10.1	0	0.0
Moderate	52	33.5	15	23.1	36	40.4	1	100.0
Severe	18	11.6	9	13.8	9	10.1	0	0.0
Critical	73	47.1	38	58.5	35	39.3	0	0.0
Comorbidity								
No comorbidity	97	62.6	44	67.7	53	59.6	0	0.0
Any comorbidities	58	37.4	21	32.3	36	40.4	1	100.0
Single comorbidity	40	25.8	16	24.6	23	25.8	1	100.0
Multiple comorbidities	18	11.6	5	7.7	13	14.6	0	0.0
Outcome								
Survived	149	96.1	64	98.5	84	94.4	1	100.0
Deceased	6	3.9	1	1.5	5	5.6	0	0.0

AP05-165

Prognostic role of 25-OH Vitamin D levels on symptom duration in patients with post-acute COVID-19 visiting outpatient department

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Background and Aim

Post-acute COVID-19 is characterized by a condition in which symptoms or sequelae last for more than one month, and most studies on post-acute COVID-19 have focused on hospitalized or critically ill patients. However, the prognostic factors predicting symptom duration in mild ill patients are not well known. The purpose of this study is to investigate prognostic factors predicting persistent symptoms in outpatients with COVID-19.

Methods

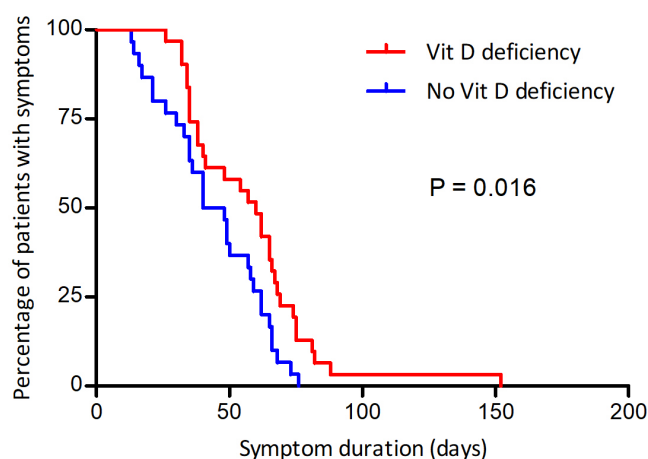
Clinical data including demographic characteristics, laboratory data, and pulmonary function test were retrospectively analyzed in 110 patients who visited the outpatient department from April 2022 to June 2022.

Results

The mean age of total patients was 59.1 years and 50.9% were male. Among clinical symptoms, the proportion of respiratory symptoms including cough (63.6%) and sputum (50.9%) was the highest. The median symptom duration was 54 (36–68) days, and the median duration from diagnosis to first visit was 27 (16–46) days. The poor prognostic factor predicting persistent symptoms (≥ 30 days) was Vitamin D deficiency ($< 20\text{ng/mL}$) (odds ratio [OR] 10.438, $p=0.039$). On the other hand, higher Vitamin D levels (OR 0.941, $p=0.014$) and the use of antiviral agent before first visit (OR 0.113, $p=0.025$) were good prognostic factors. Patients with Vitamin D deficiency had longer symptom duration than those without deficiency (60 vs. 44 days, $p=0.016$). (Figure 1)

Conclusion

Vitamin D level is useful biomarker for predicting persistent symptoms in mild ill post-acute COVID-19 patients. Moreover, Vitamin D deficiency could well differentiate the prognosis for symptom duration in patients with COVID-19.



AP05-166

Case of multisystem inflammatory syndrome following covid infection- Teenager presenting with acute heart failure

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Introduction

Multisystem Inflammatory Syndrome (MIS) is a rare complication of Covid 19 infection usually presents 2 -6 weeks after covid infection.

Case report

A 17yrs old girl presented with fever for 7 days with dry cough, shortness of breath, loose stools. She denied of recent COVID 19 infection or contact history. She was tachycardic and tachypneic with features of heart failure. She had red eyes but no red lips, skin rashes, cervical lymphadenopathy.

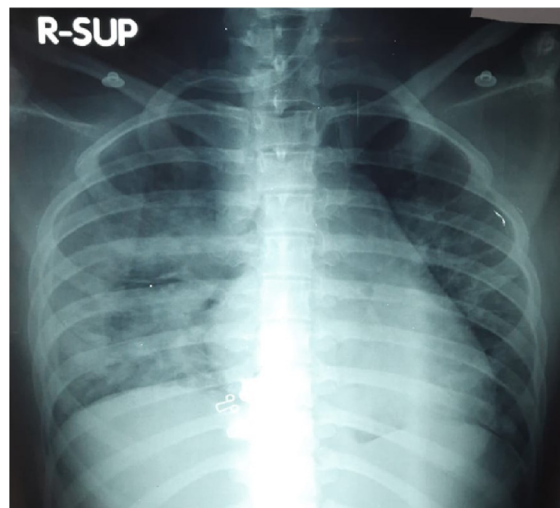
Full blood count lymphopenia with normal platelet count. Very high CRP and Procalcitonin. CXR showed cardiomegaly with reticular shadows in lower zones. USS chest minimal bilateral pleural effusion.

She had high troponin, high BNP levels and Echocardiogram features of impaired left ventricular functions were found. Bilateral pleural effusions basal consolidation with collapsed lung was noted in the HRCT. Her Covid Rapid antigen was negative. COVID PCR was positive with CT value 32 and COVID antibodies were positive >10 index.

She received IV immunoglobulin and high dose steroids and had complete recovery.

Conclusion

Diagnosis of MIS is challenging as initial presentation can mimic dengue fever, leptospirosis, infective endocarditis, or sepsis. These patients can rapidly deteriorate, and treatment need to be commenced even before full diagnostic evaluation completes. Therefore, clinicians should have high degree of clinical suspicion to diagnose MIS and should commence treatment promptly to prevent fatal outcomes as these patients are children or young adults who had no previous comorbid illness.



AP05-167

Endurance and Cognitive Improvement in a severe case of COVID-19 patient

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Introduction

COVID-19 leads to various symptoms lasting for several months, including dyspnea and decreased capacity to engage in daily activities. As the pandemic evolved, the focus shifted to maintaining the survivors' functional outcomes. A rehabilitation program with individualized exercise would be required to improve patients' quality of life.

Case Report

A men patient aged 55 years, diagnosed with a severe case of COVID-19 with cognitive impairment and anxiety, had done exercises in ICU. He was using an endotracheal tube since he had muscle weaknesses, dyspnea, and low endurance, with the Barthel Index category being totally dependent and MMT LE 3/3. Before underwent rehabilitation programs, such as aerobic, strengthening, breathing, and effective cough exercise, his saturation was 92%. When he was discharged from the hospital, he still used O₂ 3 L/min and the oxygen saturation was 96%. After two months of rehabilitation, he gained improved aerobic capacity (3.2 METS), cognitive function, and ADL (moderate dependent).

Discussion

Rolin et al. reported that rehabilitation exercise programs focusing on resistance and endurance training can improve symptoms of breathlessness and overall functional status. Cardiovascular exercise has been demonstrated to improve attention, processing speed, functioning, and memory when used as a cognitive improvement program.¹ In conclusion, a rehabilitation program is needed to improve the neurocognitive and functional outcomes for COVID-19 survivors.

Keywords

cognitive, COVID-19, functional outcome

References

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Disclosure statement

The authors declare that they have no competing interests.

AP05-168

High serum CRP and procalcitonin levels are associated with severity in patients with COVID-19 Infection

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Background and Aim

Around 5% of all cases are severe-critical COVID-19 with a 3.4% case fatality rate. High CRP levels indicate hyperinflammation in COVID-19 patients with severe disease. Approximately 7% of hospitalized COVID-19 patients have a bacterial co-infection characterized by elevated procalcitonin levels. The aim of this study is to determine the relationship between CRP and procalcitonin levels and COVID-19 severity.

Methods

This study is an observational study with a cross-sectional data collection method in COVID-19 patients at Wahidin Sudirohusodo General Hospital during the period from June to December 2021. The study samples were categorized based on CRP, procalcitonin and disease severity, then analyzed using the Chi Square test

Results

A total of 107 COVID-19 patients (mean age 58.29 + 14.22 years, 60 [56.07%] male) were analyzed. Patients with elevated CRP and procalcitonin levels were 70 (65.42%) and 79 (73.83%) patients, respectively. Severe-critical COVID-19 patients were 86 (80.4%) patients. The results showed a significant relationship between CRP and procalcitonin levels and COVID-19 severity with values of $p=0.001$ and $p=0.000$, respectively.

Conclusion

There is a significant relationship between serum CRP and procalcitonin levels and COVID-19 severity

We greatly thank the Department of Pulmonology and Respiratory Medicine of Medical Faculty, Hasanuddin University and Dr. Wahidin Sudirohusodo Hospital, Makassar, for supporting this research.

AP05-169

Case Report: Multisystem Inflammatory Syndrome in Adults

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Introduction

The Coronavirus 2019 (COVID 19) pandemic has affected almost 494 million people worldwide and is still rising. The burden of the disease not only ends after recovery but some complications persist even after having fully recovered from the virus. Multisystem Inflammatory Syndrome in adults (MIS-A) is a rare and life threatening complication that usually presents 4-6 weeks after a COVID 19 Infection. It tends to affect young to middle aged unvaccinated individuals.

Case Presentation

In this paper, we report a case of a 48 year old female who recovered from COVID 19 infection however came back after a month with complaints of Difficulty of Breathing and joint pains and was managed as case of Multisystem Inflammatory syndrome in adults (MIS-A).

Discussion

This paper aims to raise awareness on the complications of Post COVID 19 infection and to contribute on the importance of timely diagnosis and prompt management of patient with the said disease.

AP05-170

Not all that cavitates is cancer - a case of delayed diagnosis!

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Introduction

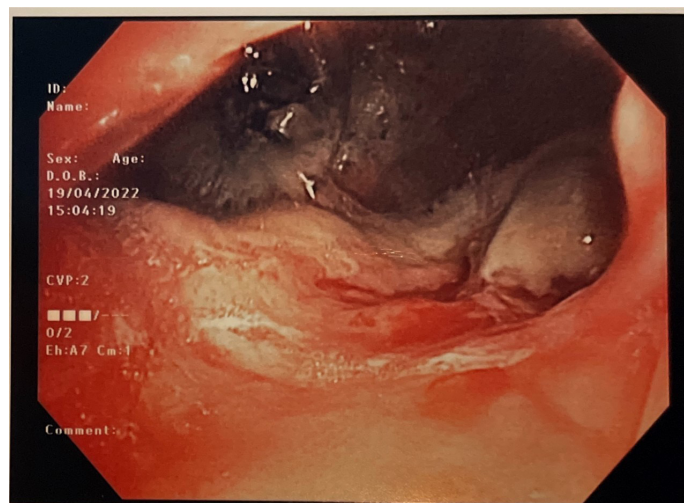
Pulmonary infections are common in lung cancer patients due to their decreased immunity and altered lung architecture. Clinical symptoms and radiographic findings may be non-specific or may overlap with those attributable to the underlying cancer, posing a diagnostic challenge.

Case Report

We report a 61-year-old gentleman with metastatic lung adenocarcinoma treated with combination Pemetrexed, Carboplatin and Pembrolizumab, who developed haemoptysis. Computed tomography (CT) showed multiple lung cavities and was interpreted as partial response. Initial bronchoalveolar lavage (BAL) was unyielding and he was continued on anti-tumor therapy. He continued to have hemoptysis and repeat imaging confirmed enlarging cavities with air-space consolidation. Repeat bronchoscopic and BAL evaluation showed replacement of the right upper lobe by a large cavity (image 1), with an elevated galactomannan level. BAL fluid cytology identified fungal elements. He was diagnosed with subacute invasive aspergillosis (SAIA) and promptly initiated on Voriconazole, with improvement in his condition.

Discussion

Fungal infections of the respiratory tract are protean, mimicking multiple differentials. SAIA or chronic necrotizing pulmonary aspergillosis is characterised by an indolent and cavitary process. Clinical features of weight loss and haemoptysis are common with radiological evidence of cavitary lesions and paracavity infiltrates, none of which are specific. A high index of suspicion is crucial to establishing the diagnosis. Initiation of appropriate treatment with Voriconazole has been shown to improve clinical symptoms and quality of life. Early identification is therefore an important issue to address and we recommend that physicians evaluate for concomitant infections in lung cancer patients presenting with new or worsening features.



AP05-171

A case of organizing pneumonia complicated with spontaneous pneumothorax following a mild coronavirus disease

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Introduction

Coronavirus disease (COVID-19) is a multisystem disease with a predilection to lung. Pneumothorax following barotrauma is a common complication with a higher mortality rate. Spontaneous pneumothorax (SP) in the absence of barotrauma is extremely rare.

Case report

A 51-year old male admitted with a dull chest pain and dry cough for 3 days. He was managed as a lower respiratory tract infection and discharged after 2 days. A week later he again admitted with similar symptoms. He denied history of smoking, tuberculosis, illicit drug use, heavy exertion or family history of pneumothorax. He was unvaccinated against COVID-19. Examination was negative for Marfanoid features, joint hypermobility and connective tissue disease features. Auscultation revealed bibasal end inspiratory fine crepitations. Chest radiograph revealed bibasal reticulations. High resolution computed tomography (HRCT) of chest showed a right sided pneumothorax, arcades, subpleural thick bands and multiple cysts; suggestive of organizing pneumonia (OP). He underwent a video assisted thoracoscopic surgery (VATS). OP pattern was noted in histology. Apart from a positive COVID-19 antibody titer, rest of the workup for SP was negative. A diagnosis of post-COVID OP complicated with SP was made. Prednisolone was commenced at 0.5mg/kg dose for two weeks followed by a tailing off regimen over six months. A repeat HRCT performed 6 months later showed a marked resolution of OP.

Discussion

Pathophysiology of SP in COVID-19 is debated. Post-COVID OP can give rise to formation of de novo cysts and bullae due to a cellular fibromyxoid reaction within alveoli due to direct viral damage and inflammatory response.

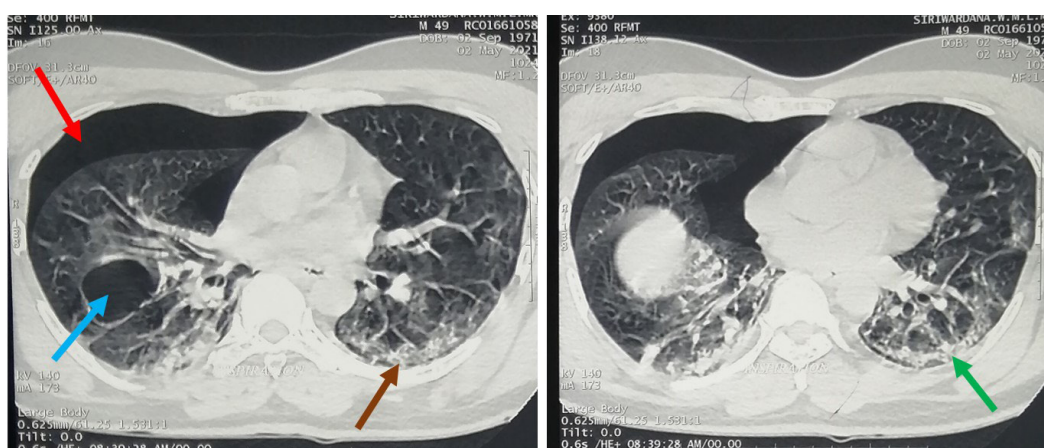


Figure 01. HRCT showing right sided pneumothorax (red arrow), curvilinear subpleural band like consolidations (brown arrow), arcades (green arrow) and a thin walled cyst (blue arrow)

AP05-172

Disseminated Melioidosis infection mimicking Tuberculosis

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Introduction

Patients with diabetes with risk factors are likely to get extensive melioidosis infection mimicking Tuberculosis, which can be easily missed.

Case report

A 39-year-old lady with diabetes presented with high-grade fever, and shortness of breath for two weeks. She had severe loss of appetite, low-grade fever, and a dry cough for the past two months. She was septic on admission.

Her chest x-ray showed right-sided cavitory consolidation. The biochemistry was suggestive of severe neutrophilic sepsis with raised inflammatory markers. She was started on broad-spectrum empirical antibiotics along with standard Anti-tuberculosis treatment (ATT) for radiologically diagnosed Tuberculosis.

However, her sputum studies were negative for AFB and the Mantoux was 10 mm. She developed a left-sided stroke while on treatment and the contrast-enhanced CT brain and chest revealed ill-defined hypodense areas on both frontal lobes and extensive right upper lobe consolidations with multiple cavity formations favoring active Tuberculosis respectively. Her sputum gene X-pert was negative for MTB and the CSF showed elevated proteins with pleocytosis. However, the CSF gene X-pert also became negative for MTB. Later she developed a right-sided knee joint swelling, and the joint aspiration was neutrophilic predominant. TB Gene X-pert from joint aspirate was negative.

Suspicion of an alternative diagnosis of melioidosis was considered. Serology for melioidosis antibodies was positive with rising titers and the knee joint aspirate and the synovial biopsy cultures also became positive for *Burkholderia pseudomallei*. MRI brain was suggestive of multiple frontal and parietal focal enhancements and her CECT abdomen revealed splenic microabscesses. Her sputum, CSF and the knee joint aspirate cultures for MTB were negative. ATT stopped and commenced on appropriate antibiotics.

Discussion

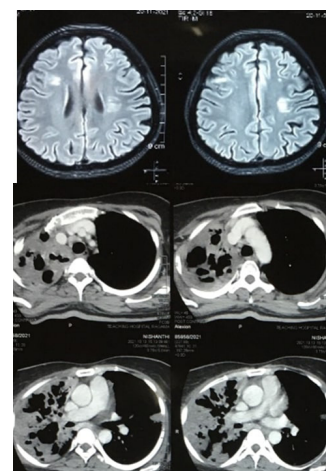
Melioidosis mimics Tuberculosis. Those may co-exist hence careful identification and appropriate treatment should be commenced on those patients as both are treatable.

linical manifestation of pulmonary melioidosis in adults.

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Melioidosis mimicking pulmonary Tuberculosis

S. H pathirathne, G.P Athukorala, H Hussain, P.L.B Nishantha, H.M. P.K Senevirathne, E. Corea, A. D Siribaddana



AP05-173

Secular Trends and Determinants of Influenza Vaccination Uptake Among Patients with Cardiovascular Disease in Korea: Analysis Using a Nationwide Database

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Background and Aim

Influenza vaccination reduces cardiovascular events in patients with cardiovascular disease (CVD). Identifying the factors that affect influenza vaccination uptake can help improve the prognosis in patients with CVD. This study aimed to evaluate the secular trends of influenza vaccination uptake and factors associated with lack of vaccination in individuals with CVD.

Methods

We analyzed the annual trends and factors associated with influenza vaccination among 3,264 patients with CVD, included from the Korea National Health and Nutrition Examination Survey conducted between 2007/2008 and 2018/2019.

Results

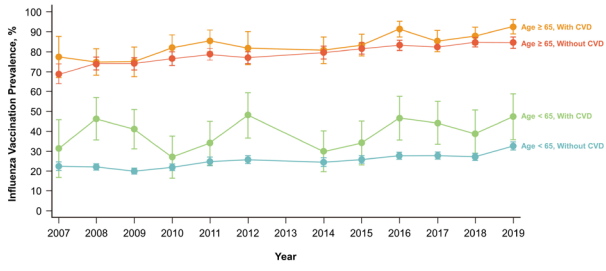
The influenza vaccination rate was greater in patients with CVD (53–74%) than in those without CVD (28–40%). Multivariable logistic regression analysis showed that age < 50 years (odds ratio [OR], 16.22; 95% confidence interval [CI], 7.72–34.07), 50–64 years (OR, 6.71; 95% CI, 4.37–10.28), male sex (OR, 1.45; 95% CI, 1.14–1.65), and asthma (OR, 0.45; 95% CI, 0.22–0.92) were independently associated with a lack of influenza vaccination. Among patients aged < 65 years, smoking (OR, 2.30; 95% CI, 1.31–4.04), college graduation status (OR, 1.81; 95% CI, 1.16–2.82), and hypertension (OR, 0.70; 95% CI, 0.51–0.95) were independently associated with influenza vaccination. For individuals aged ≥ 65 years, there was no significant determinant of lack of vaccination.

Conclusion

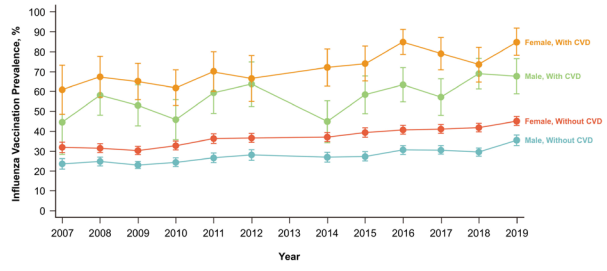
In patients with CVD, a continuous increase in the secular trend of influenza vaccination was demonstrated in Korea. Young age, male sex, and non-asthma status were independently associated with lack of influenza vaccination uptake.

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(A)



(B)



AP05-174

“Quality of life and persistent symptoms of recovered COVID-19 patients at Ospital ng Maynila Medical Center: a retrospective cohort study”

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Background and Aim

Coronavirus disease (COVID-19) became a public health concern worldwide. Majority of patients recover from infection; However, some experience persistent symptoms. This study aimed to determine persistent symptoms and the quality of life (QoL) of COVID-19 patients after three months of admission at Ospital ng Maynila Medical Center (OMMC).

Methods

This is a single-center retrospective analytical cohort study of adult patients admitted at OMMC. Participants were contacted thru phone call. Demographic data, and symptoms at the time of interview were obtained thru online survey and confirmed through online interview. QoL was determined by five domains in the validated Tagalog EUROQOL questionnaire. The primary endpoints were presence of persistent symptoms and QoL after COVID-19. Secondary endpoint was identification of risk factors for Long COVID syndrome (LCS).

Results

There were 95 participants enrolled in this study, 11 developed LCS. There is a significant percentage of occurrence for cough (11%, $p=0.001$), anosmia (7%, $p=0.046$) and ageusia (7%, $p=0.017$). Furthermore, LCS was found to be inversely related to QoL. Self-care (72.2%, p -value = 0.028) and anxiety and depression (63.6%, p -value= 0.008) were statistically significant among LCS group. Odds of developing LCS are reduced by 7% for every 1-point increase in quality-of-life score (odds ratio = 0.949, P -value = 0.044). Using logistic regression analysis, neither demographic, comorbidities, nor disease-severity were associated with LCS.

Conclusion

LCS may occur after COVID-19 infection regardless of comorbidity or severity. Their QoL was significantly affected. Follow-up should also focus on assessing QoL for a wholistic community-based approach to patients who had COVID-19 infection.

AP05-175

The Correlation C-Reactive Protein and Lactate Dehydrogenase Levels with Severity and Outcome in Confirmed Covid-19 Patients at Arifin Achmad Regional General Hospital Riau Province

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Background and Aim

Coronavirus Disease 19 is a disease that in pathogenesis triggers by an inflammatory process. Laboratory tests such as CRP and LDH are simple, inexpensive and routine tests that can be performed. This tests can determine the severity and mortality of COVID-19. This study aims to determine the relationship between CRP and LDH with the severity and outcome of confirmed COVID-19 patients.

Methods

This study is an analytic study using a cross sectional design. The study was conducted on COVID-19 patients with severe and non severe symptoms who were treated in the PINERE isolation room in March 2020 - July 2021 who were examined for CRP and LDH and associated with the severity and outcome of COVID-19 patients at Arifin Achmad Hospital Pekanbaru.

Results

This research involved 522 samples of patients by classifying severe (73,4%) and non-severe group (23,6%) based on clinical symptoms as well as arterial oxygen saturation levels of patients. This study obtained an outcome of 86% clinical improvement and 14% death. CRP and LDH levels correlated with the severity level as evidenced by an increase in each level in the heavy group compared to the non-severe group with $p < 0.005$. CRP and LDH levels were correlated with outcome with $P < 0.005$. The average CRP and LDH levels increased in the heavy group when compared to the non-severe group, which were 104.4 u/L and 447.8 u/L, respectively.

Conclusion

There is a significant relationship between CRP and LDH levels with the severity and outcome of confirmed COVID-19 patients.

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AP05-176

Health Status of Newborn from Mothers with Chronic Bronchitis

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Background and Aim

Chronic bronchitis (CB) is one of the most common respiratory diseases, including among patients of reproductive age. The aim of the study was to study the features of the course of chronic bronchitis during pregnancy, its impact on the development of gestational complications and the condition of the fetus and newborn.

Methods

The clinical and functional features of the course, outcomes of pregnancy, childbirth and the state of newborns in 77 patients with chronic non-obstructive bronchitis were analyzed, while group I consisted of 42 pregnant women with chronic nicotine intoxication, group II - 35 non-smoking pregnant women.

Results

Out of 77 children from mothers with bronchitis, 77.9% had a satisfactory condition, while in group I - 69%, in group II - in 88.6%, of moderate severity - 18.2%: in group I - in 23.8%, in group II - in 11.3%, severe - in 3.9%. In the structure of the identified diseases of newborns from mothers with CB, the following were noted: cerebral ischemia - in 62.3%, in group II - in 33.3%, intrauterine infection (IUI) - in 50.6%: in group I - in 74, 4%, in II - in 28.6%, violation of the period of adaptation - in 64.9%, intrauterine growth retardation - in 20.8%, respiratory distress syndrome - in 6.5%.

Conclusion

The revealed relationship of chronic nicotine intoxication with the frequency of exacerbation of chronic bronchopulmonary process during pregnancy, the development of gestational complications, and diseases of the newborn dictates the need to consider smoking cessation.

AP05-177

Prediction of disease progression by fever patterns in patients with COVID-19

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Background and Aim

Some patients with coronavirus disease (COVID-19) develop severe illnesses. Those with a persistent fever of 38°C or higher presented with severe illness. However, few studies have determined the relationship between the fever pattern and the risk of severe illness. The study aimed to determine the relationship between the fever pattern and oxygen demand among patients with COVID-19.

Methods

This single-center retrospective cohort study included adult patients admitted to our hospital and diagnosed with COVID-19 between January 2020 and August 2021. On admission, none of the patients required oxygen supplementation. The patients were divided into two groups. The progression group consisted of patients who required oxygen supplementation during hospitalization, while the non-progression group consisted of those who did not. A logistic regression analysis was performed to identify the risk factors of the progression of oxygen demand.

Results

A total of 289 patients with COVID-19 (median age: 47 [range 18-102], 151 men) were included in the study. Oxygen supplementation during admission was required in 31 patients (progression group, n=31; non-progression group, n=258). Patients with a fever of 38°C or higher for two consecutive days were more likely to develop progressive oxygen demand (74% vs. 15%, odds ratio 12.00 [4.78-30.30], <0.01).

Conclusion

Among COVID-19 patients, the persistence or resolution of fever predicted the likelihood of subsequent exacerbations.

AP05-178

Profile complete peripheral blood results in suspect and confirmed patients in the Emergency Rooms of Persahabatan Hospital Jakarta, Indonesia

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Background and Aim

The first COVID-19 case in Indonesia was found on March 2, 2020, as many as 2 cases and spread until there was an uncontrolled increase in the number of confirmed positive COVID-19 patients. In Indonesia, there was a rapid increase in the number of confirmed patients in the Jakarta area because the Jakarta area has a role as an entry point for migrants from abroad. Persahabatan Hospital as a national respiratory center becomes the main pillar in managing patients, especially in cases of referrals from other health facilities. The initial examination carried out in the emergency room is a complete peripheral blood examination. The purpose of this study was to see the role of complete peripheral blood examination results in determining the clinical course of COVID-19.

Methods

This study used a two-group comparative cross-sectional method. The Samples were medical records of Emergency room patients in Persahabatan Hospital. Patient data was obtained in June 2021 where COVID-19 cases were growing quite rapidly until January 2022 when the spread of COVID-19 began to recede.

Results

We analyzed a total of 97 patients, consisting of 51 (52.6%) suspect patients and 46 (47.4%) confirmed COVID-19 patients. Our data have shown that anemia is 39.7%, leucocytosis 35.7%, Lymphopenia 64,2%, and thrombocytosis 25,5%. There is a correlation between thrombocytosis and clinical COVID-19. Thrombocytosis has differences both in suspect patients and confirmed patients with COVID-19.

Conclusion

There is a relationship between complete peripheral blood profile in the proportion of patients suspected of COVID-19 with confirmed patients of COVID-19

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AP05-179

Development of a Loop-Mediated Isothermal Amplification assay for direct detection of carbapenem-resistant *Acinetobacter baumannii* from sputum specimens

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Background and Aim

Acinetobacter baumannii has been identified as one of the main causative agents of pneumonia, a life-threatening infectious disease. Early detection of carbapenem-resistant *A. baumannii* (CRAb) is critical in the treatment and prevention of resistance. The conventional culture and PCR methods have a high sensitivity and specificity, however, costly and time-consuming.

Methods

The Loop-Mediated Isothermal Amplification (LAMP) assay was optimized to detect the presence of an OXA-23 gene that encodes for carbapenemase from sputum specimens. The limit of detection of LAMP assay was determined and compared with real-time PCR using a serial dilution of an in-house plasmid as a positive control. The sensitivity and accuracy of LAMP assay were compared with the PCR method and validated using 55 samples that were confirmed with positive culture results for *A. baumannii*. Samples were collected from Military Hospital 103 and National Lung Hospital, Vietnam.

Results

The LAMP assay could rapidly determine the presence of the OXA-23 gene directly from clinical specimens with a total time of less than 45 minutes. LAMP could detect at least 30 copies of CRAb, which was 1,000 times higher than the real-time PCR method. The sensitivity of LAMP was 79.4%, compared to 71.4% for the PCR method. Meanwhile, 41/55 (75.4%) clinical samples were shown to have LAMP results consistent with culture results, 1.25 times higher than conventional PCR.

Conclusion

The established procedure allowed the detection of CRAb without DNA extraction. A preliminary assessment showed the potential application of this approach in clinical practice and is suitable for the low-cost point-of-care diagnosis.

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AP05-180

Deep learning-based chest radiograph severity score and its change predict all-cause mortality of patients with Mycobacterium avium complex pulmonary disease

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Background and Aim

Easily obtainable chest radiographs are frequently taken in patients with Mycobacterium avium complex pulmonary disease (MAC-PD). However, no deep learning-based models have been utilized to stratify disease severity or predict treatment outcomes using chest radiograph.

Methods

We analyzed patients diagnosed and treated for more than 6 months targeting for MAC-PD between 2007 and 2021 at two tertiary referral hospitals in Korea. We collected chest radiographs serially at the start and at the 3rd, 6th, 9th, and 12th months of treatment. The severity of the chest radiographs was scored using a validated deep learning model that determines the activity of pulmonary tuberculosis. Clinical characteristics, the vital status and the date of death were also obtained. Repeated measures mixed model was used to delineate the longitudinal change in severity scores and multivariable Cox proportional hazards regression was conducted to determine the association between the score and all-cause mortality of MAC-PD.

Results

A total of 317 patients were included (median age, 65.0 years; men, 42.9%). A significant decreasing trend in chest radiograph severity scores over time was observed ($P < 0.001$). In multivariable analysis, chest radiograph severity score at 12 months after treatment (adjusted hazard ratio [HR], 1.11; 95% confidence interval [CI], 1.07-1.16) or its improvement compared to treatment initiation (aHR, 0.39; 95% CI, 0.23-0.65) were independent factors associated with all-cause mortality.

Conclusion

Overall, antibiotic treatment reduced the radiographic severity of MAC-PD. Patients with low chest radiograph scores or improvement compared to baseline at 12 months have good prognosis.

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AP05-181

Characteristics of patients with idiopathic bronchiectasis in South Korea

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Background and Aim

Bronchiectasis has a complex and heterogenous pathogenesis, with a variety of aetiologies. Among them, the majority has classified to idiopathic bronchiectasis. The aim of our study is to investigate the characteristics of patients with idiopathic bronchiectasis, in comparison with post-infectious bronchiectasis.

Methods

We compared the two groups of bronchiectasis patients: idiopathic and post-infectious (including post-tuberculosis) bronchiectasis using the data of the Korean Multicenter Bronchiectasis Audit and Research Collaboration (KMBARC) registry, a prospective observational cohort study on bronchiectasis in Korea¹.

Results

Among the 866 patients enrolled in the study, 346 (40.0%) patients were determined as idiopathic, 363 (41.9%) patients as post-infectious. The idiopathic group and post-infectious group had an average age of 65.0 and 64.8 and a female ratio of 55.8% and 53.0% respectively. Multiple logistic regression analysis was performed for the variables of gender, age, body mass index, the history of asthma, COPD, rhinosinusitis, rheumatoid arthritis, or gastroesophageal reflux disease (GERD), Charlson comorbidity index, and smoking status. A higher body mass index (odds ratio, 1.1; 95% confidence interval, 1.05-1.15) and the history of rhinosinusitis (3.1; 1.6-6.2) were associated with idiopathic bronchiectasis. On the contrary, the history of asthma, COPD, or GERD were associated with post-infectious bronchiectasis.

Conclusion

The characteristics of patients with idiopathic bronchiectasis might be a higher body index and the history of rhinosinusitis in comparison with post-infectious bronchiectasis.

Acknowledgements

The authors thank all members of the Korean Multicenter Bronchiectasis Audit and Research Collaboration (KMBARC) registry.

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AP05-182

Analysis of influencing factors for quality of life in patients with bronchiectasis based on clinical research

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Background and Aim

Quality of life is an important index to evaluate the curative effect of patients with bronchiectasis. By analyzing the factors affecting the quality of life of patients with bronchiectasis, it provides a basis for guiding clinical treatment.

Methods

By searching the clinical research literature published by CNKI, Wanfang Data, VIP, CBM, PubMed and web of science, we extracted the outcome indicators, intervention measures and other relevant information included in the study, and statistically analyzed the frequency. The retrieval time is up to November 2020.

Results

A total of 42 clinical studies, 25 intervention studies and 17 non intervention studies were included. There were 20 outcome indicators with a frequency of 107 times. The higher frequency of subjective evaluation tools were St. George's Respiratory Questionnaire (SGRQ) and the improved British Medical Research Council dyspnea index (MMRC). The higher frequency of objective efficacy indicators were pulmonary function and the number of acute exacerbations; In the intervention study, antibiotics and traditional Chinese medicine had a higher frequency of drug influencing factors, and the rehabilitation treatment had a higher frequency of body position drainage and lip contraction breathing. In the non intervention study, the top three influencing factors were personal age, FEV1% and *Pseudomonas aeruginosa* infection.

Conclusion

The quality of life of patients with bronchiectasis is related to many factors. We should actively build a standardized evaluation system for the quality of life of patients with bronchiectasis to provide scientific basis for further guiding clinical treatment.

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AP05-183

Correlation between lactate dehydrogenase and severity clinical degree of COVID-19 patients

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Background

Elevated serum lactate dehydrogenase (LDH) occurs in clinical conditions such as severe infection in COVID-19. LDH is present in the lung tissue so that the occurrence of severe pneumonia causes the release of larger amounts of LDH which indicates the severity of COVID-19. This study aims to analyze correlation between lactate dehydrogenase and severity clinical degree of COVID-19 patients who hospitalized at Adam Malik General Hospital, Medan, Indonesia.

Methods

This study is an observational analytical study with a cross-sectional study design. We analyzed laboratory tests to identify tissue damage and inflammatory status in 180 COVID-19 patients (50.6% males and 49.4% females) admitted to Department of Pulmonology and Respiratory Medicine, Adam Malik General Hospital. We investigated the relationship between LDH values (normal range < 353.5 U/L) and severity clinical degree (moderate, severe and critical) of COVID-19 patients. Statistical analysis was used chi-square test.

Results

Patients had mean age moderate COVID-19 of 44 years, severe 55 years and critical 55 years. LDH levels were significantly correlated with gender ($p=0.003$); age ($p = 0.032$); and disease phase ($p=0.000$) of COVID-19 patients. LDH levels were not significantly correlated with comorbid COVID-19 patients ($p=0,310$). LDH levels were significantly correlated with the disease degree of COVID-19 patients ($p = 0.000$).

Conclusion

There is correlation between lactate dehydrogenase and severity clinical degree of COVID-19 patients who hospitalized at Adam Malik General Hospital, Medan, Indonesia.

Keywords

COVID-19, LDH, disease degree

Acknowledgment

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AP05-184

Clinical Features of SGTF-infected Patients of SARS-CoV-2

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Background and Aim

World Health Organization designated SARS-CoV-2 variant B.1.1.529 as a variant of concern and named as omicron. It was first reported in South Africa on November 2021, and then spread to other countries including Indonesia. We aimed to show clinical features of COVID19 patients who tested positive for Polymerase Chain Reaction with S Gene Target Failure (SGTF).

Methods

Data were included 250 COVID19 patients who were admitted to Persahabatan Hospital, from February to March 2022 who underwent PCR test with SGTF. Data of demographic, level of severity, and comorbidity were collected from medical records

Results

From 250 patients included in the study, we found 146 patients were tested positive for PCR with SGTF. The median age was 58 (IQR 46-68) years, dominated by male (58.2%) and were vaccinated with 2 doses (41.1%). The median ORF1b CT value was 26.54 (IQR 21.24-33.9). Level of severity for STGF-infected patients were moderate (50.0%), followed by severe (24%), mild (18.5%), and critical diseases (7.5%). Patients had the median of 2 (IQR 1-3) comorbidities which were hypertension (43.2%), diabetes mellitus (39%), and obesity (32.9%). Hypercoagulation was found in 48.6% patients and hypoalbuminemia in 41.8% patients. Mortality rate was 37.7% and patients were hospitalized for a median of 7 (IQR 4-10) days.

Conclusion

This study depicts the demographic, clinical profiles, and outcomes of COVID19 inpatients during the peak of the third wave at a respiratory referral hospital in Indonesia. Further study is needed to understand the best intervention, especially for the new COVID19 variants.

Keywords

Covid19, STGF, Indonesia, omicron

AP05-185

Detection of Mycobacterium avium-intracellulare complex by bronchial lavage culture and the relation with titers of anti-glycopeptidolipid-core IgA antibodies in the sera of the patients

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Background

Higher rates of diagnosis of pulmonary Mycobacterium avium-intracellulare complex (MAC) disease by bronchoscope (BS) rather than sputum cultures have been suggested, however, detailed utility of BS, especially combination with the value of the anti-glycopeptidolipid-core IgA antibodies (anti-MAC Ab) are still unclear.

Methods

117 patients at our hospital who suspected pulmonary MAC diseases and received BS procedures from April 2018 to March 2022 were analyzed prospectively. These patients were divided into two groups, such as anti-MAC Ab positive (more than 0.7 U/mL) and negative (

Results

The age of the patients were 69.14 (31.0-89.0) years old and 95 (81.2%) were female. 75/117 patients (64.1%) became culture positive, and 69 of 75 (92.5%) isolates were MAC definitively. The other isolated were non-tuberculosis mycobacteria. Among total 117 patients, 71 patients were anti-MAC Ab positive, and 57 of 71 patients (80.2%) were also became culture positive. In contrast, only 18 patients (39.1%) from the 46 anti-MAC Ab negative patients became culture positive. 32 of culture positive patients were showed more than 10U/mL of anti-MAC Ab value.

Conclusion

The results of this study suggest that utility of BS in diagnosis of MAC, especially combined with anti-MAC-Ab value. BS should be performed in addition to measurement of the anti-MAC Ab when we see the patients who become culture negative by sputum but strongly suggested the pulmonary MAC diseases from the chest X-ray and CT findings.

AP05-186

The duration of acute empyema affects intraoperative/postoperative course

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Background and Aim

The timing of the decision to perform surgery for acute empyema differs among institutions. We investigated the relationship between preoperative disease duration and surgical outcome.

Methods

We investigated 49 patients who underwent empyema curettage from April 2016. In surgery, the fibrin clot is aspirated and cured through a 3-4 cm wound, makes the abscess cavity into a single cavity, and washed with 10,000 ml of warm saline. We divided the duration of preoperative illness into group S (within 14 days, 25 cases) and group L (more than 14 days, 24 cases). The relationship with various intraoperative/postoperative factors was statistically examined.

Results

There were no significant differences in the operation time, the number of days until postoperative fever disappeared, the duration of chest tube placement, and the postoperative hospital stay. Bleeding volume was significantly greater in the L group (50 ml, $p=0.04$). The number of days until leukocytes returned to normal after surgery was significantly longer in the L group (6 days, $p=0.05$). The incidence of postoperative complications and recurrence of empyema was significantly higher in the L group (7 cases $p=0.05$, 3 cases $p=0.03$).

Conclusion

Considering the fact that there are quite a few cases that thoracic drainage is difficult, and the magnitude of the disadvantages in the event of unsuccessful treatment, our policy is to perform surgery quickly as possible without requiring insertion of a chest tube before surgery.

We continue to make a prompt decision to perform surgery for empyema.

AP05-187

A descriptive cross-sectional study on prevalence of respiratory diseases among patients visiting Jiri District Hospital, Nepal.

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Background

This study aims to analyze the distribution of respiratory diseases like chronic respiratory diseases (asthma and COPD), Upper respiratory tract infection (URTI), and lower respiratory tract infections (LRTI) in terms of time, place, and person among patients visiting Jiri District Hospital in Nepal.

Methods

A hospital-based retrospective descriptive cross-sectional study was carried out by analyzing trends using secondary data for the fiscal years 2073/74 to 2075/76 in the Jiri District Hospital patients.. Study participants were all the patient's visiting the hospital who had respiratory health-related problems.

Results

A total of 4202 patients having respiratory health-related problems visited the hospital over a three years . The majority of the patients (54.4%) who visited the hospital having respiratory health problems were female, and the average age was 25.9 with a range of one month to 92 years old. The burden of URITs (50.2%) was higher among children less than ten years old. COPD was higher among females (60%) than males, and 75.9% among those aged 60 years and above. The prevalence of respiratory diseases increased by two folds in the fiscal year 2075/76 with compared to the past two years, with the highest load during the winter months. The cases were most concentrated in places with easiest access to the hospital.

Conclusion

Considering the significant increase in respiratory diseases, it is important to design and implement program and strategies to reduce the risk factors. Significant number of cases were reported from easy access to health facility, local government could developed health packages and diagnosed the patients and cure in time.

AP05-188

Esophagopleural fistula due to foreign body leads to a persistent left sided pyopneumothorax: a rare case

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Introduction

Ingestion sharp-pointed foreign body can cause a fistula at the nearest site of the esophagus. Normal flora in the digestive tract can pass into the pleura resulting in an unresolved infection. We reported a rare case with persistent pyopneumothorax because of esophagopleural fistula.^{1,2}

Case Report

25 years old, male, referred with increasing breathlessness, cough, chest pain, fever, and denture swallowed six days before. Chest X-ray showed left hydropneumothorax. Drainage procedural found pus and bubbles with an output of more than 500 ml/a day. Serial pus culture grew *Enterobacter cloacae*, *Candida* and *Serratia marcescens*. Bronchoscopy showed narrowing of the lumen. After a month of treatment, we found gastric juice on the chest tube drain. Esophagogastroduodenoscopy did not reveal any fistula. Chest computed tomography with diluted oral contrast showed the fistula filled with contrast, connecting the distal esophageal to the left side of the pleura as high as 8-9 thoracic vertebrae (Figure 1). Open window thoracostomy was performed for fistula repair, decortication, and continued with jejunostomy for feeding entry.

Discussion

Persistent pyopneumothorax with prior swallowing foreign body or procedure on the esophageal should consider the possibility of esophagealpleura fistula case, particularly those slow improvement with antibiotic and chest drainage. Gastric juice and polymicrobial growth or gastrointestinal tract flora in the pleural fluid would reinforce this suspicion. The esophagus is in direct contact with the pleura more on the right, only a short distance above the diaphragm that directly contacts the left pleura. Chest computed tomography with oral contrast was recommended to identify the location of the fistula.²

Keywords

persistent pyopneumothorax, esophagopleural fistula

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AP05-189

Covid infection complicated with bilateral spontaneous pneumothoraces - A rarely described entity

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Introduction

Covid 19 infection was associated with multiple complications and pleural complications including pneumothorax were rarely described. We report a patient with covid infection in which disease course got complicated with bilateral pneumothoraces.

Case report

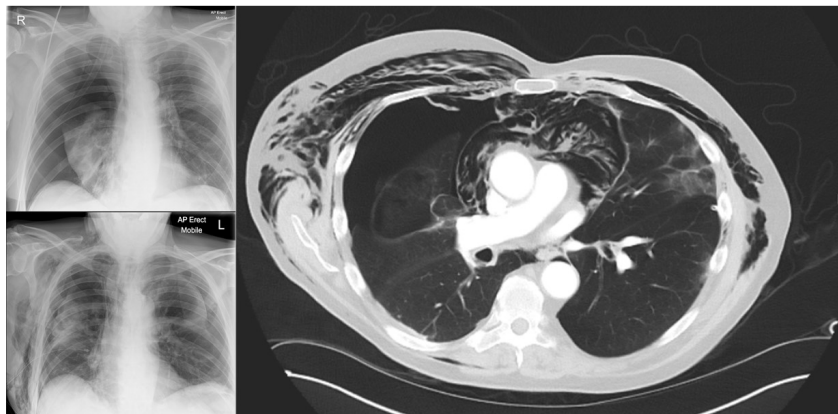
A 74-year-old ex-smoker for 25 years with 15 pack year history presented with breathlessness and dizziness for 4 days. He has been diagnosed with Covid infection 4 days prior to admission. He has been diagnosed with well controlled COPD and chronic kidney disease stage -3. On examination he had bilateral crackles and wheezes on admission. He was started on oxygen prophylactic dose of low molecular weight heparin and steroid with nebulisation. On 8th day following admission, he started desaturating while on oxygen and CXR revealed bilateral pneumothoraces. There was no evidence of pneumomediastinum.

He was treated with bilateral chest drains and as there was persistent air leak on the right side, he was discharged on right sided chest tube with a pneumatic valve which was removed after few days. In addition, disease course got complicated with surgical emphysema.

CT did not show bronchopleural fistula. Screening for PJP pneumonia, connective tissue disorders were negative. He was referred to cardiothoracic surgeons and it was decided to manage him conservatively. As the patient was clinically stable, he was discharged from the clinic with patient initiated follow up.

Conclusion

Covid infection can get complicated with bilateral spontaneous pneumothoraces. Higher degree of suspicion and timely management will improve mortality and morbidity.



AP05-190

The treatment outcomes of cavitary *Mycobacterium avium* complex pulmonary disease according to the use of amikacin or streptomycin

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Background and Aim

Injectable aminoglycoside-containing regimen is recommended for treating patients with *Mycobacterium avium* complex (MAC) pulmonary disease (PD) of cavitary type [fibrocavitary (FC) type or cavitary nodular bronchiectatic (C-NB) type]. However, whether there is a difference in the treatment response according to the specific type of injectable drugs is currently unknown. Therefore, we aimed to investigate the treatment outcomes of cavitary MAC-PD according to the use of amikacin or streptomycin.

Methods

From 2002 to 2020, 169 patients with cavitary MAC-PD (127 patients with C-NB-type and 42 patients with FC-type) who received guideline-based therapy (three-drug oral antibiotics comprised of macrolide, ethambutol, and rifampin with an injectable aminoglycoside) for ≥ 1 year were retrospectively enrolled at a tertiary referral center in South Korea. We compared patients' 1-year microbiological cure rates according to the type of injectable aminoglycoside administered, i.e., amikacin versus streptomycin.

Results

Among the 169 enrolled patients, 128 (75.7%) received streptomycin, and the remaining 41 (24.3%) were treated with amikacin. The overall 1-year microbiological cure rate of the 169 patients was 72.8%. The cure rates of those who received amikacin and those treated with streptomycin were similar (80.5% vs. 70.3%, respectively; $p = 0.203$). Multivariate analysis also revealed that the 1-year microbiological cure rate was not significantly different between the use of amikacin and streptomycin (adjusted odds ratio, 0.742; 95% confidence interval, 0.290–1.897).

Conclusion

In treating cavitary MAC-PD, amikacin and streptomycin showed similar 1-year microbiological cure rate outcomes.

AP05-191

Comparison of the pneumonia incidence on chest radiography according to vaccination among COVID-19 patients under 50 years old

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Background and Aim

COVID-19 vaccination showed the effectiveness for preventing COVID-19 infection and progress to severe disease. However, relatively mild disease course of the Omicron variant and the decrease in antibodies over time after vaccination raised questions about the efficacy of vaccination, especially in young people. We compare the difference in pneumonia according to the vaccination among COVID-19 patients under 50 years old.

Methods

From January 17 to March 17, 2022, 576 COVID-19 patients who were < 50 years and had known vaccination history were included. All patients underwent initial chest radiography and follow-up chest radiographs were taken every two days until discharge. Pneumonia of chest radiograph was scored using the Brixia scoring system. The scores of six lung zones were added with total scores ranging from 0 to 18.

Results

Patients were analyzed by dividing them into 10-year interval. In patients aged 12-19 years, there was no difference in the incidence of pneumonia (non-vaccination [1/47, 2.1%] versus vaccination [1/18, 5.6%, P=0.391]). In the 20s, pneumonia occurred 28.6% of those who were not vaccinated, 5.1% of those vaccinated (8/28, 28.6% versus 7/138, 5.1%, PP=0.011) and 40s (32/ 52, 61.5% vs 18/138, 13%, P<0.001).

Conclusion

In patients younger than 50 years of age, in all age groups except 12-19 years, patients vaccinated showed a significantly lower incidence of pneumonia than those who were not vaccinated.

AP05-192

Risk of psychological distress in pulmonologist and its associated factors during the COVID-19 pandemic in Jakarta, Indonesia

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Background and Aim

Coronavirus Disease 2019 (COVID-19) pandemic in Indonesia causes psychological problems, including anxiety, depression and psychological distress in health workers, especially pulmonologist. The purpose of this study was to determine distress levels and factors that affect the risk psychological distress of pulmonologist in Jakarta, Indonesia.

Methods

This cross-sectional descriptive study observed pulmonologists working in Jakarta, Indonesia, in May 2020. This study used Distress Thermometer (DT) and problem list as a measurement tools, that was transculturally validated and independently filled out online by subjects.

Results

A total of 134 subjects were included in this study, subjects were dominated by women (66.4%), mean age of 38.36 (\pm 9.54) years old and median length of work of 3 (1-27) years. All subjects had mild, moderate and severe risks of psychological distress as observed were (47.2%, 45.3%, and 7.5%, respectively). Problems that associated with the level of distress risk were length of work (63.8%, $p=0.024$), financial problems (70.0%, $p=0.019$), depression (60.0%, $p<0.001$)

Conclusion

This study found a rather high prevalence of psychological distress risks in pulmonologists during the COVID-19 pandemic in Jakarta, Indonesia. Factors that associated with the level of psychological distress risk in pulmonologist were length of work, technical, emotional and physical problems.

Keywords

COVID-19, distress thermometer, pulmonologist, psychological distress

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AP05-193

A successful medical management of a case of necrotizing pneumonia caused by Coliform spp. in a healthy adult: a therapeutic challenge.

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Introduction

Necrotizing pneumonia (NP) is a rare but devastating entity of bacterial pneumonia. Necrosis, cavitory consolidations, abscess formation and gangrene of lung parenchyma are its hallmark features.¹ NP associated with Coliform infection is rarely reported in immunocompetent adults. Management of such cases is poorly understood and often results in poor outcome.

We report a case of successfully treated NP due to Coliform infection in a healthy adult.

Case report

A 67-year-old female presented with productive cough with rusty sputum, fever and loss of appetite for 2 weeks. She did not have diabetes, any immunodeficient conditions, recent hospitalizations or known pulmonary pathologies. There were tachycardia, tachypnea and left side coarse crepitations. She had neutrophil leukocytosis and raised inflammatory markers. Chest Xray showed a large fluid filled cavity with surrounding consolidations in left upper zone. Necrotizing pneumonia with abscess formation in left upper lobe was diagnosed with contrast enhanced CT chest (figure 1). Bronchoscopy demonstrated abundant, thick purulent secretions in left bronchial tree. Bronchial washing contained 14200/mm³ white cells with 90% polymorphs. Coliform species were isolated repeatedly in sputum and bronchial wash cultures. Tuberculosis, melioidosis and fungal infections were screened negative. Patient was given intravenous piperacillin-tazobactam with clindamycin and subsequently intravenous amikacin (according to sensitivity pattern) for a total of 56 days. A slow but sustained clinical and radiological recovery was observed. Eventually a complete cure was achieved without therapeutic surgical interventions.

Discussion

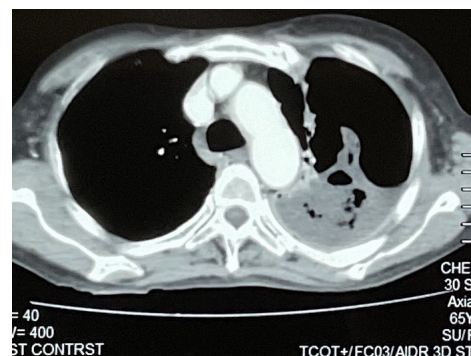
We emphasize the fact that aggressive, pertinent yet patient medical management alone produced an excellent outcome in our patient.

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Disclosure statement

No disclosures



AP05-194

Pulmonary function among COVID-19 patients in home isolation program

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Background and Aim

Patients with mild coronavirus 2019 disease (COVID-19) are usually managed in an outpatient setting. Pulmonary functions in this setting have not been explored. This study aimed to determine abnormal lung functions in COVID-19 patients under a home isolation program.

Methods

A prospective study was conducted in COVID-19 patients with asymptomatic or mild disease at Thammasat-Khukot Medical Center and Thammasat University Hospital, Thailand, between November 2021 and May 2022. Demographics, smoking, symptoms, pulmonary functions including forced expiratory volume in 1 second (FEV1), forced vital capacity (FVC), forced expiratory flow at 25-75% of FVC (FEF25-75), and bronchodilator test were collected. Spirometry was performed after disease resolution at baseline and 3-month follow-up. Abnormal lung functions were defined as restrictive lung pattern (FVC1/FVC25-751 or FVC \geq 12% and 200 mL).

Results

A total of 199 patients (56% female) were included. Mean age was 39.8 \pm 15.4 years. Smoking history was 22% (6.8 \pm 9.1 pack-years). Asymptomatic patients were 8.5%. Common symptoms were fever (53.5%), cough (55.0%), and dyspnea (30.5%). Abnormal lung functions were restrictive lung pattern in 15.5%, airway obstruction in 3.5%, small airway disease in 20.0%, and bronchodilator response in 3.0%. There was significant decrease in FEV1 (40 mL), FEV1/FVC (0.93%), and FEF25-75 (6.7%) between baseline and 3-month follow-up. Linear regression analysis showed that age, sex, body weight, height, smoking history, and previous respiratory diseases were not associated with lung function decline.

Conclusion

Abnormal pulmonary functions, especially small airway disease, were common in COVID-19 patients under a home isolation program. There was significant reduction in FEV1, FEV1/FVC, and FEF25-75 regardless of age, sex, weight, height, smoking, and previous respiratory diseases. These findings indicate that mild COVID-19 patients might develop airway obstruction in the future.

Acknowledgements

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Disclosure statement

The authors declare no conflict of interest.

Table 1. Pulmonary function data of 199 COVID-19 patients under a home isolation program

Parameters	Baseline	3-month follow-up	P-value
FVC, L	3.12±0.89	3.10±0.89	0.159
FVC, %predicted	92.06±15.68	93.45±17.19	0.075
FEV ₁ , L	2.55±0.72	2.51±0.73	0.008
FEV ₁ , % predicted	91.28±16.05	91.18±16.55	0.883
FEV ₁ improvement after BD test, %	0.48±3.81	-0.31±3.41	0.143
FVC improvement after BD test, %	2.36±4.30	2.72±3.81	0.433
FEV ₁ /FVC, %	82.44±8.89	81.52±8.66	0.005
PEF, L/s	6.59±1.93	6.79±2.02	0.049
PEF, % predicted	93.27±19.61	95.29±19.13	0.121
FEF ₂₅₋₇₅ , L/s	2.74±1.22	2.54±1.26	<0.001
FEF ₂₅₋₇₅ , %predicted	85.26±27.35	78.52±28.28	<0.001

Data shown as mean±SD

BD=bronchodilator response, FEV₁=forced expiratory volume in 1 second, FVC=forced vital capacity, FEF₂₅₋₇₅=forced expiratory flow at 25-75% of FVC, PEF=peak expiratory flow, L=liters, mL=milliliters, s=second

AP05-195

Oxidative stress and inflammation in neurological patients with COVID-19

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Background and Aim

Neurological complications are very common in patients with COVID-19. Therefore, it is of interest to elucidate the mechanisms of development of post-COVID neurological complications. The aim of the study was to compare the intensity of oxidative stress and the production of pro-inflammatory interleukins in the blood of patients with neurological diseases in the presence and in the absence of COVID-19.

Methods

The 83 patients (41 COVID-positive and 42 COVID-negative) with neurological diseases (ischemic strokes, encephalopathy, radiculopathy, polyneuropathy, paraplegia, lumboschialgia) were involved in the study. The content of oxidized forms of lipids (conjugated dienes, trienes and ketodienes, and hydroperoxides) was determined in the blood serum by spectral methods and the content of four interleukins (IL-6, IL-8, IL-10 and IL-18) by ELISA method.

Results and Conclusions

The content of oxidatively modified lipids did not have statistically significant differences between COVID-positive and COVID-negative neurological patients, but in patients with ischemic stroke it was significantly higher compared to other neurological patients, regardless of the incidence of COVID-19. The content of IL-8 and IL-18 also did not differ between COVID-positive and COVID-negative patients. Statistically significant differences were established in the case of IL-6 and IL-10. The content of pro-inflammatory IL-6 was significantly higher, and that of anti-inflammatory IL-10 was lower in COVID-positive neurological patients. Thus, COVID-19 in neurological patients is accompanied by an increase in the inflammatory process.

AP05-196

Comparison of characteristics of quality of life assessment scales for bronchiectasis

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Background and Aim

Based on the current research status of Quality of life tools of bronchiectasis(BE)home and abroad, of which are QOL-B (Quality of Life Questionnaire-Bronchiectasis), BHQ(bronchiectasis health questionnaire), SGRQ(Saint George's respiratory questionnaire), SOLQ (the Seattle obstructive lung disease questionnaire), CAT(COPD assessment test) and LCQ(Leicester Cough Questionnaire), combined with the characteristics of BE, the characteristics and differences of each scale tools were analyzed, which to provide a basis for the development and application for the scales of BE.

Methods

Seven databases including PubMed, Cochrane Library, Embase, CBM, CNKI, VIP and WANFANG were searched to select the scales of BE. Then, the basic framework, domain, item pool, application status and quality assessment were compared and analyzed.

Results

Thirteen scales were retrieved, including 1 universal scale, 6 disease-specific scales and 6 symptom specific scales. QOL-B and BHQ are specific scales for bronchiectasis, while SGRQ, LCQ and QOL-B are widely used. The scales on hand have similarities and differences in performance and characteristics, lack Chinese cultural elements in development, have nonstandard behavior in application, and aer difficult to reflect disease specificity.

Conclusion

To develop a scale of BE suitable for Chinese people, national conditions, cultural characteristics of Chinese medicine, the standardized development process of the scale, the combination of disease and syndrome and the focus on patients need to be considered and followed.

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AP05-197

Empirical therapy in necrotizing pneumonia with *Sternotrophomonas maltophilia* multiple brain abscess

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Introduction

Multiple brain abscesses with lung consolidation need a distinction between malignant disease. *Sternotrophomonas maltophilia* is an emerging opportunistic infection from non-fermenting aerobic gram-negative bacilli that is widely spread in the environment and clinical settings. It may cause a wide variety of infections and its resistance to most classes of antimicrobial agents.

Case report

A 55-year-old woman with left extremities weakness since 2 days before admission and cough with rusty sputum. She had history of ITP and SLE with Mycophenolic sodium. One month ago, she was admitted to the hospital because chronic productive cough and have been treated with antibiotic. On physical examination showed decrease left extremities motoric (MMT grade 2), decrease vesicular breath sound in left lower lobe, crackles in both lower lungs. MRI brain with contrast showed multiple brain abscesses. CT scan thorax with contrast showed consolidation of the left inferior lobe lung with air bronchogram, necrotic and left pleural effusion. Positron emission tomography/computed tomography revealed a hypermetabolic mass-like lesion in left lower lobe. Brain biopsy revealed brain abscess with *Sternotrophomonas maltophilia* infection, and bronchoalveolar lavage show no growth of bacteria. After treatment, there were improvement of clinical picture, laboratory, and radiology. (Fig. 1)

Discussion

Pneumonia is the most common cause of pulmonary consolidation. Brain abscess is associated with various risk factors such as contagious infectious and hematogenous. *Sternotrophomonas maltophilia* reported as an etiological agent in several infectious diseases and is often problematic because of frequently resistance to antibiotics and it may coexist with other infections. Empirical treatment is recommended immediately for favourable patient outcomes.¹⁻³

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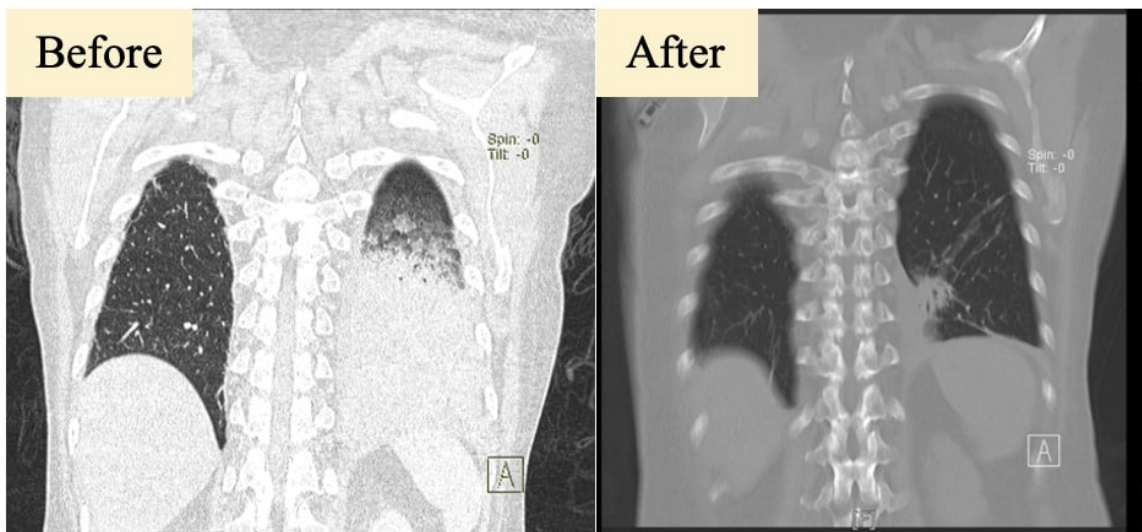


Figure 1. CT image showing consolidation of the left lower lobe lung with air bronchogram before and after treatment.

AP05-198

Cost effectiveness of Amoxicillin/clavulanic acid in respiratory tract infections: a literature review

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Objective

This review aims to review the cost-effectiveness of Amoxicillin/clavulanic acid in respiratory tract infections.

Results

Medline (PubMed) and Embase were used to obtain eligible and relevant publications in this review. A comprehensive list of articles was screened, and a total of 9 relevant and credible articles on the cost-effectiveness of Amoxicillin/clavulanic acid were included in the review. The studies investigated the antibiotic's cost-effectiveness with 4 different indications. For community-acquired pneumonia (CAP) in France and Belgium, cost-effectiveness of Amoxicillin/clavulanic acid vs Amoxicillin, vs Cefuroxime, vs Moxifloxacin, and vs Clarithromycin was evaluated. In 2 other reports, the cost-effectiveness of Augmentin vs Amoxicillin, vs Roxithromycin, and vs Placebo in Lower respiratory tract infections (LRTI) treatment in Australia, New Zealand and 12 other European countries was examined. 3 studies provide comparisons in efficacy and direct costs of Amoxicillin/clavulanic acid vs watchful waiting, vs Amoxicillin, vs delayed prescription, vs Cefaclor as treatments for Acute otitis media (AOM) in Canada and the US, and, lastly, the cost-effectiveness of Doxycycline vs Clarithromycin, vs Ciprofloxacin, vs Augmentin, and vs Cefixime, Cefuroxime vs Cefpodoxime vs Moxifloxacin in Chronic Obstructive Pulmonary Disease (COPD) management in the countries of Macedonia and Spain. Most studies suggested Augmentin as a cost-saving and cost-effective treatment for AOM in children, COPD and LRTIs in adults.

Conclusion

Amoxicillin/clavulanic acid is cost-effective compared to several other β -lactam antibiotics, Cefaclor, Cefuroxime, Cefpodoxime, Cefixime; generic macrolides, clarithromycin; quinolones, Ciprofloxacin; and other conservative approaches for managing and treating CAP, AOM, and COPD such as watchful waiting and delayed prescription.

AP05-199

Volume-changing foam dressing for vacuum-assisted closure therapy in acute lung abscess management

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Background

Vacuum-assisted closure (VAC) therapy should be considered as an alternative option for the management of lung abscess after failed conservative treatment.

Aims

To reduce the number of foam dressing changes in VAC-therapy in lung abscess management. Methods

Methods

We used the VAC-therapy in patients with acute lung abscesses after failure of conservative treatment [1]. We created a volume-changing foam dressing. We placed a two-way balloon catheter inside the polyurethane sponge which was used also as a drainage tube. The catheter balloon was inflated with saline. We placed this bandage in the lung abscess cavity. Aspiration was carried out through the main channel of the catheter. We reduced the volume of the dressing by removing saline from the balloon (Fig.).

Results

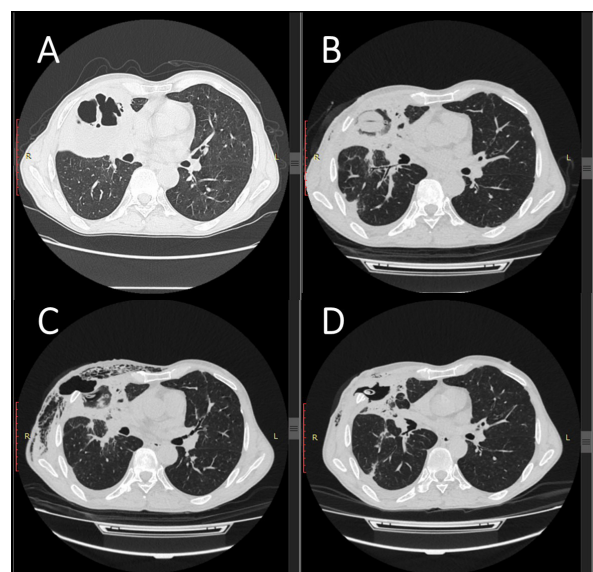
We used the volume-changing foam dressing in 3 patients. Only one dressing was enough. The volume-changing foam was replaced with a drainage tube during the second intervention.

Conclusion

The use of a volume-changing foam dressing allows to reduce the number of interventions during VAC-therapy in patients with acute lung abscesses.

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AP05-200

Impact of Coronavirus disease 2019 on Respiratory Care in Japan: A nationwide survey by the Japanese Respiratory Society

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Background

Coronavirus disease 2019 (COVID-19) has spread through the world since 2020, placing a huge burden on medical facilities. In the field of respiratory medicine, there has been a decrease in the usual patients, while many pulmonologists have been dealing with COVID-19 patients, the actual effects on respiratory care have not been elucidated. Therefore, we conducted this study to clarify the effects of COVID-19 on medical care in the field of respiratory medicine.

Methods

We conducted a questionnaire survey of 749 hospitals belonging to the Board-Certified Member system of the Japanese Respiratory Society, on the effects of COVID-19 as of November 2021.

Results

Responses were obtained from 170 hospitals (23%), in about 70% of which the respiratory medicine department was the main department involved in dealing with COVID-19. The number of spirometry and bronchoscopy tests decreased by 25% and 15%, respectively, and the number of both outpatients and inpatients decreased in 93% of hospitals. Among respiratory diseases, the number of patients hospitalized for usual pneumonia, bronchial asthma and chronic obstructive pulmonary disease decreased greatly by 30–45%. In 62% of hospitals, the biggest effect of the coronavirus pandemic was the greater burden in terms of the clinical workload due to COVID-19.

Conclusions

Although the number of tests and the number of non-COVID-19 outpatients and inpatients decreased in respiratory medicine departments during the coronavirus pandemic, the workload increased due to COVID-19, resulting in a severe increase in the clinical burden.

AP05-201

Early diagnosis of diffuse panbronchiolitis can be predicted by using machine learning algorithm

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Background and Aim

DPB (Diffuse panbronchiolitis) is a progressive inflammatory lung disease of affecting the respiratory bronchiole¹. Even though an early diagnosis of DPB is important, classical criteria in 1999 may be insufficient for early diagnosis of DPB². In patient with confirmed DPB on basis of current diagnostic criteria and suspected DPB, we investigated several factors that help early diagnosis of DPB through the machine learning algorithm.

Methods

The study comprised a retrospective cohort analysis of 99 patients with a confirmed DPB and suspected DBP in sigle center. Group A (n=34) fulfilled the diagnostic criteria and Group B (n=65) fulfilled the diagnostic criteria except for FEV1/FVC ratio³.

Results

A variable that showed a noticeable difference was FEV1 (SMD 1.432). Interestingly, rhinitis (SMD 0.748) and macronodule (SMD 0.434) in clinical CT findings were found to be a major variable associated with diagnosis of DPB. Whereas, bronchiectasis was unlikey variable.

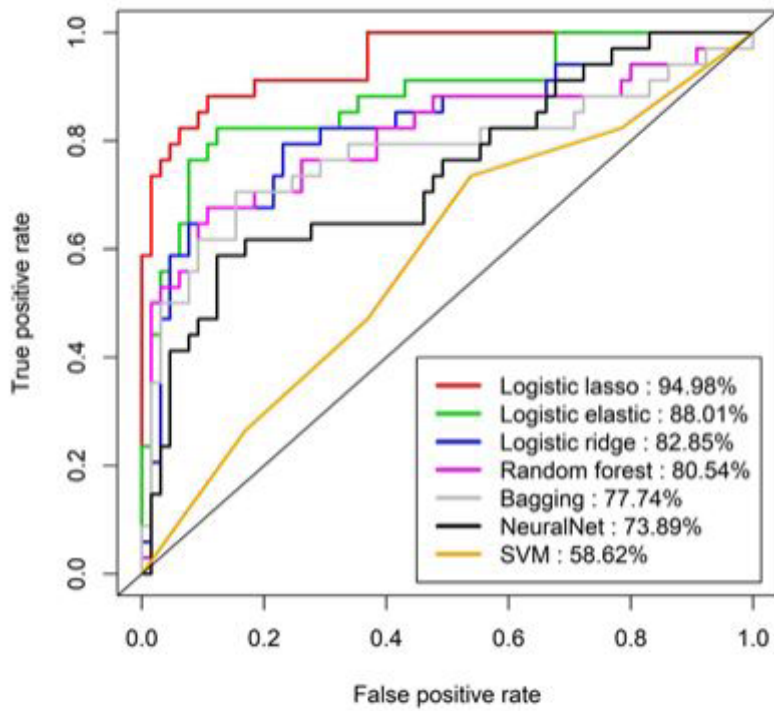
Among the seven models, their performances were ranked by AUC: Lasso model (94.98%) showed the best performance. The important variables selected in Lasso were Rhinitis (+1.56), Bronchiectasis (-1.49), FEV1(%) (-1.41) and Macronodule (+1.1)[Figure 1].

Conclusion

Several factors such as FEV1, rhinitis, and macronodule can be helpful for predicting the early diagnosis of DPB through machine learning algorithm. Further studies are needed.

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ROC Curve for each model



	Lasso	Elastic	Ridge	Color
Rhinitis	1.56	1.39	1.13	-1.5
Bronchiectasis	-1.49	-1.24	-0.94	-0.5
FEV1	-1.41	-0.98	-0.58	0
Macronodule	1.1	1.07	1.24	0.5
Consolidation	0.32	0.3	0.41	1
Age	0.3	0.34	0.36	1.5
CRS	0.22	0.33	0.38	2
DLCO	-0.04	-0.16	-0.22	

AP05-202

COVID-19 in immunosuppressive patients: the clinical presentation, laboratory results, computed tomography findings, outcomes, and prognosis

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Background and Aim

SARS-CoV-2 is a new virus that causes COVID-19. Immunosuppressive (IMS) patients need attention because of being susceptible to infection. In this study, we looked into the clinical manifestations and outcomes of immunosuppressive patients who were admitted to our clinic.

Methods

The 384 patients were included in the study who had positive PCR for COVID-19 in a nasopharyngeal swab and who had negative PCR but chest computed tomography in line with COVID-19. We divided the patients into immunosuppressed (IMS) and non-immunosuppressed (non-IMS) groups.

Results

216 (56.3%) of the patients were male. The mean age was 61.5±15.9. 141 (36.7%) of patients were found as immunosuppressed. The three most prevalent symptoms dyspnea, fever, and cough were observed less in immunosuppressed patients, only fever was statistically significant. We found that absolute neutrophil and leukocyte counts, CRP, Ferritin, and D-Dimer levels were higher, and Albumin, Saturation/FiO₂ ratio were lower in IMS patients than non-IMS; these differences were statistically significant and associated with poor outcomes. Consolidation was observed more commonly in IMS patients and associated with poor prognosis (p<0.05). The clinical progression was seen in 53 (37.6%) of the 141 immunosuppressive patients and 59 (24.3%) of the 243 non-immunosuppressive patients; the death number is 36 (25.5%) in the first group and 37 (15.2%) in the second. The differences were statistically significant.

Conclusion

We found that poor clinical progression and higher mortality in immunosuppressive patients with COVID-19. Additional comprehensive research is required to examine the clinical prognosis and improve the treatment options in IMS patients.

Conflict of interest

Authors declare no conflict of interest.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Acknowledgments

We acknowledge all healthcare workers for their efforts in patient care during the pandemic.

AP05-203

Antibody response over time after a third dose of SARS-CoV-2 vaccine

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Background

A third dose of SARS-CoV-2 vaccine has been widely recommended for all adults and has been shown to induce robust immune response against COVID-19. However, data on antibody titers and their neutralizing capacity over time after the third dose are limited. The aim of this study is to investigate antibody and neutralizing activity response against SARS-CoV-2 wild-type and variants over time before and after the third dose of vaccine.

Methods

We measured anti-spike IgG titers and neutralizing antibodies blocking ACE2 binding to spike antigens before the third dose and on day 3, day 7, and day 21 after the third dose from a total of 63 study participants.

Results

Anti-spike IgG titer against the SARS-CoV-2 wild-type showed no significant difference between before and within three days after the third dose. However, at day 7, the median anti-spike IgG titers against wild-type increased approximately three-fold to 212,797 AU/mL compared to 65,970 AU/mL before administration, and the median value at day 21 was also not significantly different from that of day 7. The third dose of vaccine also increased neutralizing antibodies against wild-type strains approximately three-fold from 10 U/mL pre-vaccination to 31 U/mL at day 7 and day 21 post-vaccination. Results for all variants showed a similar pattern. Age was negatively associated with anti-spike IgG titers at day 21 post-vaccination.

Conclusion

This study revealed a marked enhancement of humoral immune response against various strains seven days after the third dose of SARS-CoV-2 vaccine and suggested the efficacy of booster vaccination.

AP05-204

Blowing in the Wind: Use of Incentive Spirometry in Preventing Acute Respiratory Distress Syndrome for Patients with Moderate COVID

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Background/Objective

A pilot clinical trial was conducted to evaluate whether the use of Incentive Spirometry (IS) versus non-use has a clinical significance in preventing Acute Respiratory Distress Syndrome (ARDS) among moderate COVID patients. IS, a lung expansion technique, promotes sustained maximal inspiration helping patients by improving ventilation/perfusion mismatch and alveolar-PaO₂ gradient.

Methods

Prospective study involving 10 moderate COVID patients, aged 18-65 years admitted from November 2021-February 2022 was conducted. Five patients used IS and five were non-IS users. Demographic data included age, gender, BMI and pre-morbid health status. Baseline information such as day of illness, chest radiograph, PF ratio, oxygen saturation, vital signs and symptoms were monitored. Primary outcome measured was prevention of ARDS, with secondary outcomes of improved Chest Radiograph and PF ratio on the 4th hospital day, prevention of desaturations and shorter hospital stay. Outcomes from the two groups were then compared.

Results

Patients with desaturation (<92%) after 4 days is 0% among IS users, while 20% of non-users had desaturation. Need for oxygen support is 40% for users, while 60% among non-users. Chest Radiograph improved among 60% of IS users, while only 40% for non-users. PF Ratio also improved among all IS users while only 60% for non-users. Number of hospital day is average of 6 days for IS users, while 10 for non-users. Hospital day of improvement turns out to be slightly lower among users (2.6 vs 4.6).

Conclusion

It can be emphasized that though not significant, IS users has lower need for oxygen support, higher percentage of chest X-ray improvement and higher percentage of PF ratio improvement. Hence, use of IS has a greater chance of ARDS prevention.

AP05-205

Role of Corticosteroids on Organizing Pneumonia, A Late Complication of COVID-19

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Some patients who recover from COVID-19 still remain symptomatic during the post-infectious period. The persisting inflammatory reactions during this period leads to pulmonary complications, both clinically and radiographically. Organizing Pneumonia is a late complication of COVID-19 which is documented on Chest CT Scan. Corticosteroid use is beneficial and has a significant role in addressing this complication.

We then report two patients admitted for COVID-19, who are both requiring oxygen support even after testing negative for COVID-19 during the post-infectious period. Further evaluation with Chest CT Scan was done which revealed Organizing Pneumonia. Both patients were given Methylprednisolone 16 mg tablet twice a day. They then showed marked clinical improvement, with decreased oxygen demand and was then discharged within a few days.

This report suggests that for patients who had COVID-19 infection and are not improving, a Chest CT Scan should be done during the post-infectious period. For those with findings of Organizing Pneumonia on CT Scan, corticosteroid therapy can be beneficial as an adjuvant therapy.

AP05-206

Relationship between disease activity and health-related quality of life and VNTR analysis among patients with pulmonary nontuberculous mycobacteriosis

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Background and Aim

Pulmonary nontuberculous mycobacteriosis (NTM) patients tend to have a strong sense of anxiety and a low quality of life (QOL), but it is not clear what kind of relationship the disease state has with health-related QOL and variable numbers of tandem repeats (VNTR) type analysis.

Methods

We tested a scale for measuring comprehensive health-related QOL including mental health, SF-36v2 for 42 NTM patients diagnosed at 10 facilities in Fukuoka Prefecture from January 2015 to April 2017. NTM disease was classified into stable type and slowly progressive type based on CT findings over time, and the relationship between SF-36v2 score and VNTR type analysis was examined.

Results

Of the 42 cases, *M. avium* was in 20 cases and *M. intracellulare* was in 22 cases. There were 34 cases of stable type and 8 cases of slowly progressing type. The median age was 64 and 71, respectively. The average body mass index was 19.7 and 16.3, respectively. The physical quality of life summary score was significantly lower in the slowly progressing group. There was no significant difference in mental health. No unique cluster formation was found in the VNTR analysis.

Conclusion

Conclusion: In the NTM slowly progressing group, the physical QOL at the first visit also tended to be low, however, no difference in mental status. There was no unique cluster formation related to QOL in the VNTR analysis.

AP05-207

Usefulness of molnupiravir and the combination with sotrovimab for COVID-19 patients in a tertiary hospital of Japan

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Background and Aim

New antiviral agents for COVID-19, including molnupiravir for the oral treatment and sotrovimab as the monoclonal antibody for the intravenous treatment are currently authorized and available in the clinical setting of Japan from 2022.

Methods

We investigate the clinical use of molnupiravir for COVID-19 patients in our tertiary hospital from January to May 2022, which was the omicron strains dominant term.

Results

35 COVID-19 patients received the molnupiravir administration orally. Among the 35 patients, 32 patients were used combined with intravenous administration of sotrovimab. The patients were 67.3 years old (26-90 y.o) and all survived. In the same term, the patients treated by either sotrovimab alone or sotrovimab plus remdesivir were either 14 cases of 79.0 (63-92) y.o. or 26 cases of 59.3 (36-97) y.o., respectively. Furthermore, the mild/moderate patients treated by molnupiravir were 15/20 cases although all patients with sotrovimab alone were mild, and the patients treated by sotrovimab plus remdesivir were 19 mild and 7 moderate, respectively. All patients treated by sotrovimab plus remdesivir were survived similar to the patients treated by molnupiravir, however, one patient treated by sotrovimab alone was died.

Conclusion

In our tertiary hospital in Japan, most of the molnupiravir were used in the combination with sotrovimab. Molnupiravir may be useful for the COVID-19 patients who could accept oral administration of antiviral agents in the clinical setting.

AP05-208

Complicated Case of COVID-19 and Dengue Hemorrhagic Fever

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Introduction

Co-infection of COVID-19 with dengue may occur.

Case Report

A 31-year-old female, Indonesian, fully vaccinated, referred due to four days of fever, headache, myalgia, and epistaxis. Physical finding revealed high fever (40°C), tachycardia, maculopapular rash, and petechiae. Initial work-up revealed significant thrombocytopenia, leukopenia, lymphopenia, hemoconcentration, positive dengue serologic test (anti-IgM and IgG). Crystalloid fluid, acetaminophen, multivitamins, esomeprazole, tranexamic acid, and platelet concentrates were administered. Twenty four hours later, she had a dry cough, odynophagia, hypoxemia, and right upper quadrant abdominal tenderness. Follow-up tests showed bilateral pneumonia, hepatocellular liver injury pattern, positive polymerase chain reaction/PCR test for SARS-CoV-2, elevated d-dimer. Anti-HAV IgM, HbsAg, anti-HCV were negative. Hepatitis signs on ultrasonography. Thrombocytopenia had already improved post transfusions. Supplemental oxygen, aminofluid, n-acetylcysteine, 6mg/day dexamethasone, clopidogrel were added. Acetaminophen was discontinued. Three days later, symptoms and signs were improved significantly with normalization of blood tests. Dexamethasone was tapered off in five days. Fatigue still lasts for another week since discharged.

Discussion

Symptoms between dengue and COVID-19 may be overlap. Hemoconcentration, thrombocytopenia, and positive dengue serologic test strongly points Dengue Hemorrhagic Fever/DHF. Cough, pneumonia and positive PCR lead to COVID-19. Aside from those, this case was complicated with acute hepatitis. The study showed that both dengue and SARS-CoV-2 may cause direct liver injury. Standard treatment for DHF, acute hepatitis, and COVID-19 were applied without any antiviral/interleukin inhibitor/monoclonal antibody since they aren't available in our setting. Due to bleeding episode, anticoagulant was not given. Interestingly, this case occurred in fully vaccinated person.

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AP05-209

Severe headache and arrhythmia in a 33-year-old Filipino male with confirmed COVID-19: A case report

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Introduction

COVID-19 primarily presents as a pulmonary problem, ranging from mild respiratory illness to fatal acute respiratory distress syndrome. Most common manifestations are fever (89%) and cough (72%), while headache and arrhythmia are found in 28% and 17% respectively. We aim to present a confirmed COVID-19 case presenting with both neurologic and cardiac manifestations.

Case report

A 33-year-old Filipino male nurse consulted at the emergency room due to progressive diffuse headache with associated generalized tonic clonic seizure and arrhythmia. He had no known co-morbidities. Physical examination showed elevated blood pressure, tachycardia, and sensory and motor deficits of the extremities.

Pertinent test results included the detection of SARS-CoV-2 viral RNA. Imaging demonstrated cortical vein venous thrombosis with hemorrhagic venous infarction in the right parietal lobe and ground glass appearance on the middle lobe of the left lung. ECG showed supraventricular tachycardia. Carotid massage was done. He was treated with anti-epileptics, anticoagulants, antiarrhythmics, antivirals, and antibiotics. During the hospital stay, his symptoms resolved; he was discharged after 21 days. Follow-up done revealed no recurrence of symptoms.

Discussion

It is theorized that an interplay exists between ACE-2 tropism, systemic inflammation, cytokine storm, and hypoxemia in the background of COVID-19 infection. These mechanisms may lead to thrombosis and arrhythmia resulting to neurologic derangements and myocardial injury.

Conclusion

Underlying mechanisms make the cerebro-cardiovascular systems vulnerable to the coronavirus disease 2019 infection. COVID-19 should therefore be part of the differential diagnoses in patients presenting with headache, seizures, and arrhythmias.

AP05-210

Correlation of neutrophil to lymphocyte ratio, transaminase enzymes, and 4c score in mortality of covid-19 in pregnancy

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Background and Aim

Pregnant women are generally susceptible to COVID-19 infection and have a probability to develop more severe clinical manifestations leading to high mortality. We aimed to investigate and compare the prognostic impact of clinical manifestations, inflammatory biomarkers, 4C scoring, and mortality in COVID-19 patients with pregnancy.

Methods

A retrospective cohort study observed 176 patients who underwent COVID-19 in Dr. Wahidin Sudirohusodo Hospital Makassar. Clinical symptoms, radiological findings, and laboratory data were collected. Here we analyzed clinical data and outcomes between COVID-19 patients in the pregnancy group admitted to Infection Center and non-pregnant women who were confirmed with COVID-19 and hospitalized during the same period.

Results

The mean age of the pregnancy group was 31±5 years, mostly housewives (57%), multipara (64%), third trimester of pregnancy (89%), and asymptomatic (35%). 45% of total patients showed pneumonia in radiological findings, 6 patients were admitted to ICU due to COVID-19, and 5 (83%) out of them died. 4C scoring mostly low risk (85%). We found a significant difference in several inflammatory biomarkers between pregnant women and the control group. In addition, the result showed a strong correlation of Neutrophil to Lymphocyte Ratio (NLR), transaminase enzymes, and 4C Score to mortality ($p<0,05$).

Conclusion

NLR, transaminase enzymes, and 4C Score are useful to predict mortality in COVID-19 patients with pregnancy. We suggest that these prognostic modalities should be generally applied to increase awareness of the high mortality risk of COVID-19 with pregnancy.

Keywords

COVID-19 in pregnancy, NLR, transaminase enzymes, and 4C Score, mortality.

Acknowledgment

We thank Fuad Hadi for his help in the statistical analysis of this study.

AP05-211

The correlations among severe community-acquired pneumonia (SCAP) scores with pro-inflammatory biomarkers in COVID-19 pneumonia patients

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Background and Aim

Severe cases of COVID-19 can lead to pneumonia and acute respiratory syndrome triggered by a cytokine storm. The severe Community-Acquired Pneumonia (SCAP) score is a tool to predict 30-day mortality in patients with CAP. If the SCAP score is ≥ 10 , a patient is classified as having severe CAP. The aim was to associate SCAP score with inflammatory biomarkers in hospitalized COVID-19 pneumonia patients.

Methods

This study used a retrospective analytic observational design at Dr. Sardjito Central Hospital, Yogyakarta, Indonesia, including hospitalized COVID-19 pneumonia patients. The SCAP score ranges from 0 to 59. Its calculation is performed through arterial pH, systolic blood pressure, respiratory rate, BUN, impaired mental status, PaO₂, age, and bilateral multilobar X-ray. Levels of serum ferritin, procalcitonin, and C-reactive protein (CRP) were quantified by immunoassay. The data were analyzed using correlation, bivariate, and ROC curves to determine the cut-off using SPSSv25.

Results

There were 72 COVID-19 patients with SCAP score ≥ 10 (n=52), and the other group, SCAP score < 10 (n=20). Levels of serum ferritin, procalcitonin and CRP were significantly higher in the group SCAP score ≥ 10 . There was a significant positive correlation with SCAP score and ferritin ($r=0.760$; $p<0.001$), procalcitonin ($r=0.557$; $p<0.001$) and C-reactive protein ($r=0.735$; $p<0.001$). In the ROC curve, a cut-off serum ferritin ≥ 356.93 ng/mL (AUC=0.819; 95%-CI=0.717-0.921); procalcitonin ≥ 0.515 ng/mL (AUC=0.752; 95%-CI=0.634-0.871); and CRP ≥ 31.50 mg/L (AUC=0.852; 95%-CI=0.749-0.956); to detect severe CAP, in COVID-19 patients.

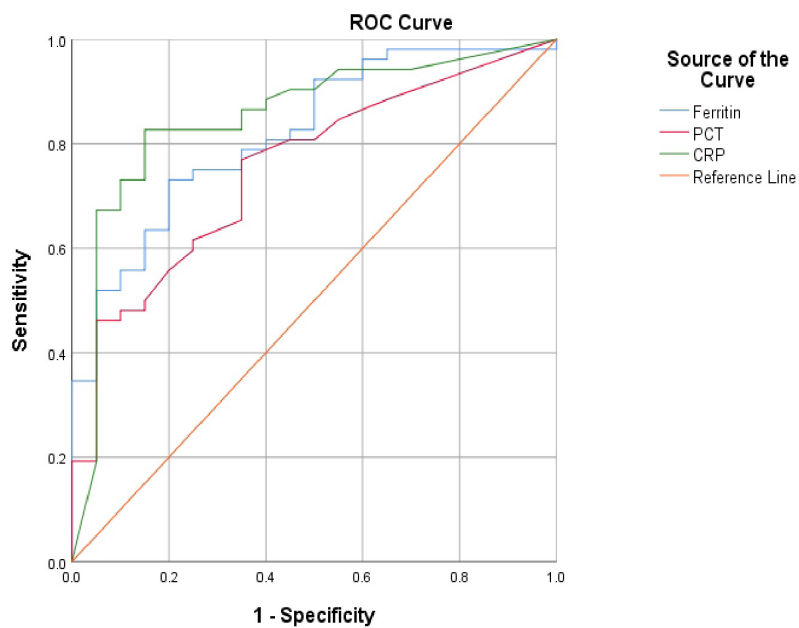
Conclusion

Serum ferritin, procalcitonin, and CRP reasonably correlate with SCAP score and potential predictor biomarkers of severe CAP in COVID-19 patients with pneumonia.

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AP05-212

Post COVID-19 condition in low risk, non-hospitalized patients

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Background and Aim

Post COVID-19 condition is defined as signs and symptoms that develop during or after COVID-19 infection and continue for more than 12 weeks. Recent studies demonstrate that various symptoms persist after severe COVID-19 infection. However, there is not much data on the long-term effects of mild COVID-19 infection. The purpose of this study is to investigate post COVID-19 condition in patients under the age of 60 without comorbidities.

Methods

This study was multicenter prospective observation study and was conducted in 12 institutions between January and August 2022. Symptoms of participants were assessed by telephone survey.

Results

A total of 446 participants were enrolled. The median age was 32 years and 24.2% (108/446) were male. Three months after COVID-19 infection, 247 participants (55.4%) had symptoms and 169 participants (37.9%) had two or more symptoms. Most common symptoms were fatigue (31.8%) and respiratory symptoms (30%). Assessment of the hospital anxiety depression scale revealed that 5.5% of participants had anxiety and 12.5% had depression 3 months after COVID-19 infection. Quality of life scores measured using EQ-5D were lower in participants with symptoms after 3 months than those without symptoms ($p < 0.001$).

Conclusion

This study demonstrated that approximately 40 % of the participants under the age of 60 without comorbidities experienced multiple symptoms and these symptoms reduced their quality of life. Considering this age group is economically active population, we should detect and treat their post COVID-19 condition in patients under the age of 60 to decrease the socio-economy burden of COVID-19.

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Disclosure statement

The authors declared no potential conflicts of interest with respect to the research.

AP05-213

Effects of the fourth COVID-19 Vaccination in the Elderly among COVID-19 Confirmed Patients on Death

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Background

In the face of the evolution of the SARS-Cov-2 virus, vaccination is an important strategy to reduce the death of COVID-19, but several vaccinations are needed. So we would like to confirm the effect of the number of COVID-19 vaccinations on death.

Methods

The subject selected confirmed patients among the elderly, who are currently the main subjects of the fourth vaccination. Data on COVID-19 confirmed patients in Seoul were used. The gender, age, vaccine doses, underlying disease were used as independent variables, and the dependent variable used the period of COVID-19 confirmed and death day.

Results

Descriptive and chi square analysis was performed on the elderly confirmed with COVID-19. Women, 60-69 years old, and the third vaccination were more frequent. Underlying diseases were found to be less than 3%. The mortality rate was 5.9%. From Cox provincial hazard model, women had a lower risk of death than men. Compared to those in their 60s, those in their 70s had a 3.3 times higher risk of death and those aged 80 or older had a 6.8 times higher risk of death. In addition, the risk of death was 28 times higher for non-vaccination and 7.2 times higher for the third vaccination than for the fourth vaccination. Regardless of the type of underlying disease, the risk of death was higher than in the case where there was no underlying disease. As a result of comparing the cumulative survival risk according to the number of vaccine doses, the cumulative survival rate was 8.3% in the case of non-vaccination, but 99.3% in the case of the fourth vaccination. Also it was found that the risk of death increased by more than 28 times in the case of non-vaccination compared to the case of the fourth vaccination.

Conclusion

Compared to the case of non-vaccination for deaths from COVID-19 in the elderly, the fourth vaccination showed a higher survival effect. Therefore, active vaccination is needed to reduce the mortality rate from COVID-19.

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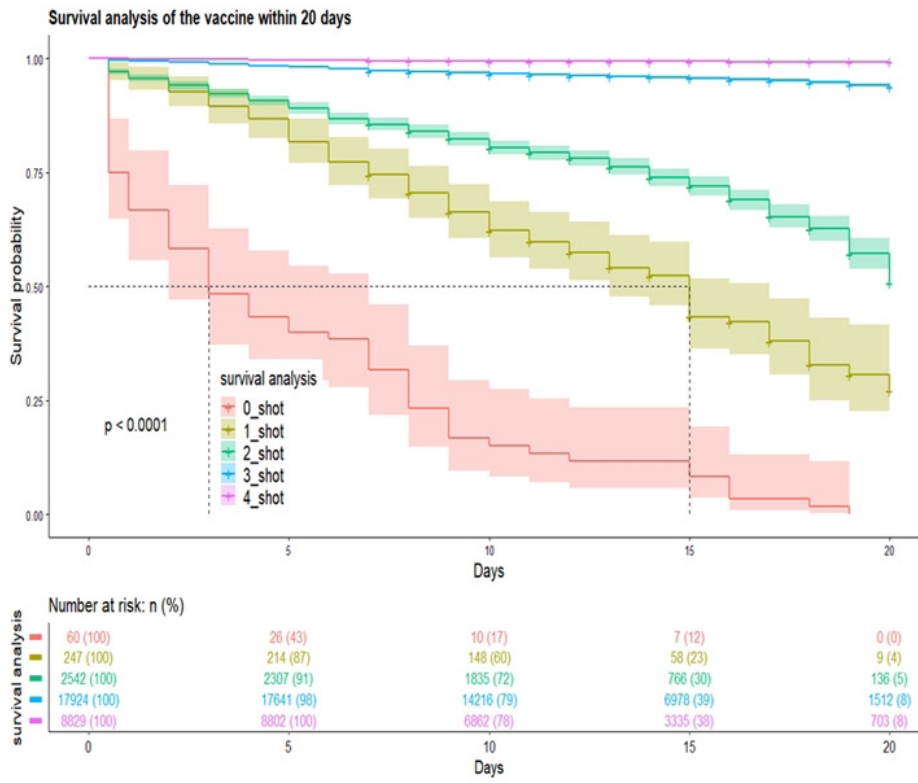


Figure 1. Survival rates by number of vaccine doses

AP05-214

Recent increases in influenza-related hospitalizations, critical care resource use, and mortality by seasonal influenza; a 10-year population-based study in South Korea

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Background and Aim

Long-term trends in influenza-related hospitalizations, critical care resource use, and outcomes since the 2009 H1N1 influenza pandemic have been rarely studied.

Methods

Adult patients from the Korean Health Insurance Review and Assessment Service who were hospitalized with influenza over a 10-year period (2009–2019) were analyzed. The incidence rates of hospitalization, critical care resource use, and in-hospital death were calculated using mid-year population census data.

Results

In total, 300,152 hospitalized patients with influenza were identified. Although the age-adjusted hospitalization rate initially decreased since the 2009 H1N1 pandemic (52.61/100,000 population), it began to increase again in 2013/2014 and reached a peak of 169.86/100,000 population in 2017/2018 ($p < 0.001$). The in-hospital mortality rate showed a similar increasing trend as the hospitalization, with a peak of 1.44/100,000 population in 2017/2018. Both hospitalization and in-hospital mortality rates were primarily driven by patients aged ≥ 60 years. The rate of intensive care unit admission and the use of mechanical ventilation, continuous renal replacement therapy and vasopressors have also increased from 2013/2014 season. Besides, the incidence of cerebral infarct was the most frequent complication investigated. In multivariate analysis adjusted for covariates, among hospitalized patients, type of hospitals and 2009 H1N1 pandemic season were associated with in-hospital mortality.

Conclusion

We confirmed that the rates of hospitalization, critical care resource use, and in-hospital mortality by influenza have increased again in recent years. Therefore, strategies are needed to reduce infections and optimize resource use with greater focus on older people.

AP05-215

Blood biomarkers predict clinical outcomes in patients with severe COVID-19 pneumonia

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Background and Aim

Clinical outcomes of patients with coronavirus disease-19 (COVID-19) pneumonia vary and are difficult to predict, but the roles of blood biomarkers for predicting clinical outcomes are not well defined. We aimed to investigate the predicting values of blood biomarkers for clinical outcomes in patients with severe COVID-19 pneumonia.

Methods

Patients with severe COVID-19 pneumonia requiring ventilator care (n=103) were prospectively enrolled from eight medical institutes in South Korea, and their blood samples and data on clinical outcomes including in-hospital mortality, and ventilator-associated pneumonia or ventilator-induced lung injury (VAP/VILI) were collected. Plasma [a1] levels of surfactant protein-A (SP-D), Krebs von den Lungen-6 (KL-6), matrix metalloproteinase-7 (MMP-7), and CC-chemokine ligand 18 (CCL-18) were measured using Enzyme-linked immunosorbent assay, and the results were log-transformed to reduce skewness.

Results

Of all patients, the mean age was 60.7 years and 63.1% were males. During the follow-up (median: 29 days, interquartile range: 19-51 days), death and VAP/VAIL occurred in 35.9%, and 45.6%, respectively. Non-survivors showed higher levels of SP-D and KL-6 compared with survivors. Plasma levels of CCL-18 were significantly increased in patients with VAP/VILI than those without VAP/VILI.

In the adjusted models, higher blood SP-D and KL-6 levels were independently associated with in-hospital mortality, while lower SP-D and higher CCL-18 levels were associated with the occurrence of VAP/VILI (table).

Conclusion

Our results suggest that blood biomarkers may be useful in predicting clinical outcomes in patients with severe COVID-19 pneumonia.

This study is supported by Grant from the Korea Disease Control and Prevention Agency (No. 2021ER190400).

Table. The logistic regression analysis for risk factors of clinical outcomes in patients with severe COVID-19 pneumonia

	In-hospital mortality		VAP/VILI	
	OR* (95% CI)	P-value	OR*(95% CI)	P-value
SP-D	2.103 (1.228-3.603)	0.007	0.465 (0.267-0.809)	0.007
KL-6	3.447 (1.536-7.737)	0.003	0.678 (0.344-1.335)	0.261
MMP-7	0.736 (0.382-1.491)	0.418	1.228 (0.322-2.427)	0.554
CCL-18	0.892 (0.378-2.106)	0.794	3.732 (1.473-9.455)	0.005

COVID-19, coronavirus disease-19; OR, odds ratio; CI, confidence interval; SP-D, surfactant protein-A; KL-6, Krebs von den Lungen-6; MMP-7, matrix metalloproteinase-7; CCL-18, CC-chemokine ligand 18; VAP, ventilator-associated pneumonia; VILI, ventilator-induced lung injury

*Adjusted by covariates including age, sex, Charlson-Comorbidity Index, body mass index, APACHE score and intubation durations.

AP05-216

A case of new onset mixed Guillain-Barré Syndrome and Myasthenia Gravis following COVID-19 Infection

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Introduction

Few case reports of new-onset autoimmune Myasthenia Gravis (1) and new onset Guillain-Barré Syndrome following COVID-19 (2) has been reported. However, there is no yet reported case of mixed picture of both autoimmune diseases following COVID-19. We report one such case here.

Case report

A 61 year old healthy gentleman presented with cough and fever for five days. His RTK-Ag testing for COVID-19 yielded positive on Day 2 of symptoms. On Day 9, he developed sudden onset of diplopia and his symptoms became progressively worsened including bilateral eye ptosis, dysphagia and dysphonia. He also had reduced sensation of bilateral palms. MRI Brain and lumbar puncture was normal. However, the nerve conduction test showed acute motor neuronal neuropathy (AMAN) and demyelinating polyneuropathy. The concentration of AchR Antibodies was 0.47 (normal values <0.4pmol/l). Patient improved remarkably after 5 days of Intravenous Immunoglobulin and subsequently started on T. Pyridostigmine and T. Azathioprine.

Discussion

Neurologic dysfunction seen in our patient may suggest a novel mechanism of disease that is part of the emerging 'Extra-pulmonary complications of COVID-19'. The presentations and findings seen in this patient may be named as a new syndrome later apart from just being categorized as Post-COVID demyelination syndrome. Early recognition and diagnosis is crucial for patient's benefit.

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AP05-217

Mortality Characteristic of COVID19 in Banda Aceh Indonesia

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Background

SARS-CoV-2 can infect individuals and causes varied symptoms such as fatigue, fever, cough, severe pneumonia, Acute Respiratory Distress Syndrome (ARDS), sepsis, and death. However, there is considerable controversy about the cause of death from SARS-CoV-2 directly related to the infection or underlying disease.

Objective

This study assessed the characteristics of mortality in COVID-19 patients.

Method

This study is a retrospective cohort of COVID-19 patients confirmed by PCR results. Samples were collected from medical record data with a total sampling method for 14 months, from July 2020 to September 2021, during the first and second waves. The cause of death is determined by the International form of medical certificate of cause of death.

Results

This study has collected 693 COVID-19 patients who died, Civil Servants are the occupation of the most 270 people (39%), and 5 people (0.7 %) are Health workers. Male sex (56.6%) were found more than female. The mean age of the research subjects was 56.65 ± 14.69 years. The average length of stay for COVID-19 patients is 6.61 ± 14.49 days. Obesity and chronic lung disease were the most common comorbidities, 39.8%, and 50.7%. This study showed that respiratory failure was the highest cause of death (55.7%), ARDS, and sepsis (28.3%) (16.9%), respectively.

Conclusion

Respiratory failure is the largest cause describing that the management of COVID-19 during the first and second waves was challenging, especially in Indonesia. Therefore, mitigating respiratory failure shall be prioritized to be implemented.

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AP05-218

Bronchoscopy in the diagnosis and management of drug-induced pneumonitis in immunocompromised patients, a single-centre one-year experience.

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Background and Aim

Immunocompromised hosts (ICH) presenting with chest infiltrates and non-specific respiratory symptoms pose a significant diagnostic challenge. The diagnosis of drug-induced pneumonitis requires a high degree of suspicion and exclusion of other etiologies. Bronchoscopy may play a role in exclusion of pulmonary infections and support the diagnosis of drug-induced pneumonitis.

Methods

A prospective registry of immunocompromised patients undergoing bronchoscopy was established in a tertiary university-affiliated hospital. Patients were recruited with informed consent.

Results

From 1st May 2021 to 30th April 2022, 56 unique patients underwent 61 bronchoscopies. Drug-induced pneumonitis was the eventual diagnosis in 7 patients (12.5%). The characteristics of these patients are presented in table 1.

The most common radiographic findings on CT were ground glass opacities (100%) and septal thickening (57.1%). Bronchoalveolar lavages (BAL) were performed in all patients, 2 patients underwent transbronchial lung biopsy (TBLB). 1 patient had a weakly positive *Pneumocystis Jirovecii* PCR result on BAL fluid. All other microbiological studies for all patients were negative. Cell count was performed in 4 patients and showed a predominant lymphocytic yield (58.1% ± 18.4). For the 2 patients who underwent TBLB, histology revealed organizing pneumonia and chronic interstitial pneumonia pattern. All patients were started on steroids or had their dose escalated after bronchoscopy. 5 (71.4%) patients stopped or de-escalated their antibiotics following bronchoscopy.

2 (28.6%) patients required intubation during the same admission, of which 1 occurred within 24 hours of bronchoscopy. None had significant bleeding and 1 (14.2%) had a small pneumothorax which was conservatively managed. All patients survived to discharge. 90-day mortality was 14.2%.

Conclusion

Drug-induced pneumonitis is an important differential diagnosis in ICH with undifferentiated lung infiltrates. Bronchoscopy is useful in rationalizing antimicrobial therapy and increases confidence to administer corticosteroid therapy in patients who are already immunocompromised. In our limited experience, BAL cell counts returning as lymphocyte-predominant seems to support the diagnosis of drug-induced pneumonitis. The role of TBLB needs to be further examined.

Table 1. Clinical Characteristics of Immunocompromised Patients Diagnosed with Drug Induced Pneumonitis(n=7)	
Patient Characteristics	
Age, Mean	57 ± 13
Male sex, no. (%)	2 (28.6%)
Primary Diagnosis	Diffuse Large B-cell Lymphoma (14.2%) Primary Mediastinal B-cell Lymphoma (14.2%) Bladder Cancer (14.2%) Breast Cancer (28.6%) Lung Cancer (28.6%)
Comorbidities	Diabetes Mellitus (28.6%) Ischemic Heart Disease (0%) Chronic Lung Disease (0%) Chronic Kidney Disease (14.2%)
Culprit drug identified	Paclitaxel (14.2%) Docetaxel (14.2%) Rituximab (28.6%) Trastuzumab (14.2%)
Clinical Presentation	
Cough	42.9%
Dyspnea	42.9%
Chest pain	0%
Hemoptysis	0%
Clinical Parameters Prior to Bronchoscopy	
T _{max} on presentation	37.6 – 39.6
Highest HR (bpm), Mean	101 ± 16
Lowest Systolic BP (mmHg), Mean	106 ± 8
FiO ₂ requirement	0.21 (71.4%), 0.29 (14.2%), 0.5 (14.2%)
Radiological Findings on Computed Tomography scan of the Thorax	
Consolidation	42.9%
Ground Glass	100%
Multiple Nodules	14.2%
Pleural effusions	14.2%
Septal Thickening	57.1%
Honeycombing	14.2%
Reticulation	28.6%
Procedures performed	
Bronchoalveolar lavage (BAL)	100%
Transbronchial Forceps Biopsy (TBLB)	28.6%
Complications	
Intubation within 24 hours	14.2%
Intubation event during same hospitalization	28.6%
Pneumothorax	14.2%
Bleeding requiring endobronchial intervention	0%
Outcomes	
7-day mortality	0%
30-day mortality	0%
90-day mortality	14.2%
Survive to hospital discharge	100%

AP05-219

Sensitivity and Specificity of Gene-Xpert as Diagnostic Tool for COVID19 and Association between Cycle Threshold Value of Gene-Xpert and Clinical Outcomes

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Background

The coronavirus disease 2019 (COVID-19) pandemic has caused a worldwide sudden and substantial increase in hospitalisations and mortality. Rapid and accurate diagnosis of SARS-CoV-2 infection is the cornerstone of preventing the spread of the virus. GeneXpert is one of the diagnostic test for COVID-19, which is often used in Vajira hospital during COVID-19 pandemic because of faster results.

Objectives

To examine the sensitivity and specificity of GeneXpert compared to real time RT-PCR and study the association between cycle threshold (CT) value of GeneXpert and clinical outcomes

Methods

We collected the data of all patients who had nasopharyngeal swab for COVID19 diagnosis by both GeneXpert and real time RT-PCR methods in Vajira Hospital since April 2021 until completed the calculated sample size, then, we analysed the data.

Results

The sensitivity and specificity of GeneXpert for COVID-19 test were 98.4% (95%CI: 91.2-100) and 96.8% (95%CI: 83.3-99.9), respectively. For sites of care, cycle threshold (CT) value of GeneXpert and gold standard real-time RT-PCR resulted in the same direction. The lower CT value resulted, the more association with cohort ward and ICU admission were ($p=0.07$ for E gene, $p=0.015$ for N2 gene). Moreover, CT value of N2 and E gene trended toward correlation with type of oxygen support. The more intense oxygen support were associated with lower CT value ($p=0.122$ for N2 gene, $p=0.397$ for E gene). However, CT value of GeneXpert did not seemingly have a correlation with discharge status of the patients. Mean CT value of N2 gene were 27.62 ± 7.04 , and 26.42 ± 8.46 for discharge and death status respectively ($p = 0.649$), while ones of E gene were 27.57 ± 6.71 , and 24.62 ± 6.68 ($p = 0.229$).

Conclusion

GeneXpert provides rapid diagnosis of COVID19 infection with high sensitivity and specificity, which supported the results of previously study.

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AP05-220

Ascertaining association of comorbid factors and prognosis of COVID-19 patient in bandar lampung city, indonesia, 2020-2021.

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Background and Aim

Corona Virus Disease (Covid-19) has caused pandemic with high mortality rates worldwide. This is a respiratory infectious disease that highly contagious to any ages. People with a condition of having chronic diseases (hypertension, diabetes mellitus, cardiovascular, chronic kidney disease) are at high risk of infected by COVID-19 and more to experience complications due to the comorbidities and pose higher risk of death. This study is conducted to ascertain the association of comorbid factors with the prognosis of COVID-19 patients in Bandar Lampung City, Indonesia 2020-2021.

Methods

This is a retrospective analytical study, conducted in the COVID-19 referral hospital in Bandar Lampung City, Dr. H. Abdul Moloek Bandar Lampung, Indonesia, Pertamina Bintang Amin Hospital Bandar Lampung, Indonesia, and Adventist Hospital Bandar Lampung, Indonesia, from March 2020-March 2021. Patients who confirmed to have COVID-19, aged 17-85 are inclusive and with purposive sampling methods, through medical record, total of 1030 patients are included. Data is analyzed using chi-squared test.

Results

From the total patients, it shows that most infected are alived (83.5%), occurred more in male group (52.4%), and aged 46-55 years (25.1%). There are 33,6 % patients with comorbidities. For the group who have comorbid, the most frequent comorbidites found are hypertension (48.0%) and diabetes mellitus (32,8%), heart disease (14,1%), and chronic kidney disease (12,1%). Through the analysis of mortality rate in this group and compared to group without comorbidities, the presence of comorbidities has significant association in poor prognosis for COVID-19 patients in Bandar Lampung City 2020-2021 (p-value = 0.000; OR = 3.52).

Conclusion

Hypertension is the most common comorbid in COVID-19 patients in Bandar Lampung. Based on the data analysis, there is significant association between the presence comorbidites and poor prognosis in COVID-19 patients in Bandar Lampung City in 2020-2021 (p-value = 0.000; OR = 3.52).

AP05-221

COVID-19 Outcome: A One Year Follow-Up Study of Patients who Recovered from COVID-19 at Lung Center of the Philippines

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Introduction

To date, the Philippines had tallied more than 3 million COVID-19 cases with 91.5% recovery rate and 1.72% mortality rate. Some patients who recovered from COVID-19 are left struggling with symptoms which persist through weeks, months and even a year.

Objectives

To determine the clinical outcome after 1 year of COVID-19 recovered patients in terms of persistent symptoms, functional capacity, and survival status and their relationship with disease severity.

Methods

This is a cross sectional-analytical study. Subjects include those who were discharged improved from April - August 2020 at Lung Center of the Philippines. Their clinical outcome after 1 year which include persistent symptoms, functional capacity and survival status were determined and analyzed.

Results

A total of 100 subjects were included in this study. Forty-three subjects (43.9%) had persistent symptoms. Fatigue (28, 28.6%), depression (13, 13.3%), and brain fog (11, 11.2%) were the most frequently reported symptoms. Ninety-two (92.9%) patients had none to negligible functional capacity limitations. Ninety-seven (97%) patients survived after 1 year. Persistent symptoms of fatigue and difficulty of breathing, as well as functional capacity differ across COVID-19 disease severities. Higher proportion of patients with persistent fatigue and difficulty of breathing were noted as the severity increases. Higher proportion of patients with functional scale 1-2 (no to negligible functional limitation) were noted in moderate severity group as compared to the severe and critical severity group.

Conclusion

This one-year follow-up study of COVID-19 recovered patients revealed high proportion of survivors, very few with significant functional capacity limitations, and some with persistent symptoms. Favorable clinical outcomes after 1 year were evident in less severe disease. Care for patients with COVID-19 infection does not conclude at the time of hospital discharge, and interdisciplinary cooperation is needed for comprehensive care of these patients in the outpatient setting.

AP05-222

Astaxanthin protect against severe acute respiratory syndrome coronavirus 2 infection on well-differentiated primary human nasal epithelial cells

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Background and Aim

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection can increase mitochondrial reactive oxygen species production, lead to mitochondrial dysfunction, and oxidative stress. Reduced antioxidant capacity may increase severity of SARS-CoV-2 infection. However, whether antioxidant can restore the host redox homeostasis and provide protection to the SARS-CoV-2 infection is unknown. The aim of this study was to determine whether a dietary antioxidant reduces severity of SARS-CoV-2 infection.

Methods

Primary human nasal epithelial cells were grown and differentiated in air-liquid interface culture and pre-treated with 20 μM astaxanthin, an antioxidant, for 24 hours. The cultured epithelia were subsequently infected with mock (PBS) or SARS-CoV-2 (1.25 × 10⁵ PFU) for one hour. Samples were collected 24, 48 and 72-hours post-infection. Outcomes measured included viral replication (SARS-CoV-2 nucleoprotein, NP), mRNA expression (cytokine: TNF-α, IFN-β; signalling pathway: SIRT1, p21, FOXO3, PINK1, MUC5AC), oxidative stress defence (Catalase, SOD1, TRX) and papain-like protease (PLpro) activity.

Results

SARS-CoV-2 infection caused an increase in NP at 24, 48 and 72-hour post-infection (p<0.001). SARS-CoV-2 replication was inhibited by pre-treatment with astaxanthin (p<0.01). SARS-CoV-2 infection caused an increase in cell death (p<0.05) and IFN-β; mRNA expression (p<0.001). Astaxanthin upregulated the antioxidant pathway, SIRT1 and FOXO3 mRNA expression (p<0.001, p<0.05, respectively). 100 μM astaxanthin inhibited PLpro activity by approximately 60%.

Conclusion

Our results demonstrate that an antioxidant, astaxanthin, prevented SARS-CoV-2 viral replication, related to inhibition of PLpro activity and enhanced antioxidant capacity. These results encourage assessment of astaxanthin in reducing severity of COVID-19.

AP05-223

Burden of fungal infections involving the respiratory tract in India

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Background and Aim

Fungal disease is frequent in India but its incidence and prevalence unclear. This study aims at defining the frequency or burden of various fungal infections affecting the respiratory tract in Indian population.

Methods

A systematic review of literature was done from PubMed, Embase and Web of Science (WOS) databases using appropriate search strings. Deterministic modeling allowed annual incident and prevalence estimates for multiple life and sight-threatening infections with significant morbidity.

Results

Literature searches yielded over 1100 papers; 128 papers with incidence/ prevalence/proportion data were analyzed. An estimated 4,987,450 of 1,393,400,000 people in India, (358 per 100,000) suffer from a serious fungal disease. The prevalence (in millions) of allergic bronchopulmonary aspergillosis (ABPA) is 2.0, severe asthma with fungal sensitization of 1.36, chronic pulmonary aspergillosis of 1.75 and chronic fungal rhinosinusitis of 1.52. The annual incidence of Pneumocystis pneumonia (58,400), invasive aspergillosis (250,900), and mucormycosis (195,000) were also determined.

Conclusion

India's fungal burden affecting the respiratory tract is high and under-appreciated in clinical practice.

Table: Summary of fungal infection burden in India according to major risk factors

Infection	No. infections per underlying disorder per year			Total No. Cases (Rate/ 100,000 Population)
	None/ others	HIV/ AIDS + Respiratory	Cancer/ immune-compromised + ICU/ Surgery	
IA	-	2358 + 1,885 [#]	7,040 [§] + 239,651*	250,935 (18)
CPA	40,400	6558 + 357,043	-	404,001 (29)
ABPA	-	- + 1,197,913	-	1,197,913 (86)
SAFS	-	- + 1,363,142		1,363,142 (97.8)
Fungal rhinosinusitis	1,518,005	-		1,518,005 (109)
Mucormycosis	107,292	-	87,784 + -	195,076 (14)
Pneumocystis pneumonia	32,691	25,686	-	58,378 (4.19)
				4,987,450 (358)

*Includes IPA in hospitalized COPD patients

[#] Includes lung malignancy

[§] Includes AML, Non-AML Hematological conditions, transplant recipients (lung, liver, kidney, heart, stem-cell)

AP05-224

A Case of Acute Motor Sensory Axonal Neuropathy: A Variant of Guillain-Barré Syndrome in a patient with SARS-COV-2 infection

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Introduction

Various neurological manifestations have been observed in patients diagnosed with COVID-19 disease. Only a few cases of Guillain-Barre syndrome (GBS) have been reported. This case report aims to highlight the association of COVID-19 and GBS, specifically Acute Motor Sensory Axonal Neuropathy (AMSAN) type.

Case

A 72-year-old female with no co-morbidities and fully-vaccinated against Covid-19, was admitted in our institution due to a 3-day history bilateral extremity weakness with lower limb dominance. Symptoms prior to admission were: dysphagia to solid, difficulty of breathing and loss of reflexes. On admission, bulbar symptoms developed and she required ventilator support. CSF findings and cranial imaging showed no significant results. Nerve conduction and electromyography revealed symmetric and sensorimotor axonal polyneuropathy. SARS-CoV2 RT-PCR swab was positive. XRay showed bilateral pneumonia with no endotracheal aspirate growth. She was given Dexamethasone, Enoxaparin, Remdesivir and 2 cycles of intravenous immunoglobulin. On the 18th day of illness, there was resolution of symptoms, MMT improved and was successfully removed from ventilator support.

Conclusion

GBS is linked with many bacterial and viral pathogens but only a few cases of COVID-19 with GBS have been reported. Different subtypes have been identified including Miller-Fisher and dysautonomic. GBS in COVID-19 with prominent bulbar and respiratory symptoms is consistent with the AMSAN variant of GBS. It is still unclear if SARS-CoV-2 can directly invade neurons and how it can cause neuropathy. Early recognition of signs of respiratory failure must be recognized since AMSAN has a rapid and severe respiratory course necessitating ventilatory support.

No disclosures

AP05-225

Double Trouble: A Case of Pleural and Pericardial Effusion in a 27- Year- Old Woman

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Pleural and pericardial effusion presenting together is not a rare occurrence. However, its differential diagnosis is uncertain and the approach to them appearing simultaneously should be highlighted. A previously healthy 27-year-old female came in due to a 4-week history of cough and exertional dyspnea. Initial Chest X-ray revealed pleural effusion, underlying mass or pneumonia cannot be ruled out. She then underwent thoracentesis with exudative cause identified, but still with noted progression of pleural fluid. 2D-echo was done which revealed large pericardial effusion with tamponade physiology. Patient then underwent pericardiostomy tube insertion with Histopathology findings of Peripheral T- Cell Lymphoma. In patients presenting with pleural and pericardial effusion, a detailed evaluation to search for occult malignancy should be performed.

AP05-226

Spontaneous pneumomediastinum in the course of COVID-19

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Introduction

COVID-19 is a rapidly emerging disease that causes acute and long-term pulmonary complications. Computed tomography (CT) thorax has become a diagnostic modality in detecting early features of COVID-19 pneumonia and disease evaluation. Although organizing pneumonia computed tomography pattern has been frequently seen, the presence of spontaneous pneumomediastinum (SPM) remains a rarely described sequelae.

Case report

A 64-year-old woman with a background history of aneurysmal subarachnoid haemorrhage post clipping and hypertension presented with 2 days of cough and dyspnoea. She tested positive for SARS-COV-2 RT-PCR. She saturated 86% on room air and improved to 95% on a 5L/min rebreather mask. Arterial blood gases pH was 7.470, pO₂ of 59.5 mm Hg, pCO₂ of 33.8 mmHg, and bicarbonate of 25.6 mmol/L on room air. Her chest radiograph showed bilateral lower zone peripheral air space opacities. Initial laboratory workup revealed the following: WBC 14.9 x 10⁹/L, ALC 0.5 x 10⁹/L, platelet 242 x 10⁹/L, CRP 3.36 mg/dL, and d-dimer 1.42 ug/mL. A 7-day course of IV dexamethasone 6 mg OD and enoxaparin thromboprophylaxis was initiated. A CT thorax revealed spontaneous pneumomediastinum, GGO, and peribubular densities. She continued to improve and was able to wean off the supplemental oxygen after 2 weeks. The spontaneous pneumomediastinum remains stable and not associated with subcutaneous emphysema or pneumothorax. She was discharged with 0.5 mg/kg prednisolone and taper over 12 weeks.

Discussion

COVID-19 is a rare aetiology of SPM and should be a differential diagnosis in any unexpected delay in the recovery and difficult weaning off from oxygen support.



Figure 1: Axial CT thorax showing multifocal bilateral GGO. Pneumomediastinum is seen around the trachea and esophagus.

AP05-227

A case of pulmonary Mycobacterium abscessus treated with modified short course antibiotic.

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Introduction

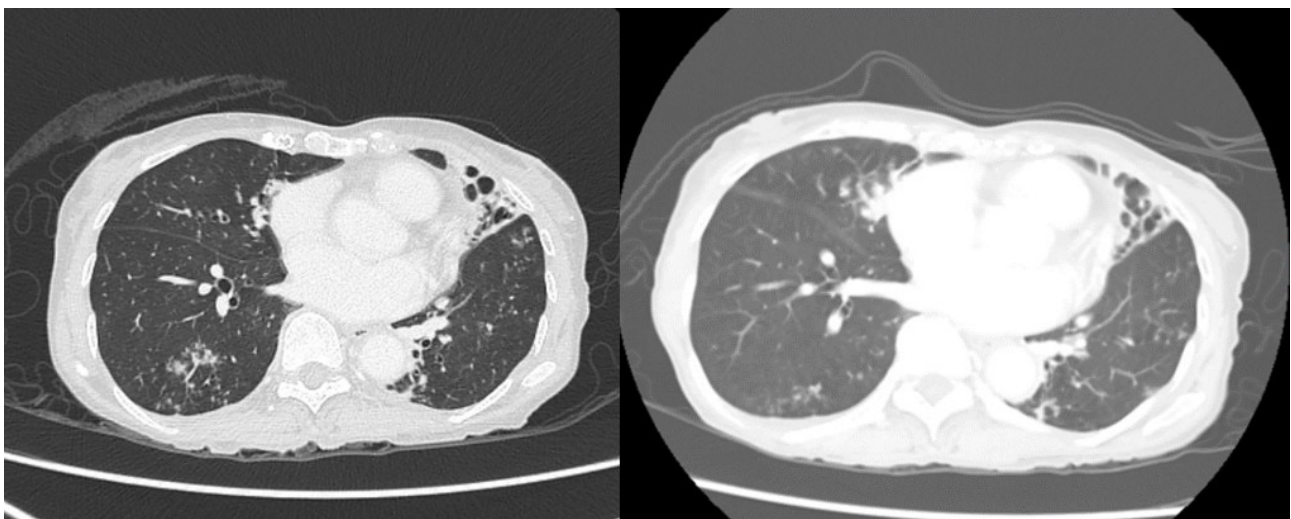
Mycobacterium abscessus is a group of rapidly growing non-tuberculous mycobacterium (NTM) species affecting pulmonary. It is difficult to treat and longer duration needed due to antimicrobial resistance. This case report described a successful treatment of pulmonary Mycobacterium abscessus with short course regimen antibiotics.

Case report

A 79-year-old-woman presented with chronic cough and hemoptysis, prolonged fever and loss weight of 3 kilograms in 2 weeks. She was febrile 38 degrees celsius and oxygen saturation was 95 percent on room air. Lung examination revealed bronchial breath sounds and crepitations at left upper lobe. Chest radiograph showed opacities at left upper lobe and contrast enhanced computed tomography (CECT) thorax showed left upper lobe consolidation with multiple lung nodules and tree in buds in right middle and lower lobes. Bronchoscopy showed dilated right and left segmental bronchus. Bronchoalveolar lavage (BAL) for GeneXpert Mycobacterium Tuberculosis (MTB)/rifampicin and MTB culture were negative and NTM liquid culture grew Mycobacterium abscessus complex susceptible to amikacin, clarithromycin and imipenem. Percutaneous intravenous central catheter (PICC) was inserted and patient was started intravenous amikacin 750 mg three times-per-week with through level of 63.4 mmol/L and oral clarithromycin 1g daily. The treatment was continued for 3 months. Post treatment 6 month noted improvement clinically and radiologically. Sputum MTB culture monthly for 6 month and repeated BAL for NTM liquid culture after 3 months treatment was negative.

Discussion

Short regime antibiotics are possible for the treatment of pulmonary Mycobacterium abscessus.



AP05-228

Clinical relevance of bronchiectasis in patients with community-acquired pneumonia

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Background and Aim

Data regarding the clinical characteristics and treatment outcomes of patients with community-acquired pneumonia (CAP) and bronchiectasis (BE) are rare. This study aims to elucidate the clinical relevance of BE in patients with CAP.

Methods

Patients hospitalized with CAP in a single center were retrospectively analyzed and divided into significant BE (BE with ≥ 3 lobes or cystic BE on computed tomography) and control groups. Clinical and microbiological characteristics were compared between the two groups.

Results

In the final analysis, 2112 patients were included, and 104 (4.9%) had significant BE. The significant BE group exhibited a higher prevalence of sputum production, dyspnea, and complicated parapneumonic effusion or empyema than the control group. *Pseudomonas aeruginosa* was more frequently isolated in the significant BE group than in the control group, whereas *Mycoplasma pneumoniae* was less commonly identified. Length of hospital stay (LOS) was significantly longer in the significant BE group than the control group (12 [8–17] days vs. 9 [6–13] days, $p < 0.001$). In contrast, 30-day and in-hospital mortality rates did not significantly differ between the two groups. Furthermore, significant BE was an independent predictor of prolonged hospitalization in two models based on CURB-65 and pneumonia severity index.

Conclusion

Significant BE occurred in approximately 5% of patients with CAP and was more likely to be associated with sputum, dyspnea, complicated parapneumonic effusion or empyema, and isolation of *P. aeruginosa*. Significant BE was an independent predictor of LOS in patients with CAP.

AP05-229

Characteristics and clinical outcomes of patients with *Acinetobacter baumannii* associated hospital-acquired pneumonia in Korea

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Background and Aim

Hospital-acquired pneumonia (HAP) is significant public health issue in the world, and most common pathogen in Korea was *Acinetobacter baumannii* recently. However we have still not many information about this. The aim of this study was to determine the characteristics and outcomes of patients with *Acinetobacter baumannii* associated HAP.

Methods

This study is a multicenter retrospective cohort study of 16 participating hospitals in South Korea. Patients with hospital acquired pneumonia who confirmed as *Acinetobacter baumannii* infection were included.

Results

A total of 147 patients were included in this study. Median age was 72 (range from 63 to 79) years, and 106 patients (72.1%) were male. The median period from admission to HAP onset is 11 (range 7 to 18) days, and 41 (78.8%) of them were diagnosed in ICU. Artificial airway was applied in 73 patients (49.7%), and 63 patients of them had E-tube. The median antibiotics using period was 16 (range from 9 to 28) days, and 46.9% of them were used Expanded-spectrum penicillin/beta-lactamase inhibitor as initial line antibiotics. *Acinetobacter baumannii* was growth in respiratory tract culture in 98% of patients, 61.2% of patients were met microbiological eradication, and 54.4% of patients were achieved clinically cure.

Conclusion

In this study, *Acinetobacter baumannii* associated HAP group shows high mortality. The rate of microbiological

eradication is similar to other pathogens.

This research was supported by a fund(2020-ER7201-02) by Research of Korea Centers for Disease Control and Prevention Agency.

Table. Outcome

	Total (n=147)
In hospital duration	38 [24-59]
HAP to discharge duration	22 [11-44]
ICU admission	36 (24.5)
Clinical cure	80 (54.4)
Microbiological eradication	85 (61.2)
Mortality during HAP treatment	61 (41.5)

AP05-230

Oxygen saturation measured by a wearable device may predict early treatment response in patients with community-acquired pneumonia

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Background

Community-acquired pneumonia (CAP) is currently the third cause of death in Taiwan, and early determination of treatment response is crucial in the management of patients with CAP. The wearable device is increasingly used to provide point-of-care and continuous monitoring, and we hence aim to apply the wearable device to early determine the treatment response of patients with CAP.

Methods

We prospectively enrolled patients with CAP at a tertiary referral hospital in central Taiwan between 2020 and 2021. Wearable devices were used to monitor oxygenation (SpO₂), heart rate, and physical activity, measured by acceleration movement and motion, for two days and stream data were recorded per 5 minutes. Treatment response was determined by improvement of vital signs, a decreased requirement of oxygen supply and improvement of chest X-ray within three days. Logistical regression was used to determine the odds ratio (OR) and 95% confidence interval (CI).

Results

A total of 62 patients with CAP were enrolled, and 48.4% (30/62) of them were classified as the early responder to treatment within three days. Those with early and late treatment response had similar disease severities, including CURB-65 (1.13±0.82 vs 1.06±0.8, p=0.719) and pneumonia severity index (PSI) (97.3±36.21 vs 98.06±31.7, p=0.983). We found a lower SpO₂, higher variation in SpO₂ and lower physical activity in those without early response compared with those with early treatment response. After adjustment for sex and age, we found that a higher day-2 average SpO₂ tended to be associated with a lower risk for late response to treatment outcome (OR: 0.78, 95% CI 0.57–1.06; p=0.109).

Conclusion

In the present study, we used a wearable device for continuous monitoring in patients with CAP and found that day-2 average level of SpO₂ may be an early predictor for treatment response in patients with CAP.

AP05-231

Colistin plus rifampicin combination versus colistin alone in the treatment of multidrug-resistant *Acinetobacter baumannii* pneumonia: A systematic review and meta-analysis

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Background and Aim

Multidrug-resistant *Acinetobacter baumannii* pneumonia has emerged as major cause of nosocomial pneumonia. Evidence has demonstrated the synergy of colistin/rifampicin combination against *A. baumannii*. This review aimed to gather as much available clinical studies on the efficacy and safety of colistin/rifampicin combination in comparison to colistin alone in the treatment of *A. baumannii* pneumonia.

Methods

PubMed, Cochrane, Scopus, Embase, Western Pacific Regional Index Medicus and ClinicalTrials.gov were systematically searched for studies that reported the outcome of colistin/rifampicin combination (intervention) versus colistin alone (comparator) in the treatment of *A. baumannii* pneumonia.

Results

Six studies were included in the qualitative analysis. Four studies were included in the quantitative analysis with a total of 236 patients (113 intervention, 126 comparator). Pooled fixed-effect model analyses showed statistically higher microbiologic response for intervention compared to comparator ($P=0.005$, I² 0%). The mortality was lower in the intervention compared to comparator but the difference was not statistically significant ($P=0.18$, I²=0%). Documented adverse events were nephrotoxicity, hepatotoxicity, and neurotoxicity.

Conclusion

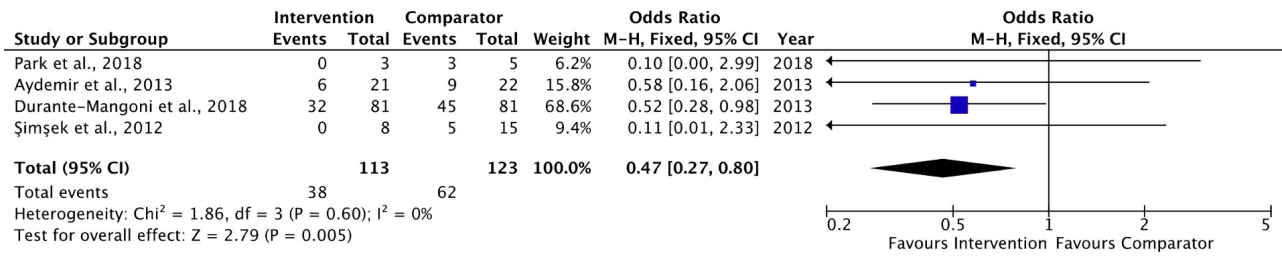
Colistin/rifampicin combination has a role in the treatment of multidrug-resistant *A. baumannii* pneumonia. However, more comparative studies are required to get a clearer picture of the benefit of colistin/rifampicin combination in the treatment of multidrug-resistant *A. baumannii* pneumonia.

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Disclosure statement:

The authors have no conflict of interest.



AP05-232

Impairments of pulmonary function tests in post COVID-19 pneumonia.

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Background and Aim

Impairment of pulmonary function test (PFT) is common among post COVID-19 pneumonia. A recent study reported that around 17% had reduced Forced Vital Capacity (FVC) below 80% predicted at six months follow up¹. Our Aim is to study the prevalence of restrictive pattern of PFTs in patients who had COVID-19 pneumonia.

Methods

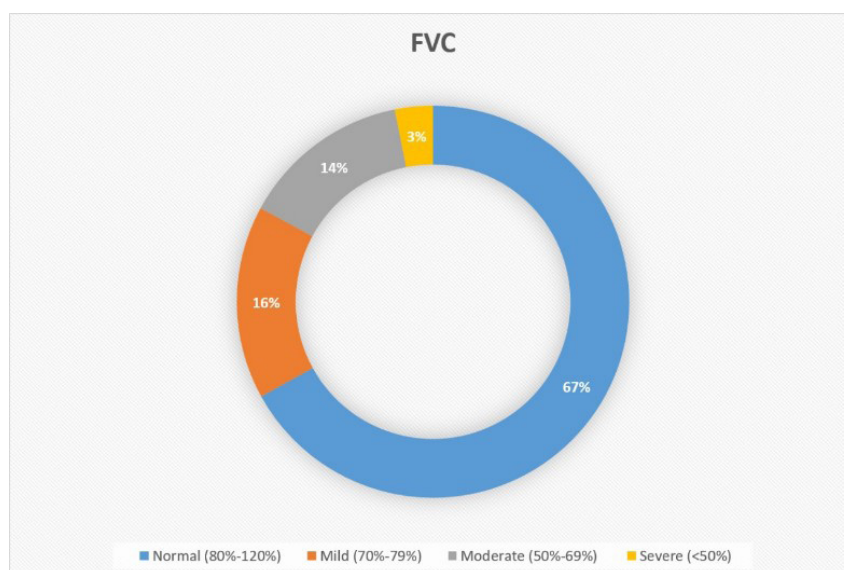
Retrospective Cohort study, using Electronic Medical Records of adult patients (>16 years of age) with COVID-19 pneumonia who had a PFT in out hospital between 3rd January 2021 and 30th October 2021. Follow up visits were at 6- and 12-weeks. Restrictive pattern was defined by FVC

Results

573 patients were included, 66% males. Average age 49 years. At 6 weeks, 32.8% of patients (n=189) had FVC below 80% predicted, of which 16%, 14%, 3% had mild, moderate, severe restriction respectively. (Figure). At 12 weeks, 60 patients had repeat PFT; 48.33% (n=29) had persistent reduced FVC below 80%.

Conclusion

One third of post COVID-19 pneumonia patients showed restrictive pattern on PFT at 6 weeks follow up, which persisted in around 50% of them at 12 weeks. A comprehensive long-term follow-up with PFTs in post COVID-19 pneumonia is important and advised.



AP05-233

Predictive factors associated with success of high-flow nasal cannula (HFNC) for COVID-19 related acute hypoxemic respiratory failure in King Narai Hospital, Lopburi

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Background and Aim

The purpose were to assess patient characteristics on IMCU admission, clinical course, outcomes and examine COVID-19 patients with acute hypoxemic respiratory failure (AHRF) in order to identify factors associated with HFNC success

Methods

We performed a single center, retrospective cohort study in King Narai Hospital from April 1 to September 30, 2021 by enrolling 76 patients with AHRF from 1,934 confirmed COVID-19 admitted in the hospital. Patients were assigned to two groups based on HFNC success 45 patients and HFNC failure 31 patients.

Results

Mean age of enrolled patients was 56.2 years, 46 (60%) with DM were identified. The subjects with aging (>60 years) and ones with Risk factors ≥ 2 factors were associated with HFNC failure ($p = .019$, $p = .028$, respectively). Patients with HFNC success had a higher median of SpO₂/FiO₂ at 48 hr (178 % vs. 103%, $p < .001$) a significant lower median of CRP at initial IMCU admission and at 48 hr (93.5 vs. 134.3 mg/L, $p = .001$; 24 vs. 61.5 mg/L, $p = .001$; respectively), and a lower median of D-dimer (633 mcg/ml vs. 3,259 mcg/ml, $p = .001$). The success group also had a higher average ROX index at 6, 12, and 24 hr ($p = .002$, $p < .001$, and $p < .001$, respectively). Success HFNC was found in patients who initiated Favipiravir < 4 days of clinical manifestation and who were on intravenous Methylprednisolone 250 mg at ICU/IMCU admission ($p = .043$, $p = .044$, respectively). Median Hospital Length of Stay in success HFNC patients was 15 days, significantly shorter than the failure group (18 day, $p < .036$).

Conclusion

HFNC is effective to treat COVID-19 patients with AHRF who have predictive factors of HFNC therapy success. HFNC is safe to use in acute hospital at other ward outside ICU.

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table2 Patient characteristics on ICU admission, clinical course, and outcomes

Characteristics	All patients (N = 76)	HFNC success (N = 45)	HFNC failure (N = 31)	P-value
Respiratory measures of patients at ICU admission				
BT, °C, median [IQR]	37.6 (37.2–38.6)	37.4 (37.0–38.4)	37.7 (37.4–38.8)	.063 ^M
Respiratory rate, per min, median [IQR]	26 (26–32)	26 (25–30)	26 (26–31)	.251 ^M
Pulse rate, median [IQR]	100 (84–105)	102 (86–120)	94 (86–94)	.029 ^{M*}
Systolic blood pressure, mmHg, mean (SD)	112.86 (1.5)	114.24 (1.6)	110.14 (2.8)	.279 ^M
SpO ₂ at worst (5Lpm), median [IQR]	92 (86–93)	92 (87–94)	92 (86–93)	.561 [†]
SpO ₂ /FiO ₂ worst at ICU admission, median [IQR]	170 (106–166)	155 (153–194)	170 (106–194)	.222 ^M
SpO ₂ /FiO ₂ worst at 48 hrs, median [IQR]	172 (100–232)	178 (160–247)	103 (95–154)	< .001 ^{M*}
WBC x10 ³ cells/mm ³ , mean (SD)	6.5 (.34)	6.6 (.43)	6.4 (.55)	.686 [†]
Lymphocytes cells/mm ³ , median [IQR]	993 (720–1343)	926 (740–1449)	1,107 (720–1419)	.303 ^M
Platelet counts x10 ³ cells/mm ³ , median [IQR]	223 (181–297)	239 (181–306)	193 (166–297)	.106 ^M
CRP at ICU admission, mg/L, median [IQR]	111.1 (44–223)	93.5 (47–185)	134.3 (59–239)	.001 ^{M*}
CRP at 48hr, mg/L, median [IQR]	29.5 (6.9–72.5)	24 (7.4–50.0)	61.5 (25.0–106.0)	.001 ^{M*}
D-dimer, mcg/ml, median [IQR] (n=34 / n=19 / n=15)	1,105 (546–729)	633 (461–2,216)	3,259 (991–5749)	.001 ^{M*}
Creatinine, mg/dl, median [IQR]	.90 (.70–1.11)	.86 (.71–1.21)	1.01 (.62–1.05)	.082 ^M
CXR: diffused infiltration at ICU admission (%)	50 (65.8)	33 (73.3)	17 (54.8)	.095 ^c
CXR: diffused infiltration at 48hr (%)	73 (96.1)	44 (97.8)	29 (93.5)	.352 ^c
DOI at admission, mean (SD)	6.07 (.34)	6.6 (.44)	5.29 (.52)	.059 [†]
DOI at IMCU admission, median [IQR]	8 (10–14)	8 (2–7)	8 (6–14)	.612 ^M
Prediction of HFNC success by ROX index				
ROX Hr2, mean (SD)	7.22 (.26)	7.5 (.29)	6.7 (.46)	.139 [†]
ROX Hr6, mean (SD)	7.48 (.25)	8.11 (.27)	6.57 (.44)	.002 ^{†*}
ROX Hr12, mean (SD)	7.29 (.26)	8.29 (.26)	5.8 (.39)	< .001 ^{†*}
ROX Hr24, mean (SD)	7.09 (.26)	8.56 (.29)	4.95 (.39)	< .001 ^{†*}
Medication				
Favipiravir in 4 day (%)	16 (21.1)	13 (28.9)	3 (9.7)	.043 ^{c*}
DEX10 - 20 before/at HFNC (%)	69 (90.8)	13 (28.9)	29 (93.5)	.490 ^c
MP250 before/at HFNC (%)	22 (28.9)	14 (31.1)	8 (25.8)	.044 ^{c*}
ENOXA (%)	40 (52.6)	21 (21.7)	19 (61.3)	.210 ^c
Outcomes				
IMCU LOS, median [IQR]	9 (7–20)	9 (6–11)	13 (7–21)	.064 ^M
HOSP LOS, median [IQR]	15 (11–20)	15 (10–17)	18 (10–26)	.036 ^{M*}

AP05-234

Synthesized HMGB1 peptide attenuates Poly(I:C)-induced lung inflammation in mice

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Background

Mesenchymal stem cells (MSCs) are known to be involved in tissue regeneration and immunomodulation and have been clinically applied to a variety of intractable diseases. We evaluated the therapeutic effects of HMGB1 peptide synthesized from box A of high mobility group box 1 protein (HMGB1) which can mobilize mesenchymal stem cells from bone marrow into systemic circulation and is involved in regulating inflammation and regeneration of damaged tissues.

Aim

To determine the effect of synthesized HMGB1 peptide in Poly(I:C)-induced lung inflammation.

Methods

Poly(I:C) was intranasally administered into C57BL/6 mice for 3 days with or without synthesized HMGB1 peptide injection. From one day before the first administration of Poly(I:C), PBS or HMGB1 peptide was injected intravenously every day for 4 days. Lung inflammation such as findings of bronchoalveolar lavage (BAL) fluid and expression of inflammatory mediators was analyzed and compared between the control and HMGB1 peptide groups.

Results

In the HMGB1 peptide group, total cell counts and the number of neutrophils and lymphocytes in BAL fluid at 4 days after poly(I:C) administration were significantly lower compared to the control group. In addition, the levels of pro-inflammatory mediators such as IL-6, CXCL1, and CXCL2 in serum and/or BAL fluid were significantly lower in the HMGB1 peptide group compared to the control group. Furthermore, the levels of anti-inflammatory cytokine IL-10 in lung tissues were significantly higher in the HMGB1 peptide group compared to the control group.

Conclusion

Synthesized HMGB1 peptide attenuates Poly(I:C)-induced lung inflammation.

AP05-235

Use of high dose N-acetylcysteine (NAC) among patients with post COVID-19 pulmonary fibrosis: a case series

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An increasing number of patients have survived COVID-19 but continue to have symptoms even when tested negative for the disease. One such complication of pulmonary fibrosis is requiring long term oxygen therapy or lung transplantation. Pulmonary fibrosis can be due to chronic inflammation or an idiopathic fibroproliferative process. This paper will present 3 cases of severe COVID patients. Despite being given the standard of care treatment consisting of antibiotics, anti-viral, anti-inflammatory and anticoagulant, these patients had high requirements of oxygen support. CT scans were done documenting pulmonary fibrosis. Patients were given high dose IV NAC with noted clinical improvement on symptoms. Post CT scans revealed minimal to significant resolution of pulmonary fibrosis. Though the exact mechanism of NAC has not been discussed. The Proposed mechanism is the NAC role as an anti-oxidant. NAC is a precursor to Glutathione, which is a potent antioxidant. NAC also has a role as an immunomodulator, increasing the clearance of the virus and inhibiting chronic and fibroproliferative processes.

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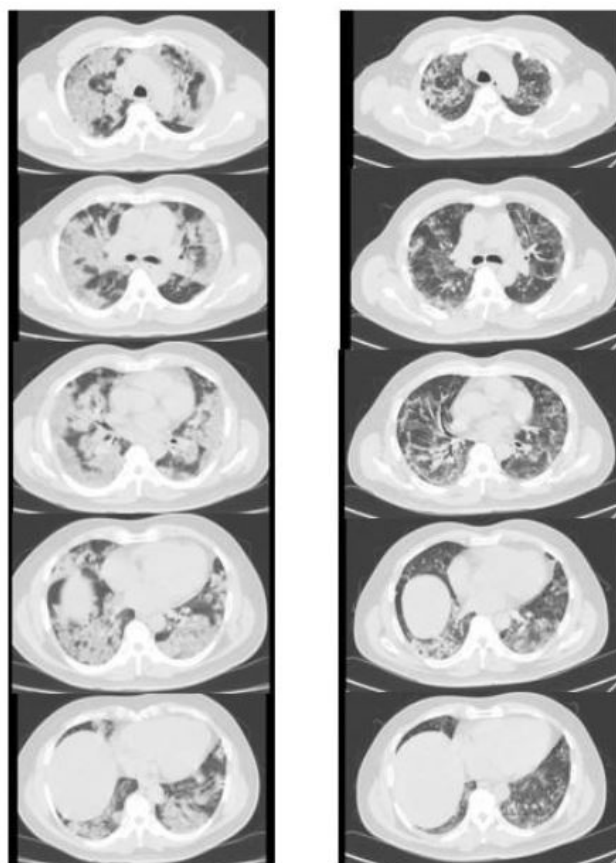
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AP05-236

A Rare Case of Spontaneous Clostridial Empyema Thoracic

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Introduction

Clostridia species are rare causes of pleuropulmonary infection without antecedent thoracic surgery or trauma. This case report described a multiloculated clostridial empyema that responded to ultrasound-guided percutaneous drainage combined with intrapleural fibrinolytic therapy (IPFT) and antibiotics.

Case report

A 56-year-old woman presented with a cough and fever for 1 week. She has no known past medical illness. Her temperature was 39 degrees Celsius, and oxygen saturation was 92% on room air. A lung examination revealed stony dullness and reduced breath sound on the left hemithorax. Chest radiography showed a white-out left hemithorax. Ultrasonography of the chest revealed multiloculated effusion with septations and plankton signs. The patient underwent a contrast computed tomography scan of the thorax and showed a split pleura sign. A USG-guided seldinger chest drain was inserted. 2 pigtail catheter insertions followed to drain the other locules. Pleural fluid cultures grew *Clostridium* species which were susceptible to amoxicillin-clavulanate and metronidazole. Augmentin was initiated according to the sensitivity report. A decision on a trial of IPFT was made due to residual echogenic effusion and poor radiological improvement. Sequential intrapleural alteplase 16 mg and Dornase alfa 5 mg were used. Total 2 doses of IPFT were instilled. She responded clinically, and opacities were improved on serial chest radiograph.

Discussion

Combined ultrasound-guided percutaneous drainage and IPFT might consider an alternative treatment option for clostridial empyema thoracic.

Appropriate written informed consent was obtained for publication of this case report and accompanying images.

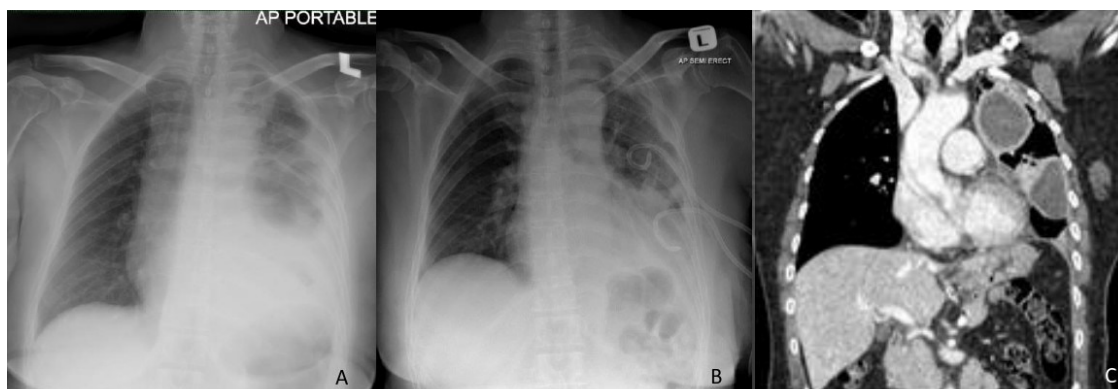


Figure 1: (A) Chest X-ray (CXR) demonstrating left pleural effusion occupying more than 50% of the left hemithorax. (B) CXR post seldinger catheter insertion and IPFT revealed significant improvement of the pleural effusion. (C) Computed tomography of the thorax (coronal view, mediastinal window) showed loculated effusion with a split pleura sign.

AP05-237

The impact of Covid-19 on the diagnostic accuracy and outcomes of patients hospitalized with non-covid-19 pneumonia.

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Aim

To study the effects of the covid-19 pandemic on the diagnosis and outcomes of patients hospitalized with non-covid-19 pneumonia.

Methods

We compared the diagnostic accuracy and outcomes of patient hospitalised with pneumonia (excluding covid-19 cases) in 2019 versus 2020 & 2021, i.e. before Vs during the pandemic. We defined diagnostic accuracy as the % of patients admitted with pneumonia from the emergency department(ED) who were eventually discharged or died with the same diagnosis. We also compared clinical severity, length of stay, mortality & readmission rates.

Results

The number of patients admitted with pneumonia in 2019, 2020 & 2021 was 1058, 1259 & 960 respectively. The number of patients discharged or died with a diagnosis of pneumonia was 657, 606 & 361 respectively. Thus, the accuracy of pneumonia diagnosis from the ED was 62%, 48% & 38% respectively (p <0.01 for all before Vs after comparisons). Most of the patients who did not have pneumonia were admitted for milder respiratory infections. By contrast, there were no significant differences in clinical severity, length of stay, mortality & readmission rates of patients with a final diagnosis of pneumonia.

Conclusion

The covid-19 pandemic was associated with increased diagnostic errors for pneumonia at the ED. This resulted in a higher proportion of patients admitted with mild respiratory infections. It did not affect the clinical outcomes of patients with pneumonia itself. This has implications regarding the appropriate use of acute hospital capacity during a pandemic.

AP05-238

A Single-Center Study Among Hospital-Acquired and Ventilator-Associated Pneumonia Patients and Compliance to Infectious Disease Society of America/American Thoracic Society Guidelines

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Background and Aim

This study aims to assess the applicability of an international guideline in a local setting. Study objectives are as follows: to determine the clinical profile and outcome of HAP and VAP patients who were compliant versus non-compliant to IDSA/ATS guideline-based empiric antibiotic treatment, and to identify common pathogens based on culture result of sputum and tracheal aspirate.

Methods

This is a cohort observational study conducted in a tertiary hospital from August 2020 to June 2021. Two-sample t-Test was used to determine if there is significant difference between the compliant and non-compliant groups in terms of age and length of hospitalization.

Results

In a total of 116 patients, the incidence of HAP and VAP patients compliant to the IDSA/ATS guideline-based empiric antibiotic treatment was 66% and 14%, respectively. The incidence of non-compliant HAP and VAP patients was 34% and 2%, respectively. Baseline clinical profile among HAP and VAP patients have shown predominantly males in the elderly age group, with hypertension as the most common co-morbidity. The mean length of hospitalization was 24 days. In-hospital mortality was 35% in both compliant and non-compliant groups.

Conclusion

The compliant and non-compliant groups do not differ significantly in terms of HAP and VAP cases. There was no significant difference between age, sex, and comorbidities, with no identified significant predictors of mortality. The compliant group had a significantly longer hospital stay. *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, and *Stenotrophomonas maltophilia* were three most commonly isolated pathogens in the studied population.

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Pneumonia Groups	IDSA/ATS Empiric Antibiotic Treatment Guidelines			p-Value
	All	Compliant	Non-Compliant	
	no (%)	no (%)	no (%)	
Hospital-Acquired	100 (86.21)	66 (82.50)	34 (94.44)	0.143
no (%)				
Ventilator-Associated	16 (13.79)	14 (17.50)	2 (5.56)	
no (%)				
Total	116 (100.00)	80 (100.00)	36 (100.00)	
no (%)				

* value computed using Fisher's Exact Test; significant at <0.05

Patients' Clinical Profile Variables	All (N=116)	Compliant group (no=80)	Non-Compliant group (no=36)	p-value
Age in years, Mean (SD)	62.21 (17.64)	60.9 (17.7)	65.2 (17.4)	0.218 ^a
Sex, no (%)				0.288 ^b
Female	39 (33.62)	24 (30.00)	15 (41.67)	
Male	77 (66.38)	56 (70.00)	21 (58.33)	

^a Comparison done with 2-Sample t-Test; test performs well with non-normal data >15 per group; significant at <0.05

^b proportions compared using Fisher's Exact Test; significant at <0.05;

* patients who had > 1 abnormal finding compounded into one entry; succeeding breakdown reveals specific findings

Patients' Clinical Outcomes	All (N=116)	Compliant group (no=80)	Non-Compliant group (no=36)	p-value
Length of hospitalization in days, Mean (SD)	24.15 (18.20)	27.4 (19.9)	16.9 (11.0)	<0.001^a
Final Disposition, no (%)				1.000 ^b
Expired (in-hospital mortality)	35 (30.17)	24 (30.00)	11 (30.56)	
Improved and subsequently discharged	81 (69.83)	56 (70.00)	25 (69.44)	

^a Comparison done with 2-Sample t-Test; test performs well with non-normal data >15 per group; significant at <0.05

^b proportions compared using Fisher's Exact Test; significant at <0.05

AP05-239

Diagnostic utility of LDH, serum ferritin, hs-CRP, and D-dimer in predicting invasive mechanical ventilation among COVID-19 patients in a tertiary hospital.

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Background and Aim

Inflammatory responses play a critical role in the progression of COVID-19 to acute respiratory distress syndrome (ARDS). Inflammatory markers, such as C-reactive protein and D-dimer, have been associated with increased clinical severity, impending respiratory failure, and mortality.^{1, 2} This study was performed to determine the prognostic significance of inflammatory markers (LDH, serum ferritin, hs-CRP, and D-dimer) in predicting the need for invasive mechanical ventilation among COVID-19 patients admitted at a tertiary hospital.

Methods

COVID-19 patients hospitalized at the University of Santo Tomas Hospital (Manila, Philippines) from July 1 to December 31, 2020 were retrospectively reviewed for demographic data and levels of LDH, serum ferritin, hs-CRP, and D-dimer on admission. ROC curves were constructed, and cut-off values predictive of invasive mechanical ventilation were computed for each of the inflammatory markers.

Results

LDH, serum ferritin, hs-CRP, and D-dimer were predictive of the need for invasive mechanical ventilation, with corresponding AUC values of 0.65, 0.69, 0.61, and 0.63, respectively. The calculated cut-off values predictive of the need for invasive mechanical ventilation were as follows: LDH \geq 264 U/L, serum ferritin \geq 1,225 ng/mL, hs-CRP \geq 40 ng/mL, and D-dimer \geq 0.96 mg/L (Table 1, Figure 1).

Conclusion

LDH, serum ferritin, hs-CRP, and D-dimer were demonstrated to be useful and sensitive predictors of COVID-19 patients in need of invasive mechanical ventilator support.

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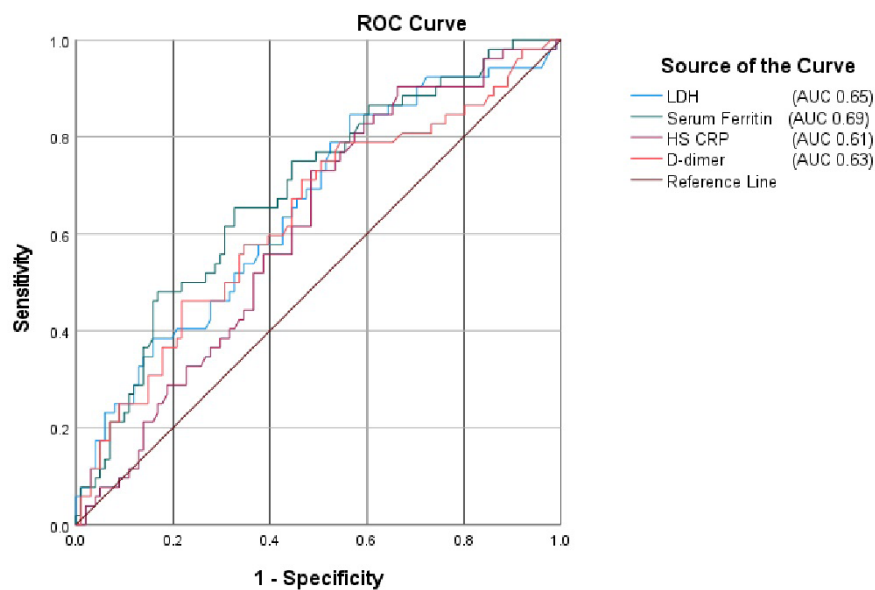
Disclosure statement:

The authors declare no potential conflicts of interest.

Table 1. ROC area under curve (AUC) of inflammatory markers and optimal cut-off values for predicting need for invasive mechanical ventilation among COVID-19 patients.

Inflammatory Marker	LDH	Serum Ferritin	HS CRP	D-dimer
AUC	0.65	0.69	0.61	0.63
p	0.0018	0.0001	0.0259	0.0067
95% CI	0.56-0.75	0.60-0.78	0.52-0.70	0.54-0.73
Cut-Off Value	264 U/L	1,225 ng/mL	40 ng/mL	0.96 mg/L
Sensitivity	84.6%	65.4%	73.1%	71.2%
Specificity	43.6%	67.3%	51.5%	53.5%
PPV	43.58%	50.73%	43.69%	44.08%
NPV	84.61%	79.07%	78.81%	78.30%
LR+	1.50	2.00	1.51	1.53
LR-	0.35	0.51	0.52	0.54

Figure 1. Receiver operating characteristic (ROC) curves of inflammatory markers LDH, serum ferritin, HS CRP, and D-dimer levels in relation to the need for mechanical ventilation among COVID-19 patients



AP05-240

Laboratory biomarkers and clinical outcomes of COVID-19 patients admitted in a tertiary hospital in Manila, Philippines

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Background and Aim

There is paucity of local studies analyzing biomarker levels and clinical outcomes of COVID-19 patients. This aims to determine if there is a significant difference in ferritin, lactate dehydrogenase (LDH), high-sensitivity C-reactive protein (hs-CRP), Interleukin-6 (IL-6), procalcitonin, D-dimer, absolute lymphocyte count (ALC) of patients among different disease severity, clinical outcome, need for intubation and severity of hypoxemia.

Methods

Retrospective analysis of the medical records of 232 confirmed COVID-19 patients admitted from July 2020 to April 2021.

Results

Patients who had severe and critical COVID-19 had significantly higher LDH (389U/L, IQR 305-514), ferritin (1468ng/mL, IQR 744-2523), procalcitonin (0.19ng/mL, IQR 0.09-0.6), hs-CRP (114.8mg/L, IQR 36.58-225.81), IL-6 (57.78pg/mL, IQR 29.01-109.4), D-dimer (0.905mg/L, IQR 0.47-2.03). Higher levels of LDH (445U/L, IQR 328-714), ferritin (2158.5ng/mL, IQR 1073-3941), procalcitonin (0.73ng/mL, IQR 0.41-2.62), hs-CRP (165.29mg/L, IQR 35.82-245), IL-6 (75.19pg/mL, IQR 43.39-182.7) and D-dimer (1.63mg/L, IQR 0.72-3.68) were observed among patients who died. LDH (560U/L, IQR 402-934), ferritin (1776ng/mL, IQR 1132-3213), procalcitonin (0.73ng/mL, IQR 0.43-1.52) and IL-6 (116.2pg/mL, IQR 47.07-160.54) were higher in patients who were intubated.

Conclusion

LDH, ferritin, procalcitonin, and IL-6 were significantly higher in patients who had severe disease, expired, intubated, and had more severe hypoxemia. Median hs-CRP and D-dimer were not different among patients who needed invasive mechanical ventilatory support and those who did not, but were both higher in patients with severe disease, or expired and had more significant hypoxemia. ALC was not different between groups in terms of clinical outcome, need for intubation and severity of hypoxemia.

The authors declared that there was no conflict of interest and no funding obtained for this study.

AP05-241

Evaluation of isothermal nucleic acid amplification assay and real-time polymerase chain reaction assay for Rapid Detection of Influenza Virus

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Background

During the season of respiratory disease, each year, large incidence and mortality rates are observed for children and adults due to influenza pandemic. The Cobas Influenza A/B

assay and Abbott ID NOW™ Influenza A & B improve the diagnosis speed of influenza virus

and facilitate rapid treatment of influenza patients. Therefore, this research aims to observe the precision of Cobas Liat and ID NOW to detect influenza A and B.

Methods

Experimental data was searched on Embase, PubMed, Cochrane Library, and Web of Science databases. Three researchers extracted data and constructed forest plots, Deeks' funnel plot, Fagan plot, and Bivariate boxplot by using Meta-Disc 1.4 and Stata 12.0 software.

Results

35 articles were included in the analysis. For the detection of Cobas Liat, the sensitivity and specificity of influenza A were 0.98 (95%CI: 0.98-0.99) and 0.99 (95%CI: 0.98-0.99), respectively, and of influenza B were 0.98 (95%CI: 0.97-0.98) and 0.99 (95%CI: 0.99-0.99), respectively. For the detection of ID NOW, the sensitivity and specificity of influenza A were 0.92 (95%CI: 0.91-0.93) and 0.97 (95%CI: 0.97-0.98), respectively, and of influenza B were 0.94 (95%CI: 0.93-0.95) and 0.99 (95%CI: 0.99-0.99), respectively.

Conclusion

In summary, Cobas and ID NOW have high sensitivity and specificity, and a good diagnostic performance for influenza virus A and B. They can get results within a short time and reduce the waiting time of patients, which is of great significance to prevent transmission and start early treatment.

AP06-242

***Centella asiatica* extract inhibits *Mycobacterium tuberculosis* in rat tuberculosis models**

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Background and Aim

The covid-19 pandemic has reversed years of progress in the fight to end tuberculosis. So, the discovery of new drugs as antituberculosis is very much needed. Our previous studies have shown that the extract of *Centella asiatica* is able to inhibit the growth of *Mycobacterium tuberculosis* in vitro and requires further research. The aims of this study is to prove the effect of *Centella asiatica* inhibit *Mycobacterium tuberculosis* in rat model tuberculosis.

Methods

The protocol in this study was approved by the veterinary ethics committee of Airlangga University.

The rat tuberculosis model was induced by intrathecal injection of a suspension of *Mycobacterium tuberculosis* strain H37 Rv. Twenty-eight tuberculosis rat were randomly divided into four groups. Groups 1,2, and 3 were treated with ethanol extract of *Centella asiatica* at 375 mg/kgBW, 750 mg/kgBW and 1500 mg/kgBW, and the fourth group was the control group. *Centella asiatica* extract is administered orally via an intragastric feeding tube for two weeks, once daily.

At the end of the experimental period, rats were sacrificed by cervical decapitation. The left lung tissue was taken aseptically and cultured on Middlebrook 7H10.

Results

The results showed that there was no bacterial growth on the culture media in the group that received *Centella asiatica* extract at a dose of 750 and 1500 mg/kg BW.

Conclusion

The conclusion in this study, that *Centella asiatica* extract inhibit the growth of *Mycobacterium tuberculosis* at doses of 750 and 1500 mg/kg BW

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AP06-243

Clinical and bacteriological status of pulmonary tuberculosis (TB) based on CD4 level, viral load, body mass index (BMI), and radiological features in HIV patient

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Background and Aim

TB is the most common opportunistic infection in HIV patients. It is because HIV weakens the immune systems, which makes it harder for body to fight the germs. Classification TB based on clinical and bacteriological examination. Many TB-HIV patients show clinical tuberculosis with negative bacteriological result, but symptoms indicate TB and treated as clinical tuberculosis. This study to compare cd4 level, viral load, BMI, and chest x-ray in clinical and bacteriological TB-HIV.

Methods

A cross sectional study was conducted 2018-2020 in policlinic Persahabatan Hospital with inclusion criteria were HIV patients with pulmonary TB with or without extra pulmonary TB positive or ongoing at baseline and aged ≥ 18 years old. We collected secondary data from medical record and calculated CD4 level, viral load, BMI, and chest x-ray in clinical and bacteriological TB in HIV patient.

Results

132 subjects collected, mean age was 37 ± 9.197 years old, 70% were male, clinical and bacteriological TB were 59% and 41%. In clinical TB, 61% subject were $CD4 < 100$ mL/cells and 39% in bacteriological TB ($p=0.5$). $VL > 1000$ copies/mL in clinical and bacteriological TB were 53% and 47% ($p=0.3$). BMI parameters for < 18.5 kg/m² in clinical TB was 41% and 59% in bacteriological TB ($p=0.015$). While in chest x-ray in clinical TB 48% showed pulmonary active TB and 52% in bacteriological TB ($p=0.013$).

Conclusion

Most clinical TB was found with low CD4 and high VL. Underweight and radiological features of active pulmonary TB are more often in bacteriological TB.

Our appreciation goes to TB-HIV patients in Persahabatan Hospital and also to INARESPOND who have helped to complete this abstract.

AP06-244

Antibody anti-Histoplasma among Rifampicin-Resistant Pulmonary Tuberculosis patients in North Sumatera population

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Background and Aim

One of the major causes of global morbidity and mortality is a pulmonary fungal infection, such as pulmonary histoplasmosis, especially in populations with immunosuppressed and serious lung diseases. Histoplasmosis caused by *Histoplasma capsulatum* with manifestations mimicking tuberculosis makes it difficult to distinguish so other examinations are needed. Tuberculosis with the presence of cavities facilitates fungal colonization and the occurrence of histoplasmosis. Tuberculosis and histoplasmosis co-infection is common and a challenge, but they are underestimated and risky in patients with Rifampicin-Resistant Pulmonary Tuberculosis (RR-PTB). However, no studies have determined the incidence of RR-PTB with Histoplasmosis worldwide. In this study, we assessed the presence of *Histoplasma* antibodies in RR-PTB patients.

Methods

This was a cross-sectional study with 50 RR-PTB patients by consecutive sampling. Blood sampling was used with serum. ELISA platform (semi-quantitative) was used to detect *Histoplasma* antibodies in RR-PTB patients. The determinants of histoplasmosis among RR-PTB were statistically analyzed.

Results

Among 50 RR-PTB patients who participated in this study, the prevalence of histoplasmosis was 28%. Several determinants, the history of working on a farm, ownership of pets, damp houses, history of smoking, and the comorbidities disease were assessed by multivariate analysis. In this study, damp house condition was the only determinant associated with histoplasmosis (PR 2.01; 95%CI 0.56-7.19).

Conclusion

The occurrence of histoplasmosis was detected based on the antibody *Histoplasma*. The damp house was associated with environmental factors among RR-PTB patients as one of the risk factors for histoplasmosis.

Keywords

Rifampicin-resistant pulmonary tuberculosis, antibody *Histoplasma*, infectious disease

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AP06-245

Multiple Adverse Effects of Anti Tuberculosis Drugs

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Intoduction

Tuberculosis continues to be a major cause of morbidity and mortality worldwide. Currently available drugs are effective for treatment, but may cause serious adverse effects. A severe adverse effect against one of the primary antituberculosis drugs, which leads to the discontinuation of that drug, has several complications. The data on global prevalence of adverse effects were variable (range 5 - 85%). A clinical study in Iran, the incidence of adverse effects (range 5.1- 23%). The organ systems most affected by adverse effects were the hepatobiliary system (35.7%), gastrointestinal tract (22%), musculoskeletal system (19.5%), cutaneous (15.3%), peripheral nervous systems (3%), hematologic system (1.2%), ototoxicity (1.2%), visual system (1.1%), and renal system (0.9%).

Case presentation

A 61 years old man presented with cough since 1 years ago, and worsening about 6 months ago. Fever since last month, occasionally. Itchy, skin rush eruption in his whole body since 1 month. Patient had history consumption of antituberculosis drug about 4 months ago, and had hearing loss during consumption antituberculosis drugs. Patient also complaint pain in his joint and yellowish in both of his sclera. Patient then improvement with given treatment for his skin rush eruption, stopping and challenging of antituberculosis drugs.

Discussion

Patients with pulmonary tuberculosis were treated with the first and second categories. The first category consists of rifampisin, isoniasid, pirazinamid, and ethambutol. Each of these therapies has side effects. The adverse effects include hepatitis, cutaneous reactions, hearing loss, gastrointestinal intolerance, and also haematological reactions. It is must be recognised early, to reduce associated morbidity and mortality.

Keyword

antituberculosis drugs, adverse effect.

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AP06-246

The effects of *Curcuma longa* supplementation on IL-10 and sputum conversion in drug resistance tuberculosis patients receiving short time regimen

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Background and Aim

Drug resistant tuberculosis (DR-TB) is a major health problem in the world. Current DR-TB treatment guidelines still gave unsatisfactory results. The short term regimen (STR) have many side effects that contribute to high lost to follow-up and poor treatment outcomes.¹ *Curcuma longa* with active compound curcumin, is a potent immunomodulator that has been investigated as adjuvant therapy in TB.² *Curcuma longa* believed can alter IL-10 levels that contribute to TB disease progression.³ The aim of this study is to assess IL-10 levels changes and sputum conversion before and after *Curcuma longa* supplementation.

Methods

This is an experimental study, double-blind approach with pre and post design group conducted in Dr. Soetomo Hospital. The subjects of this study were DR-TB patients receiving STR anti-tuberculosis drug, divided into control group receiving placebo and treatment group receiving *Curcuma longa* for two months.

Results

In this study 18 subjects recruited, 9 subjects in each group. IL-10 levels significantly decreased in treatment group (p 0,018) but not significantly decreased in control group (p 0,840). IL-10 levels changes significantly correlated to *Curcuma longa* supplementation (p 0,046), but not correlated to sputum conversion in both group (p 1,000 and p 0,375).

Conclusion

Curcuma longa extract supplementation can affect IL-10 levels changes but had no efficacy to sputum conversion in DR-TB patients.

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AP06-247

Lumbosacral spinal tuberculosis- An uncommon case of spinal tuberculosis with involvement of an unusual site

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Introduction

Tuberculous spondylitis accounts for 1-5% of total TB cases and it represents about 50% of the osteoarticular TB cases. It can cause significant morbidity because of skeletal deformities and irreversible neurological complications unless it is diagnosed promptly and treated effectively. Early or atypical spinal TB is easily misdiagnosed because of the absence of specific clinical features and misleadingly negative laboratory and imaging investigations. Spinal tuberculosis usually involves the Thoracic and Thoracolumbar Region and there are only a few reported cases of spinal TB with lumbosacral involvement in literature. In this case report, we are presenting an atypical case of spinal TB with lumbosacral involvement.

Case Report

Our patient presented with a one-month history of intermittent fever and lower backache. Investigations revealed a persistently high ESR of more than 100mm/1st hour with normal chest and spinal x-rays, negative Mantoux and sputum negative for acid-fast bacilli. His Brucella serology was negative as well. Contrast-enhanced CT of the abdomen revealed Tuberculosis in the Lumbosacral region. The patient made a complete recovery with anti-tuberculosis treatment.

Conclusions

In conclusion, it is possible to have cases of Lumbosacral involvement although it is unusual for spinal TB. Early spinal TB can easily be misdiagnosed because of the absence of specific clinical features and misleadingly negative laboratory and imaging investigations. It is important to have a high index of suspicion to diagnose cases of early spinal TB where a prompt diagnosis and treatment are necessary to prevent neurological complications and spinal deformities.

AP06-248

A 56 Years Old Healthy Foreigner Male With Loculated Pleural Effusion Secondary To Tuberculosis: A Case Report

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This is a case of K. A, 56 years old, male, British, Catholic a personal trainer came in due to dyspnea. As baseline, patient is physically fit and able to do 25 kilometers bike ride. History of present illness started 3 weeks prior to admission when he experienced cough, productive of whitish sputum with associated fatigue. He went for consult at a nearby hospital and was given Azithromycin 500 mg tab once a day for 5 days affording no relief. Until 2 weeks prior to admission still with cough now associated with fever, chills, weight loss and night sweats, this prompted consult in this institution hence was admitted. He is a known asthmatic and was well controlled. He is a 5 pack years smoker and a non-alcoholic drinker. Physical Examination findings were normal. The patient was admitted and was worked up. Chest computed tomography scan was done revealed loculated fluid collection with thickened surrounding pleura, suggestive of split pleural sign, and some internal air attenuation densities is seen in the right hemithorax. Sputum Gene Xpert was negative. He was started on Ceftazidime 1 gram intravenous every 8 hours. Anti TB medications was also initiated. He was referred to TCVS and Video Assisted Thoracoscopic Surgery (VATS) with deloculation, frozen section and decortication was done. Pleural biopsy showed no malignant cells. The patient was discharged improved with anti-tuberculosis as home medications and follow up was advised.

AP06-249

A case report : Tuberculous spondylitis without pulmonary tuberculosis

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Introduction

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis* bacteria. This infection can affect the lungs (pulmonary TB) and various other organ systems (extrapulmonary TB). Tuberculous spondylitis is one of the extrapulmonary TB that infects the spine. Tuberculous spondylitis, also called Pott's disease, accounts for 1-5% of TB cases and represents about 50% of all bone and joint TB.

Case Report

A 50 years old female patient with complaints lower back pain since 4 months ago with no history of trauma, and accompanied by weight loss. She denied cough, chest pain, fever, and night sweat. Chest X-ray shows normal pulmonary, while the lateral thoracic X-ray show destruction of CV Th 11-12 with narrowing of the intervertebral disc. A spine biopsy was performed and found granulomatous chronic inflammation support to TB. The patient treated with 1st category of anti-tuberculosis drugs (ATD) for 9 months.

Discussion

Tuberculous spondylitis (TB), also known as Pott's Disease, is an infection of the spine caused by *Mycobacterium tuberculosis*. Tuberculous spondylitis occurs as a result of hematogenous spread of *M.tuberculosis* bacteria to the spinal vessels. About 1-2% of the total TB cases in the world are TB spondylitis cases. Patients usually present with local and systemic complaints. Local complaints that occur are pain in the spine and gibbus. Systemic complaints that occur are malaise, decreased appetite, and night sweats. To confirm the diagnosis, microbiological examination and imaging are required. Treatment of tuberculous spondylitis can be done conservatively and surgically. Antituberculosis regimen is given routinely for 6-9 months. In certain cases, surgery needs to be done to prevent complications and speed up treatment.

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AP06-250

56 Years Old Healthy Foreigner Male with Loculated Pleural Effusion Secondary To Tuberculosis: A Case Report

Jay-Lord Saniatan¹

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Introduction

Tuberculosis (TB) is the sixth leading cause of morbidity and mortality in the Philippines; the country is ninth out of the 22 highest TB-burden countries in the world..

Case Report

K. A, 56 years old, male, British, a personal trainer came in due to dyspnea. Patient was able to do 25 kilometers bike ride until 3 weeks prior to admission when he experienced cough, productive with associated fatigue. Consult was done and was given Azithromycin for 5 days affording no relief. Until 2 weeks still with cough now associated with fever, chills, weight loss and and night sweats, this prompted consult in this institution hence was admitted. Known asthmatic and a 5 pack years smoker. Physical Examination findings were unremarkable. The following worked up was done Chest CT scan revealed loculated fluid collection with thickened surrounding pleura, suggestive of split pleural sign. Sputum Gene Xpert was negative. He was started on Ceftazidime and Anti TB treatment. He was referred to TCVS and Video Assisted Thoracoscopic Surgery (VATS) with deloculation and decortication was done. He was discharged improved and follow up was advised.

Discussion

Tuberculous pleural effusion (TPE) is one of the most common forms of extrapulmonary tuberculosis. The gold standard for the diagnosis remains the detection of *Mycobacterium tuberculosis* in pleural fluid, or pleural biopsy specimens. The role of surgery is confined to the treatment of the sequelae of pleural TB with dense adhesences and loculations. Video-assisted thoracoscopic surgery (VATS) for decortication could achieve full lung reexpansion.

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Kan Zhai , Yong Lu , Huan-Zhong Shi. Department of Respiratory and Critical Care Medicine, Beijing Institute of Respiratory Medicine and Beijing Chaoyang Hospital, Capital Medical University, Beijing 100020, China.

3. Pleural Tuberculosis and Application of Video-Assisted Thoracoscopic Surgery in the Diagnosis and Therapy

Wen-Liang Yu Chi-Mei Medical Center

Disclosure

None

AP06-251

Report a case with coexistence of active pulmonary tuberculosis and lung cancer in vietnam national lung hospital

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Introduction

Lung cancer and tuberculosis are both common diseases and have leading mortality rates today, especially in developing countries. Two diseases are rare together; but there are many datas showing that pulmonary TB is higher in lung cancer patients and pulmonary TB patients have a higher risk of lung cancer, estimating that the risk of lung cancer in men with TB is twice as high. The coexistence rate of tuberculosis and lung cancer is about 2% and commonly in upper lobes

Case report

Our case had tuberculosis and adenocarcinoma coexisting in left upper lobe but at two biopsy sites at different times: TB lesion was diagnosed predictive with microbiological and histopathological evidence in CT-guided lung biopsy; adenocarcinoma lesions were diagnosed with bronchoscopy biopsy after 2 months of TB treatment (the active phase regimen). The patient did not have EGFR mutation, he wasn't treated with targeted therapy, had the intervention to place the original bronchial stent and used radiotherapy and chemotherapy to treat lung cancer immediately after diagnosing lung cancer and complete TB treatment regimen.

Discussion

Although pulmonary tuberculosis and lung cancer are rare coexistence and co-diagnosis is challenging, clinical symptoms and imaging testing may overlap. However, the assessment, recognition of lesions and coordination of specialties to make the most appropriate diagnosis for the patient is very necessary. The diagnostic process affects the choice of treatment option and the prognosis for the patient. Both cancer and TB treatments can be performed safely and effectively in lung cancer patients with active TB.

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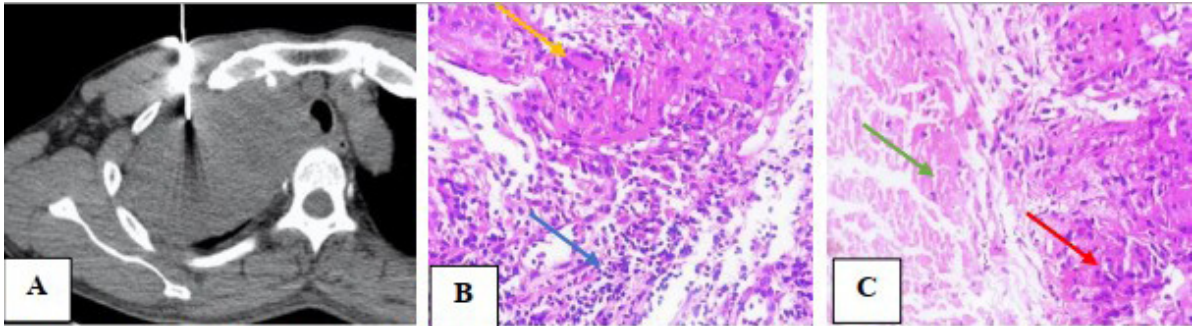


Figure 1: Tumor biopsies under CT guidance and histopathology (2nd Biopsy) (HE x 400).

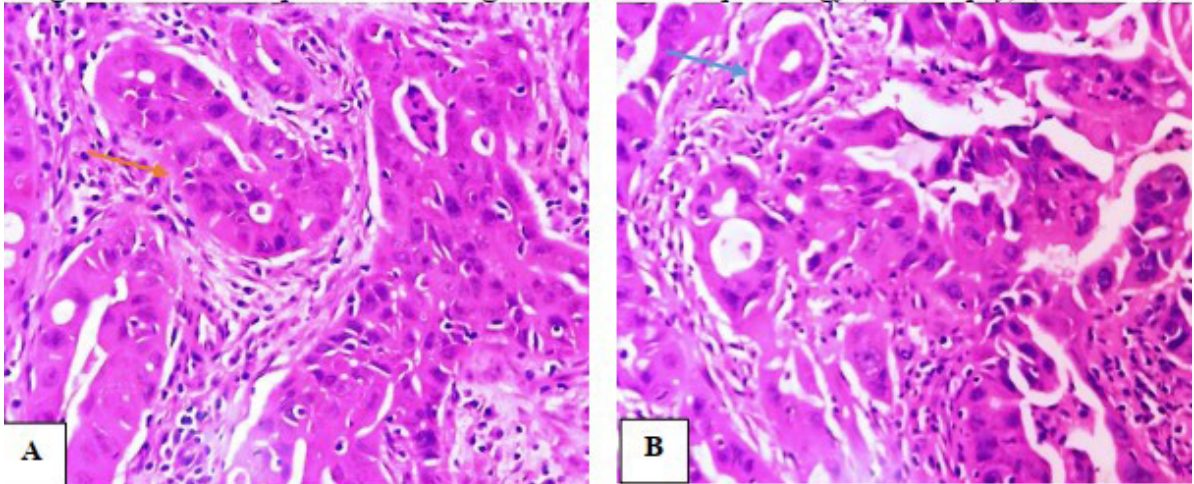


Figure 2: Histopathological image of the tumor biopsied in the trachea (HE x 400)

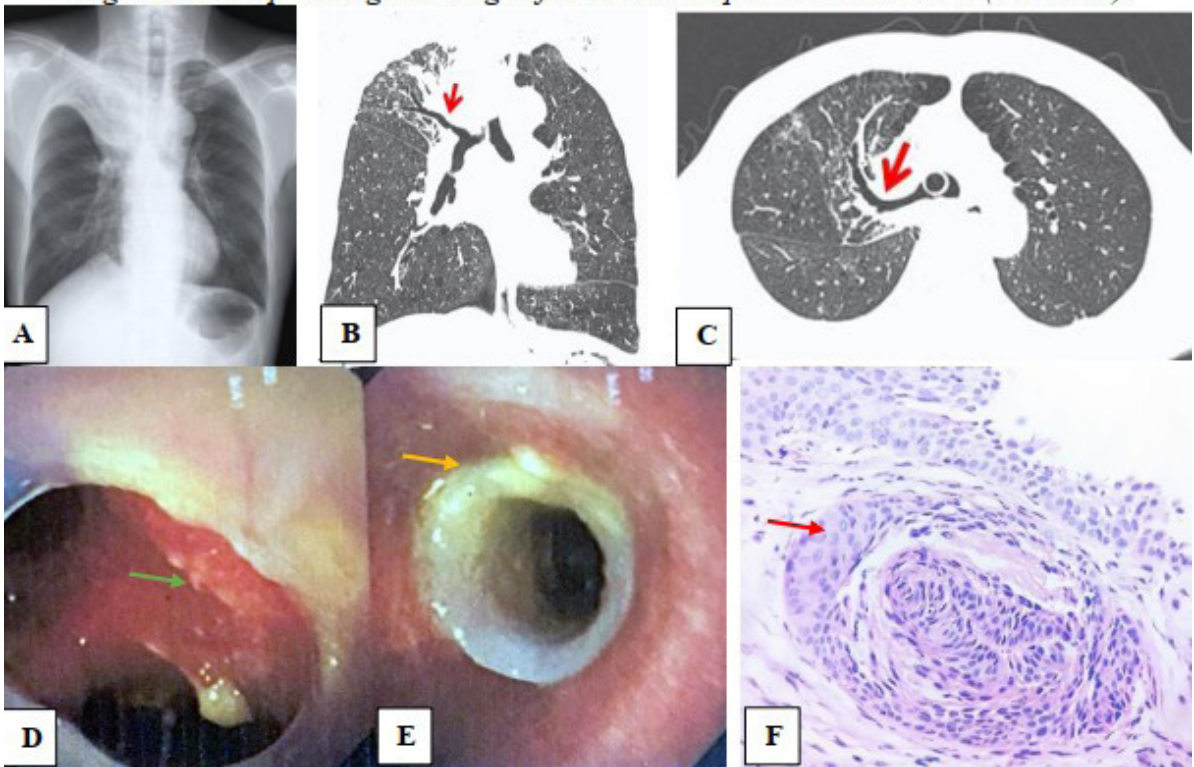


Figure 3: Imaging, Bronchoscopy and biopsies pictures of patients after treatment

AP06-252

Secondary Multidrug-Resistant Tuberculosis with HIV and Pnumothoraks complication: Case Report

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Introduction

The MDR-TB (multidrug-resistant tuberculosis) infection is still a global burden today, including in Indonesia, especially since the COVID-19 streaks, TB (tuberculosis) diagnosis and therapy access are significantly reduced and have an impact on high mortality rates.¹ This condition has been challenging, especially in TB-HIV (tuberculosis-human immunodeficiency virus) with diagnosed rifampicin-resistant and pneumothorax complications.

Case report

A male, 54 years old, with TB-HIV coinfection, came to the emergency room at Rasidin Hospital on 22nd October 2021 with worsened dyspnea since a week ago accompanied by cough and chest pain. The results of vital signs and physical examination, presented with chest retraction, respiratory rate 32 times per minutes, asymmetric chest movement, no breath sound on right hemithorax, and hypersonor on lung examination, an emergent Chest X-ray was performed and showed right pneumothorax, then performed the chest tube drainage. After that, the right lung was clinically inflated but the symptom wasn't, so the physician decided to evaluate the subject with a GenXpert examination on 29th Nov 2021 and it showed rifampicin-resistant.

Discussion

This patient was diagnosed with Drug-sensitive pulmonary tuberculosis with GeneXpert negative result, also HIV co-infection, and history of pneumothorax. After 3 months of treatments, additional GeneXpert was performed with rifampicin-resistant. This decision is based on the physician's clinical judgment, even the guideline never mentioned it in the midst of treatment. This condition is rare in our hospital and challenging for us, we want to share an experience with a patient of MDR-TB and HIV coinfection with pneumothorax complication in the COVID-19 outbreak.

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AP06-253

Tuberculosis of the tongue : A mimic of lingual carcinoma

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Introduction

Tuberculosis is a chronic granulomatous infectious disease that affects lungs predominantly. Oral tuberculosis is rare and constitutes 0.05–5% of tuberculosis. The tongue is commonly affected in oral tuberculosis and superficial ulcers are the commonest manifestation.

Case report

42 year old male from Sri-Lanka presented with a progressively enlarging painful tongue swelling for 5 months. He complained of cough, loss of appetite and loss of weight. He had a history of bronchial asthma, chewed beetle and had smoked 5 pack years. Examination revealed a tongue swelling with superficial ulceration with undermined edges over the lateral aspect. Chest radiograph showed fibro-cavitary changes in upper lobes and computed tomography had evidence of bilateral tree-in-bud and features of active pulmonary tuberculosis. Excision biopsy of tongue showed granulomatous inflammation with langerhan giant cells suggestive of tuberculosis. There was no evidence of malignancy. Tuberculosis culture was positive. Patient was started on anti tuberculosis treatment and showed a good response.

Discussion

Oral tuberculosis is rare and exhibits non-specific clinical features that can be overlooked. The tongue is most commonly affected in oral tuberculosis and presents as ulcers, fissures, nodules, papillomas or granulomas. The patient was initially suspected to have a carcinoma of tongue but following biopsy he was diagnosed with lingual tuberculosis and started on anti TB treatment. Histological diagnosis of lingual tuberculosis requires demonstration of granulomatous inflammation or demonstration of bacilli on Ziehl-neelsen stain. Oral tuberculosis is an uncommon entity but should be considered in the evaluation of chronic oral lesions in endemic regions of tuberculosis.

AP06-254

Tuberculosis Sepsis: A Case Report of rare presentation of a common disease in the era of Covid 19.

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Introduction

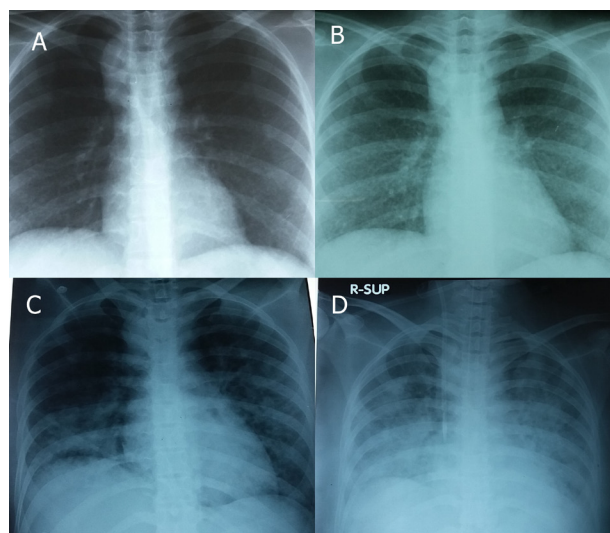
Tuberculosis (TB) sepsis is rare among immunocompetent individuals without secondary infection. It has been reported with miliary TB which is itself immunosuppressive. We described a case which encountered during the Covid19 pandemic.

Case Report

A 23 years old girl who is employed at a textile factory, developed productive cough, constitutional symptoms and fever for 2weeks. She presented to the local hospital with delay due to the ongoing Covid pandemic situation. There was no contact history of TB. She was investigated for pyrexia of unknown origin but deteriorated with time. Though she was evaluated as Covid 19, PCR were repeatedly negative. ESR-110mm/1sthr, CRP-230mg/dl and Chest X-ray reported as normal. Septic screening, sputum AFB and retroviral studies were negative. She was transferred to tertiary care hospital with severe sepsis and multi-organ dysfunction. She was managed in ICU with mechanical ventilation, inotrope support, prone ventilation and renal replacement therapy. Chest X-ray series showed evolving changes from miliary TB to cavitary disease and ARDS (figure). CT revealed miliary nodules, patchy consolidations, tree in bud, pleural effusion, hilar/mesenteric lymphadenopathy, ill- defined hypo densities over liver and spleen and ascites suggest disseminated TB. Her Endotracheal secretion was positive for TB gene Xpert. Anti TB bridging therapy started and converted to a standard regime once liver functions normalized. Hydrocortisone and broad- spectrum antibiotics continued for sepsis. The patient gradually recovered following anti TB and discharged after 3 weeks.

Discussion

TB sepsis is thought to be secondary to tumor necrosis factor production stimulated by Mycobacteria. Diagnosing and managing TB with or without sepsis is a challenge especially during an era of Covid19 due to presentation delay and misdiagnosis. High index of suspicion and prompt diagnosis is crucial in the management.



AP06-255

Spontaneous regression of Rasmussen's aneurysm causing massive hemoptysis in a patient with pulmonary tuberculosis: a case report

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Introduction

Tuberculosis is a global disease with a high prevalence rate in the Philippines. Frank hemoptysis occurs later in the disease and is rarely massive since the advent of treatment. Rasmussen's aneurysm, due to the weakening of the pulmonary arterial wall adjacent or within a tuberculous cavity, is an uncommon cause of hemorrhage.

Case Report

A 35-year-old male patient presented with episodes of hemoptysis while being treated for pulmonary tuberculosis. An episode of massive hemoptysis of ~400ml prompted admission. Chest tomography with contrast showed bronchiectatic changes, cavitory formation, and an aneurysmal dilatation of the anterior segmental artery of the left upper lobe. Diagnosed with Rasmussen's aneurysm, the medical team including interventional radiologists and thoracic surgeons planned a surgical intervention as coil embolization would be difficult due wide neck character of the aneurysm. On re-admission after patient optimization, repeat chest tomography showed interval regression of pulmonary cavities with thrombosis of the previously identified Rasmussen's aneurysm.

Discussion

In patient with tuberculosis, hemoptysis results from involvement of the parenchyma, bronchiectasis, or infection in residual cavities. Rupture of a dilated vessel such as Rasmussen's aneurysm is a rare cause. Chest tomography is the imaging modality of choice as it demonstrates the focal pulmonary artery dilatation. Embolization or surgical lobectomy are typically utilized to control the bleeding. However, treatment with anti-tuberculous regimen may result in regression and eventual thrombosis of the aneurysm. Watchful monitoring is imperative as massive hemoptysis may recur; radiologists and surgeons must be available at any time in case intervention is required.

AP06-256

Multiple Adverse Effects of Anti Tuberculosis Drugs

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Introduction

Tuberculosis continues to be a major cause of morbidity and mortality worldwide. Currently available drugs are effective for treatment, but may cause serious adverse effects. A severe adverse effect against one of the primary antituberculosis drugs, which leads to the discontinuation of that drug, has several complications. The data on global prevalence of adverse effects were variable (range 5 - 85%). A clinical study in Iran, the incidence of adverse effects (range 5.1- 23%). The organ systems most affected by adverse effects were the hepatobiliary system (35.7%), gastrointestinal tract (22%), musculoskeletal system (19.5%), cutaneous (15.3%), peripheral nervous systems (3%), hematologic system (1.2%), ototoxicity (1.2%), visual system (1.1%), and renal system (0.9%).

Case presentation

A 61 years old man presented with cough since 1 years ago, and worsening about 6 months ago. Fever since last month, occasionally. Itchy, skin rash eruption in his whole body since 1 month. Patient had history consumption of antituberculosis drug about 4 months ago, and had hearing loss during consumption antituberculosis drugs. Patient also complaint pain in his joint and yellowish in both of his sclera. Patient then improvement with given treatment for his skin rash eruption, stopping and challenging of antituberculosis drugs.

Discussion

Patients with pulmonary tuberculosis were treated with the first and second categories. The first category consists of rifampisin, isoniasid, pirazinamid, and ethambutol. Each of these therapies has side effects. The adverse effects include hepatitis, cutaneous reactions, hearing loss, gastrointestinal intolerance, and also haematological reactions. It is must be recognised early, to reduce associated morbidity and mortality.

Keyword

antituberculosis drugs, adverse effect

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AP06-257

Neutrophil - lymphocyte ratio and interferon gamma release assay results

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Background and Aim

Tuberculosis (TB) has a high number of cases throughout the world, including Indonesia. Most people infected with TB will become latent TB. Gold standard to diagnose latent TB is not established yet but interferon gamma release assay (IGRA) has been widely used. Inadequate interferon gamma secretion to phytohemagglutinin as positive control can cause indeterminate results. Few factors including hematological abnormalities caused by immunosuppression, medication, and comorbidities can cause this. Ratio of neutrophil and lymphocyte (NLR) which is commonly used as marker for inflammation and other disease is also associated with indeterminate result. This study aims to evaluate the relationship between hematological parameters including NLR with IGRA results.

Methods

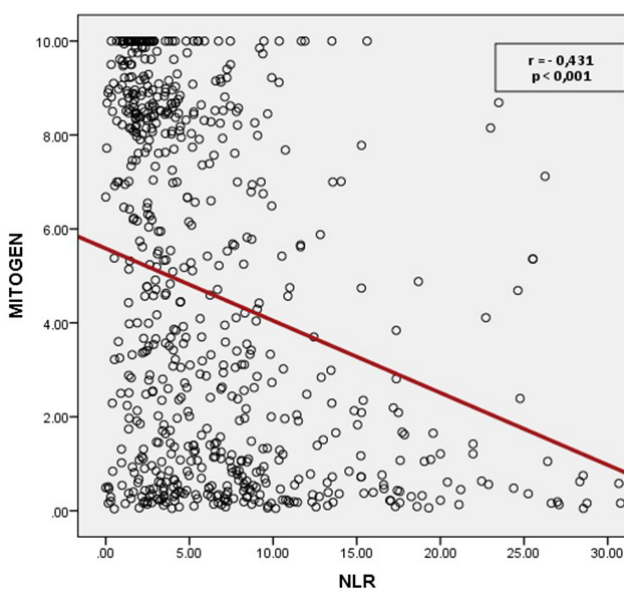
This was a descriptive cross-sectional study, using secondary data from patients underwent IGRA test in Dr. Sardjito Hospital Yogyakarta from January 2019 to June 2020. Demographical data, diagnosis, hematology and IGRA results were collected from e-medical record. Positive and negative results were grouped as determinate. Mann-Whitney test to find differences between determinate and indeterminate and Spearman correlation test to find correlation between hematological parameters and result from IGRA tubes were performed. Statistical analysis was done using SPSS 23 with p value < 0.05 was considered as significant.

Results

From 668 subjects, 51.6% had negative results. Leukocyte, absolute lymphocyte, absolute neutrophil and NLR was significantly different between groups ($p < 0.001$). Correlation between NLR and mitogen tube (positive control) was moderate, negative ($r = -0.431$) and significant ($p < 0.001$) as shown in Figure 1.

Conclusion

Neutrophil to lymphocyte ratio is negatively correlated with IGRA results.



AP06-258

Complete atelectasis after anti-Koch's therapy: a case report

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Introduction

Tuberculosis is a chronic infection associated with widespread morbidity and mortality. Pulmonary impairment after Tuberculosis treatment is associated with disability and more aggressive case prevention and post treatment evaluation should be done. Patients with pulmonary tuberculosis, even after cure, develop respiratory infection and lung disease such as exacerbations of Chronic Obstructive Pulmonary Disease, bronchiectasis and pneumonia. However, some may present with fibrosis, manifesting as atelectasis of the upper lobe of the lung with compensatory lower lobe hyperinflation.

Case Report

We report a case of a 31-year-old female with no known co-morbid, who was previously treated for Pulmonary Tuberculosis based on positive AFB Smear for 6 months. The said patient was compliant with the said TB treatment and was documented to have a negative AFB smear after treatment, however, still presented with exertional dyspnea and cough. A Chest CT Scan was done which revealed right lung atelectasis causing ipsilateral shift of the mediastinal structures with hyperaeration of the contralateral lung. Due to findings and symptoms, patient was admitted for Bronchoscopy. Bronchoscopy showed no masses at the left lung but with completely occluded Right Main Bronchus, with scarring noted.

Discussion

This report suggests that for patients with uncomplicated TB treatment who present with symptoms even after completion of treatment, regardless of age and co-morbidities, proper work-up should be done to investigate the cause of symptoms. Bronchoscopy should be instituted to guide us in the appropriate treatment.

AP06-259

Paradoxical reaction to tuberculosis treatment in the form of a new pleural effusion

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Introduction

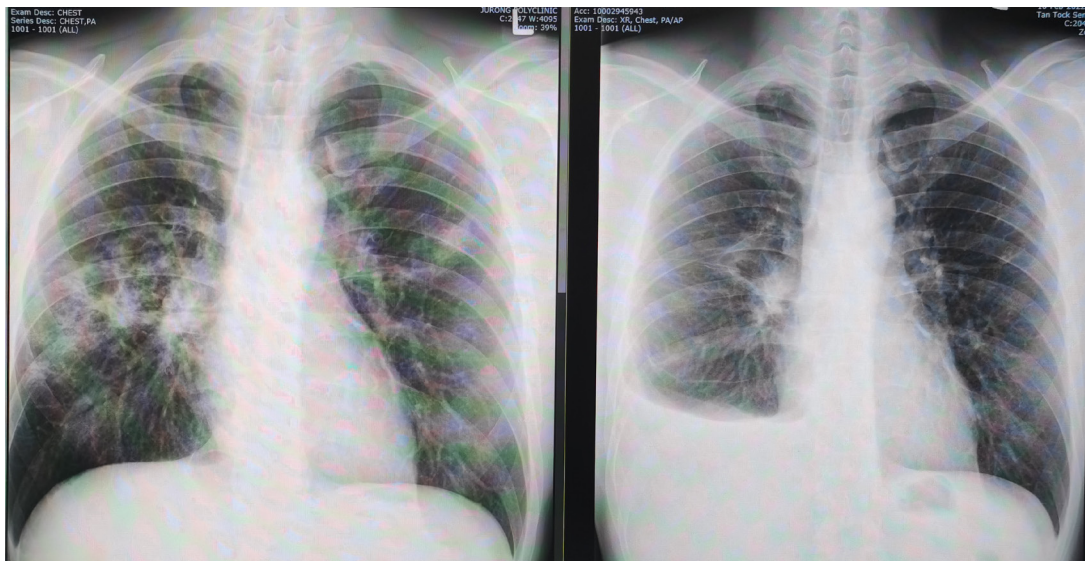
Paradoxical reaction (PR) in tuberculosis (TB) is the worsening of a pre-existing or appearance of a new lesion despite effective TB treatment. Although most commonly seen in intracranial and lymph node TB, it can rarely present as a new pleural effusion. We present a case of pulmonary TB that had PR in the form of a new pleural effusion after 6 months of effective TB treatment.

Case report

A 30 year-old previously well smoker presented with hemoptysis and weight loss. Initial chest x-ray (CXR) showed consolidation in bilateral mid zones with right-sided cavitation. There was no pleural effusion. Sputum acid-fast bacilli (AFB) smear was 2+, AFB cultures grew TB (sensitive to rifampicin, isoniazid, ethambutol, pyrazinamide). He was started on first-line treatment via directly-observed therapy (DOT). Sputum AFB cultures at month 2 and 5 of treatment were negative. CXR done at 6 months of treatment showed improvement in the consolidation, but there was blunting of the right costophrenic angle. At 9 months of treatment, CXR showed further improvement in consolidation but worsening of right pleural effusion. TB treatment was extended, and he underwent video-assisted thoracoscopic surgery (VATS) and decortication. Pleural biopsy histology was fibrosis and interstitial inflammation, AFB cultures and bacterial cultures were negative. Subsequent CXR at 12 months showed resolution of both the effusion and consolidation.

Discussion

PR can occur even after many months of effective TB treatment. It is a diagnosis of exclusion and investigations must be performed to rule out treatment failure, drug resistance or secondary infections.



AP06-260

Rehabilitation Programs in Decrease Chest Expansion and Low Cardiorespiratory Endurance in Secondary Spontaneous Pneumothorax due to History of Pulmonary Tuberculosis with Hospital Readmission

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Introduction

Secondary spontaneous pneumothorax occurs due to underlying chest diseases. The present case was determined to have secondary spontaneous pneumothorax due to history of pulmonary tuberculosis. Rehabilitation management is essential either before surgery and after surgery.

Case Report

A 31 years old man with shortness of breath and easily got tired when doing mobilization, had history of pulmonary tuberculosis 15 years ago. He was admitted to emergency room in Persahabatan General Hospital. Chest x-rays in emergency room was revealed left pneumothorax with total left lung collapse. He was diagnosed with pneumothorax and underwent water seal drainage installation. The patient was consulted to Rehabilitation Department. He had asymmetric and protracted shoulder. Respiromotor examination revealed he had sternocleidomastoid muscle spasm, tightness of respiratory accessory muscle bilateral and limited chest expansion. The rehabilitation problems were decrease chest expansion and low cardiorespiratory endurance. He got mobility exercise, thoracic mobility, breathing exercise and endurance training. The thorax ct-scan revealed fibrotic in apicoposterior lobe of both lung and air leak in pleura cavity of the left lung. He discharged from the hospital with ambulatory management with Heimlich chest drain valve. In outpatient follow up, he was consulted to thoracic surgeon for decortication thoracotomy and pleurodesis surgery. After surgery, he continued rehabilitation programs

Discussion

Post tuberculosis adversely affect the elasticity fibers of the lung. In this case, perioperative pulmonary rehabilitation program is found to be effective and correlated with clinically improvements in exercise tolerance capacity and quality of life.

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AP06-261

Severe Pulmonary Hypertension in Tuberculosis Pulmonary Sequelae

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Background

Pulmonary hypertension (PH) occurs due to damage to the structure or function of the lungs caused by chronic lung diseases such as tuberculosis.¹ It was estimated at 15 cases/1,000,000 in the adult population worldwide. However, post-tuberculosis sequelae increase morbidity and reduce life expectancy in a country with a high burden of tuberculosis, such as Indonesia. There are few cases of PH in patients with post-tuberculosis sequelae.

Case

A 31-year-old man with complaints of shortness of breath for 2 months, coughing without phlegm, and without the typical symptoms of tuberculosis. The patient is a smoker with a history of clinically confirmed pulmonary tuberculosis for 17 years and has been on full anti-tuberculosis medication. The chest radiograph presents a honeycomb pattern on the right base and schwarte. Furthermore, echocardiography showed severe tricuspid disturbances, mild pulmonary regurgitation, right atrial and right ventricular dilatation, normal left and right ventricular systolic function with the conclusion showed chronic cor pulmonale with severe PH. Spirometry shows severe obstruction and mild restriction. Subsequently, chest CT scan confirms multiple cavities, bilateral bronchiectasis, and schwarte The patient was treated with sildenafil, ramipril, and a low-dose diuretic, treated for 10 days and gradually showed clinical improvement, and was discharged without complications.

Discussion

This case showed that PH is significant morbidity in the post-tuberculosis sequelae. Smoking, uncomplicated treatment, and extensive pulmonary sequelae can exacerbate the disease.² The case reported that tuberculosis patients are treated with a heavy disease burden due to chronic lung damage, specifically those with severe PH.

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AP06-262

CD4 and viral load level based on demographic and clinical characteristics among TB-HIV patient in Indonesia

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Background and Aim

CD4 and viral load (VL) are important parameters to assess the severity of TB-HIV coinfection. Studies report mean CD4 and VL which varies according to characteristics age, sex, geography, type of TB and risk factor among TB-HIV. There is no data available in Indonesia. Thus, the aim of this study to find out that characteristics among TB-HIV in Indonesia.

Methods

A cross sectional study, multicentre was conducted 2018-2020 from seven islands with inclusion criteria were TB-HIV or history of TB, antiretroviral +/- 6 month and aged ≥ 18 years old. We collected secondary data from medical record. We calculated mean between CD4 and VL according to age, sex, geography, type of TB, and risk factors.

Results

Of the included 185 subjects, mean age was 34 ± 8.9 years old, 139 (75.1%) subjects were male, 48 (26%) from Java. CD41.000 copies/mL were 128 (69.2%) and 80 (43.2%), respectively. Mean (\pm SD) CD4 and VL in male was 162 ± 123 cells/ μ L, $217,259 \pm 785,269$ [DA1] copies/mL and female 176 ± 133 cells/ μ L, $116,233 \pm 470,309$ [DA2] copies/mL ($p=0,4$). No significant difference in CD4 between sex group, however there was a trend of higher VL in men although not statistically significant. There were 137 (74%) pulmonary tuberculosis with mean CD4 164 and VL 239.178 ($p=0,6$). Further analysis, among those with CD41.000, heterosexual was higher than homosexual, bisexual, and IDU (52%, 26%, 18%, 3%, $p=0,04$).

Conclusion

There was a trend of higher VL in men with TB-HIV and proportion of CD41.000 was higher in heterosexual group. Our appreciation goes to all TB-HIV patients in Indonesia and also to INARESPOND who have helped to complete this abstract.

AP06-263

A rare case of bilateral spontaneous pneumothorax

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Introduction

Spontaneous pneumothorax is a disease that may cause serious respiratory distress and can be a life-threatening condition. Only a total of 1.3% of all spontaneous pneumothorax cases bilateral spontaneous pneumothorax (SBSP).

Case Illustration

A 17-year-old girl with complaints of shortness of breath since 2 months ago, which has worsened in the last 3 days, especially in a lying position. A history of sudden chest pain, especially on the right when shortness of breath worsens. The patient was diagnosed with bacteriological TB and had been taking OAT. On an MSCT scan of the thorax was founded bilateral pneumothorax. The management of this patient was the installation of a chest tube using the WSD method in the right hemithorax. Meanwhile, the left hemithorax was managed conservatively because the area of the pneumothorax was

Discussion

Spontaneous pneumothorax is a type of pneumothorax that occurs spontaneously, in the absence of iatrogenic or traumatic factors. SBSP occurs in patients with an underlying disease, especially lung tuberculosis occurs with the rupture of subpleural apical blebs. SBSP is a rare condition and forms only 1.3 % of all spontaneous pneumothorax cases. As an emergency condition, the introduction of clinical conditions becomes important as the basis for case management. The absence of a history of previous trauma plus the presence of a previous infectious process, could be the main cause of secondary spontaneous pneumothorax in the patients above the management, in this case, is the installation of a chest tube in the right hemithorax and observation with 100% oxygenation in the left hemithorax. After evaluation for 1 week, the control chest x-ray indicated that the lungs had expanded and the patient's clinical condition was improving.

Keywords

bilateral spontaneous pneumothorax, Lung Tuberculosis

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AP06-264

A rare occurrence of disseminated tuberculosis with significantly high CA 125 levels in an immunocompetent adult: a case report.

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Introduction

Disseminated tuberculosis is a rare disease among immunocompetent adults. It is a diagnostic dilemma which often mimics an advanced malignancy. Cancer antigen 125 (CA 125) is a well-known tumor marker of ovarian malignancy. Importantly, CA 125 is recognized to associate with tuberculosis causing further confusion.¹

We report a rare, atypical presentation of disseminated tuberculosis with elevated CA 125 levels.

Case report

A 25-year-old, previously healthy female presented with high spiking fever, dyspnea, dry cough, right side pleuritic chest pain, anorexia and weight loss for 3 weeks. She was ill on admission with tachycardia, tachypnea and bilateral moderate pleural effusions predominant in right side. Inflammatory markers were elevated and Mantoux was 18mm. There were no immunosuppressive conditions or history of tuberculosis. Contrast enhanced computed tomography revealed bilateral pleural effusions, ileal thickening, peritoneal thickening, peritoneal free fluid, mesenteric and para-aortic lymphadenopathy without features of active pulmonary tuberculosis or liver disease. Pleural fluid was a lymphocytic exudate. Ascitic fluid contained 1603/mm³ cells (52% polymorphs, 40% red cells), elevated proteins and lactate dehydrogenase; but no malignant cells. Interestingly, serum CA 125 level was 454.7U/ml. However, no ovarian tumors were identified. Colonoscopy and ileal biopsy were normal. After extensive evaluation for infections including tuberculosis, peritoneal fluid culture isolated tuberculous bacilli.

Anti-tuberculosis treatments (ATT) were started. Fever settled over 2 weeks with ATT. Pleural effusions and ascites were resolved gradually over 6 months.

Discussion

Tuberculosis should be considered in a patient with pleural effusion, ascites and elevated CA 125 levels as it can mimic an ovarian malignancy.

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Disclosure statement

No disclosures.

AP06-265

A Diagnosis Dilemma: Paradoxical reaction in Tuberculosis in non-HIV patient

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Introduction

Paradoxical reaction" (PR) is a well-recognized phenomenon happening during or after treatment of tuberculosis for many years. It is defined by emerging new lesions or worsening of pre-existing lesions in patients who initially responded to treatment.

Case report

A 23-year-old female started on anti-tuberculosis therapy (anti-TB) and steroids for a 1-month duration for a bacteriologically proven disseminated tuberculosis (pulmonary and central nervous system). Initially, she has shown clinical improvement and her smear converted to negative. But after one month of treatment, while tailing off the steroid, she was admitted with worsening headache with ptosis. She was found to have multiple cranial nerve palsy and her brain imaging suggested cerebral tuberculosis with interval progression with multiple new lesions. According to her, drug compliance was good. Her investigations didn't reveal any secondary viral or bacterial infection or malignancy.

She was presumed to have a "Paradoxical reaction" and started on high-dose steroids. Once again when trying to tail off steroids her neurological symptoms got worsen. But her TB cultures were negative. So, she was kept on prolonged steroids with a slow tapering regime. She was clinically improved, and her neurological symptoms were resolved. Her repeat imaging showed significant resolving lesions. Her treatment was continued for 2 years.

Discussion

PR should be taken into consideration by clinicians when new or worsening lesions occur during anti-tuberculosis treatments. Prompt recognition and timely institution of corticosteroids can be lifesaving. Alteration or discontinuation of anti-TB therapy may not be indicated.

Cutaneous tuberculosis

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Introduction

Tuberculosis is a life-threatening infectious disease that remains a high incidence worldwide. The classification of tuberculosis can be divided into two forms, i.e. pulmonary and extrapulmonary. The pathogenesis of tuberculosis depends on the cell-mediated immunity of the host. One of the variants of extrapulmonary tuberculosis is cutaneous tuberculosis, that commonly found in Indonesia. Diagnosis cutaneous tuberculosis required specific investigations such as histopathology. The treatment principle for cutaneous tuberculosis is the same as the treatment for pulmonary tuberculosis, which consists of an intensive and maintenance phase.

Case Illustration

A 50 years old man presented with the wound from the chest tube installation one year ago has not healed. The patient had a history of having a chest tube placed because of a massive right pleural effusion. No respiratory complaints. On the chest X-ray the impression of active pulmonary tuberculosis. Sputum molecular rapid test results were negative. The result of analysis of pleural fluid is exudate. Not examined Molecular rapid test of pleural fluid or ADA test. Histopathological examination of the skin tissue from the wound on the right chest tube was examined with the results of granulomatous inflammation due to tuberculosis infection. The patient is currently undergoing anti-tuberculosis drug therapy.

Discussion

Cutaneous tuberculosis is a skin disease caused by *Mycobacterium tuberculosis* with classification based on the endogenous, exogenous, and hematogenous spread, which have different skin morphology and histopathological findings. The diagnosis of cutaneous tuberculosis requires a comprehensive history and physical examination with available investigations.

Treatment of cutaneous tuberculosis is generally similar to the treatment of pulmonary TB, which consists of intensive and continuous treatment phases. The prognosis is quite good if anti-tuberculosis drug therapy is given minimal six months.

We greatly thank the Department of Pulmonology dan Respiratory Medicine of Medical faculty, Hasanuddin University and Dr. Wahidin Sudirohusodo Hospital, Makassar, for supporting this study.

AP06-267

Co-existing bronchopleural fistula and lung entrapment as a rare complication of bacteriologically confirmed pleuro-pulmonary tuberculosis

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Introduction

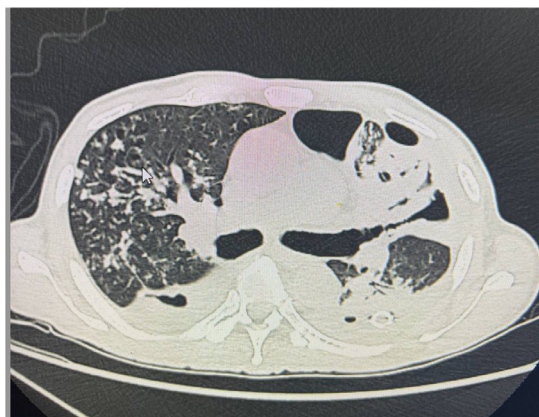
Pulmonary tuberculosis (PTB) is a rare occurrence in developed countries because of early detection and prompt diagnosis but remains to be endemic in the Philippines. If left untreated, it can have devastating parenchymal and pleural complications.

Case Presentation

We present a case of a 59 year old male with untreated PTB. Admitted to a tertiary government hospital for secondary hydropneumothorax from a ruptured bleb and chest tube drainage was performed. COVID RT-PCR test was incidentally positive. Pulmonary service worked up for the persistent air leak and on Chest CT scan revealed secondary hydropneumothorax with empyema thoracis, a communication of the left upper lobe bronchi with the pleural cavity, lung entrapment, varicose bronchiectasis and mediastinal lymphadenopathies. Pleural and sputum cultures were positive for Xpert MTB/RIF assay. MDC with thoracic surgery service was done and management agreed was non-surgical given extent of lung involvement. Anti-Koch's treatment was initiated and he was discharged on modified Heimlich valve.

Discussion

A broncho-pleural fistula (BPF) is most common after lung resection surgery but can be a rare spontaneous complication from PTB due to repeated erosion of the inflamed airway mucosa. A persistent air-leak in the chest tube may be the only sign. Chest CT demonstrates the anatomic defect. In patients with tuberculous BPF and lung entrapment, anti-Kochs therapy and chest tube drainage is the cornerstone management. Tuberculosis is widespread in developing world and it is crucial for physicians to recognize its diverse complications when approaching these diagnostically challenging cases.



AP06-268

Series of Misfortunes: Tuberculosis in Cyanotic CHD

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Introduction

Pulmonary TB (PTB) remains 1 of the top leading cause of death due to infectious etiology. Chronic cough and weight loss are symptoms that kids with CHD have, which might mask the presence of PTB. Work-up of the etiology is prudent specially those living in highly endemic areas.

Case Report

A 13-year-old, male diagnosed with CHD, presented with cough and dyspnea. Increased tactile fremitus, decreased breath sounds, and rales bilaterally were noted upon examination. Anthropometric measurements were < 3 z-score. Work-up that included chest roentgenogram showed patchy, reticulonodular, hazy and confluent opacities diffusely scattered in both lung fields. 2D echo revealed DORV with PS and Large VSD, absent pulmonary artery branches, and multiple aortopulmonary collateral arteries. On Gene Xpert, Mycobacterium tuberculosis (MTB) was detected. PTB was entertained. Patient was on NIPPV via high-flow nasal cannula ventilation in addition to quadruple anti-koch's chemotherapy. Patient was discharged on the 11th hospital stay.

Discussion

Patients with CHD has a higher risk to develop PTB. Mixed blood reaching their pulmonary circulation (if from collaterals that has thickened blood-gas barrier and higher blood flow velocity) results to a lesser oxygen gets diffused to blood. This leads to a higher concentration of oxygen at the alveolar area. MTB being an obligate aerobe will grow in this environment. Between acyanotic and cyanotic CHD, cyanotic CHDs are more risk because of increased carbon dioxide (CO₂) reserve within the body. This is because, CO₂ enhances growth of MTB living in increased oxygen toxicity.

none

AP06-269

Factors associated with false-negative for T-SPOT.TB in patients with active tuberculosis

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Background and Aim

Tuberculosis (TB) is a major infectious disease in Thailand and one of the leading causes of death worldwide. T-SPOT.TB is an adjunctive diagnostic tool that is used for detecting active tuberculosis infection. However, in some tuberculosis patients, a false-negative result can occur. This study aims to figure out the risk factor of false-negative for T-SPOT.TB test in active tuberculosis.

Methods

We retrospectively enrolled 210 patients who were diagnosed with active tuberculosis and underwent T-SPOT.TB test between July 2014 and July 2020 at Ramathibodi Hospital. Clinical characteristics, laboratory findings, and radiographic findings were compared between the false-negative and true-positive T-SPOT.TB groups.

Results

Among 210 active tuberculosis patients, 144 patients had pulmonary tuberculosis; 44 patients had extrapulmonary tuberculosis; and 22 patients had concomitant pulmonary and extrapulmonary tuberculosis. There were 100 men and 110 women, with a mean age of 54.1 ± 17.5 years. Ninety patients (42%) had false-negative T-SPOT.TB results. Multivariate analysis showed that increased age was significantly associated with an increased false-negative T-SPOT.TB (Odds ratio 1.025; 95% CI 1.008-1.043; $p = 0.006$). Age over 55 years old was associated with 1.8 times higher risk of false-negative T-SPOT.TB when compared to the younger group (age ≥ 55 years; false-negative rate = 64.4% VS age < 55 years; false-negative rate = 35.6%).

Conclusion

Advanced age, particularly above 55 years, was the risk factor for false-negative T-SPOT.TB results in active tuberculosis patients.

AP06-270

Rifampicin induced acute interstitial nephritis in a patient with disseminated tuberculosis: A case report.

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Introduction

Rifampicin is known as one of the drugs serving as backbone in anti-tuberculosis first line treatment. The common side effect is hepatotoxicity. However, renal toxicity with acute interstitial nephritis in histological finding worth consider as one of the conspicuous adverse events.

Case Report

We report the case of a 23-year-old prisoner admitted for abdominal pain. CT-Thorax-abdomen-pelvis showed bilateral pleural effusion with multiple tiny lung nodules and mediastinal lymphadenopathy, mesenteric lymphadenopathy with peritoneal thickening and complex ascites. His lymph node biopsy reported as reactive lymphadenitis. We were unable to proceed for tuberculosis work-up due to inadequate sample and patient refused to repeat another biopsy. He was treated as disseminated tuberculosis in consistent with the physical findings and close contact with few cell mates diagnosed with smear positive pulmonary tuberculosis. After 2-weeks of Akurit-4, he developed acute kidney injury (Urea: 3.8 mg/dL->14.8 mg/dL, Creatinine: 43mg/dL->353 mg/dL, 24h urine protein: 1.75g/day). CT-urography revealed no evidence of obstruction and renal biopsy demonstrated acute interstitial nephritis, normal glomerular histology, effacement of glomerular epithelial cell foot processes. Improvement in renal function and ceasing of proteinuria achieved after discontinuation of rifampicin. 3 months after renal biopsy, serum creatinine had returned to pre-treatment values and remained static up till date.

Discussion

The outcome of rifampicin-induced acute interstitial nephritis is favourable if early detection with discontinuation of the drug. More data required in the use of corticosteroid to demonstrate the clinical benefit in hastening the process of recovery in rifampicin induced renal toxicity patients.

AP06-271

Tuberculosis in the hip joint in a patient with smear-positive Pulmonary TB

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Introduction

Patients who are positive for Mycobacterium Tuberculosis with joint symptoms should be evaluated for underlying TB arthropathy.

Case report

62-year-old male transferred for further management of pulmonary tuberculosis complicated with sepsis. He had a history of cough and fever for the past two months without a history of tuberculosis or contact. He was a non-smoker and denied intravenous or illicit drug abuse. He complained of right-sided hip pain that worsened on walking, and he was attributing it to a road traffic accident that happened a few years back. He also complained of lower abdominal pain and dysuria for the past 3-4 months. There was no hematuria, but his urine output was reduced.

He was not dyspneic but had coarse crackles on the left lung field. There was no organomegaly. He had tenderness over the right-side hip, and it was difficult to move. He could not raise his leg for the straight leg raising test.

Investigations revealed mixed deficiency anemia, and neutrophil leukocytosis with raised inflammatory markers. His sputum was positive for AFB and the retroviral screening was negative. UFR was positive for red cells, with raised serum creatinine. Chest X-ray was suggestive of active TB and the X-ray right hip showed destruction of the hip joint. CECT pelvis showed destruction of the right-side acetabulum and the head of the femur compatible with TB. A large bladder calculus with a hydro ureter was also noted. However, screening for renal TB was negative.

Discussion

Due to hip joint Tuberculosis, the ATT regime was planned for a total of 12 months, and he was offered advanced hip prosthesis and a bladder stone removal surgery by the respective specialties. Clinicians should not disregard joint symptoms in patients with active Tuberculosis. Missing those will end up with detrimental effects on patients.

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AP06-272

Tuberculosis and Covid 19 co-infection: Retrospective analysis from a tertiary care hospital in Central India

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Background and Aim

In the background of ongoing epidemic of Tuberculosis in India, Covid 19 burdened the healthcare system in India and tested its resilience to maximum. Since both the diseases predominantly affect the lungs with an overlap of symptoms, there has been varied hypothesis about a possible association in the two entities. We aimed to see if any association existed between the two diseases.

Methods

We analyzed the history and records of 1300 indoor patients of Covid pneumonia admitted at our institute over one year. The history was retrieved by medical records and/or telephonic calls to the patients and their families. Details of active TB patients were retrieved from Nikshay software which is an integral component of National TB Elimination Programme in India.

Results

Out of a cohort of 1300 admitted Covid patients, only 1 had active TB. 20 patients (12 males and 8 females) had a previous history of ATT intake. 15 were treated for Pulmonary TB and 5 for extra pulmonary TB. Mean age was 42.14 years. None of these 20 patients had active TB at the time of being diagnosed Covid positive. There was only 1 mortality amongst these 20 patients, a patient who recently completed treatment for Tubercular meningitis before acquiring Covid infection.

Conclusion

No association/predisposition could be made between patients of Tuberculosis and Covid 19 and the significance of the co-infection of the two diseases remains unlikely.

AP06-273

A double edged sword ,Anti-tuberculous drugs induced autoimmune hemolytic anemia

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Introduction

Anemia in tuberculosis(TB) is multifactorial. Usually it is due to anemia of chronic disease or Iron deficiency. Anti tuberculous treatment induced autoimmune hemolysis is a rare cause for anemia in a TB patient. Here we report a case of anemia due to ATT induced Coombs positive Autoimmune hemolytic anemia (AIHA)

Case report

64-year-old patient with newly diagnosed smear positive pulmonary TB, started on ATT (Rifampicin, Isoniazid, Pyrazinamide and Ethambutol) fixed drug combination. Within 10 days he had gradual drop in hemoglobin to 6.5g/dl. Other two cell lines were normal. Direct Coombs test was strongly positive for both IgG and C3d. Total bilirubin rose to 4.63mg/dl with Indirect fraction of 3mg/dl. Serum Lactate dehydrogenase rose to 750U/l. Blood picture had evidence of hemolysis with oval macrocytes with polychromasia, red blood cell agglutination and moderate rouleaux formation. ATT induced AIHA was diagnosed. First line ATT withheld and started on oral Prednisolone 1mg/kg daily with an alternative ATT regime. After his hemoglobin levels stabilized rechallenged Isoniazid and Rifampicin individually. Both times hemolysis precipitated. So treatment continued with an alternative regime consist of Intramuscular Streptomycin , Ethambutol, Levofloxacin, Pyrazinamide for intensive phase and Ethambutol, Levofloxacin, Pyrazinamide for continuation phase. Sputum conversion achieved at the end of 2 nd month.

Conclusion

ATT cause various types of blood dyscrasias. Isoniazid is known to cause pure red cell aplasia but coombs positive AIHA is rare. Rifampicin can cause AIHA. Although its rare two anti TB drugs can cause hemolysis leaving the treatment option of alternative regimen.

AP06-274

Disseminated tuberculosis: a rare case report

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Introduction

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis*, can invade all organs but mainly affect the lungs. Diagnosis of disseminated TB on clinical examination is complicated because it usually reflects the underlying organ involved.

Case report

A 21 years old male complained productive cough since 4 months ago. He also complained headache, weakness of lower extremities and 20 kg weight loss. Multiple lymphadenopathy are found at anterior cervical and bilateral supraclavicular lymph nodes. Chest radiography showed bilateral nodular infiltrates and cavity (figure A). Brain CT scan showed ring enhancement and multifocal edema. Thoracic MRI revealed leptomeningeal thickening of thoracic segment. Sputum molecular test detected medium *M. tuberculosis* and HIV result was negative. Fine needle aspiration biopsy (FNAB) of supraclavicular lymph node showed necrotic tissue caused by specific inflammation. The patient was treated with rifampicin, isoniazid, ethambutol and streptomycin for 2 months and combined rifampicin with isoniazid for 7-10 months.

Discussion

Prevalence of disseminated TB is estimated 2% of all TB cases and 20% of all extrapulmonary cases.¹ Tuberculosis can disseminate to many organ systems including central nervous system (CNS) such as meningitis, cerebral tuberculoma and thoracic transverse myelopathy.² Lymphadenopathy also presents in this patient. The diagnostic result of lymph node biopsy or FNAB is high. Treatment of disseminated TB varies in duration and needs close monitoring of the organ systems involved, especially in meningitis TB.³ Pyrazinamide has a good cerebrospinal fluid (CSF) penetration but this patient cannot be given because of the elevated liver enzymes.

Keywords

disseminated tuberculosis, lymphadenopathy, meningitis, tuberculoma

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Disclosure statement:

1. I do not have any conflict of interest.

2. This presentation does not include information about products not labeled for use or investigational. In submitting the above information, I acknowledge all to be complete to the best of my knowledge and by submitting the statement, this will serve my signature to same.

AP06-275

A case of sarcoidosis in a patient with a history of extrapulmonary tuberculosis - A possible trigger

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Introduction

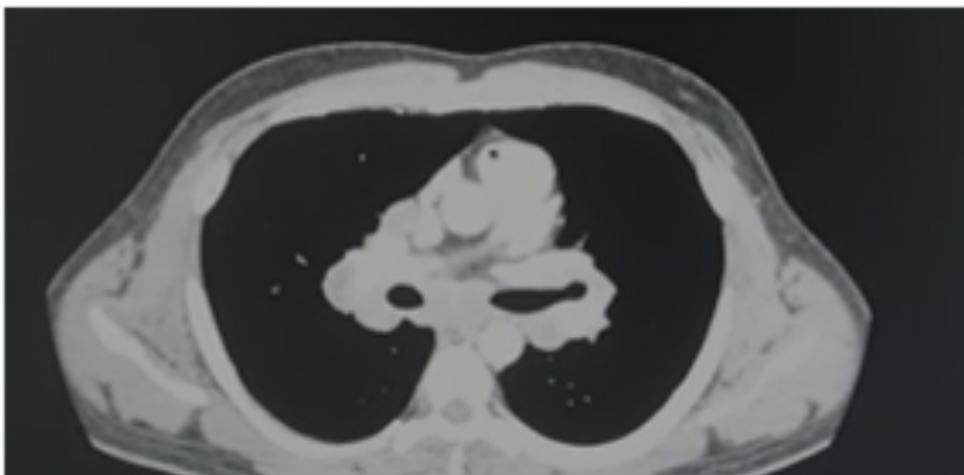
Sarcoidosis is a multisystem disease of unknown etiology. It is characterized by granulomatous inflammation and thought to occur in genetically predisposed individuals with exposure to unknown antigens. Tuberculosis is an infection caused by *Mycobacterium tuberculosis* (MTB) and leads to granulomatous inflammation. Here we present a patient with sarcoidosis who had a tuberculous pleural effusion 10 years ago.

Case report

A 35-year-old gentleman with a history of treatment completed, biopsy-proven, right-sided tuberculous pleural effusion 10 years back, initially presented to an ophthalmologist with anterior uveitis in the right eye. He was referred to us as he had a dry cough and progressive dyspnea over 6 months. Physical examination was unremarkable. Contrast-enhanced computed tomography (Figure) showed bilateral hilar lymphadenopathy and patchy areas of consolidation in bilateral lower lobes in subpleural distribution suggesting stage 3 sarcoidosis. The rest of the investigations including serum calcium, angiotensin-converting enzyme level, pulmonary function tests, sputum for acid-fast bacilli, sputum cultures for MTB and GeneXpert were negative. Endobronchial-ultrasound showed bilateral mediastinal and hilar septate lymph nodes and aspiration showed reactive nodes. Subsequent mediastinoscopy and biopsy were suggestive of sarcoidosis. The patient was commenced on oral prednisolone.

Discussion

Our patient had two granulomatous inflammatory disease processes separated temporally. Certain case reports suggest the possibility of MTB as a trigger for sarcoidosis while some reports consider sarcoidosis as a separate manifestation of tuberculosis. This case highlights the intriguing yet elusive relationship between sarcoidosis and tuberculosis.



AP06-276

Tuberculosis(TB) , HIV and Covid 19 : Three in One : A case report

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Introduction

The WHO declared the outbreak of novel SARS-CoV-2 as a pandemic in March 2020 and 523 million cases and over six million deaths are reported worldwide up to now. TB/Covid 19 and HIV/Covid 19 co-infections are the emerging challenges that clinicians encounter in future which results in poor clinical outcomes.

Case report

A 37 years old male who was diagnosed to have diabetes and retroviral disease, been on antiretroviral therapy (ART) since 2014 presented with three weeks of low-grade fever, productive cough, constitutional symptoms and night sweats. Clinically he was emaciated, ill-looking and SpO₂ was 95% on air. Chest X-ray revealed right middle and lower lobe consolidation (figure1). His sputum gene Xpert for TB was highly positive and rifampicin resistance was not detected. On admission his rapid antigen test for Covid 19 was positive, therefore transferred to an isolation ward reserved for TB and Covid patients. He was managed for mild covid19 disease and all basic investigations were normal except mild anaemia and elevated CRP. HRCT chest confirmed active pulmonary TB involving the right middle and lower lobe. CD4 count was 576cells/mm³. Anti TB therapy initiated and continued ART. Covid PCR was persistently positive after 21 days from infection with a low CT value. The patient was directed to home quarantine following microbiology opinion. He was recovered from Covid and referred to chest clinic for follow up for TB and Covid 19

Discussion

Triple infection with SARS-CoV-2, TB and HIV is very rare and this is the first reported case in Sri Lanka.



AP06-277

Discordant rifampicin susceptibility in tuberculosis causing clinical dilemmas

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Introduction

GeneXpert MTB/RIF assay is a rapid molecular test available to detect not only the presence of Mycobacterium tuberculosis (MTB) but also the rifampicin resistance by detecting mutations in the rpoB gene. Although it provides results within 2 hours when compared to conventional phenotypic culture and drug sensitivity(DST) taking 3 months the discordant results may expose patients to unnecessary treatment with toxic second-line antituberculous treatment.

Case report

A 50-year-old previously well gentleman presented with chronic cough and constitutional symptoms for 2 months. Examination revealed crepitations and bronchial breathing involving the right upper lobe. Chest X-Ray revealed right upper lobe cavitory consolidation suggesting tuberculosis. Sputum for acid-fast-bacilli (AFB) was positive and GeneXpert MTB/RIF detected both MTB (high) and rifampicin resistance. While awaiting AFB culture and DST, long regime of multi-drug resistant tuberculosis was started as per institution protocols. At the end of 1st month, his sputum AFB became negative and 2nd month AFB culture became negative. When DST was available it showed resistance to the first-line drugs including isoniazid, rifampicin and ethambutol. Repeat GeneXpert from the culture slope again showed rifampicin resistance. As the patient was phenotypically susceptible, first-line drugs were started for which the patient responded well clinically, radiologically and bacteriologically.

Discussion

Discordant rifampicin susceptibility can be due to rpoB mutations which are not phenotypically significant. Another explanation is the presence of two populations of MTB in the same patient (phenotypically rifampicin resistant and rifampicin susceptible), which can be differentiated by repeating the GeneXpert on AFB culture isolate.

AP06-278

Chronic diarrhea, Inflammatory Bowel Disease, and the great mimicker of all time, Tuberculosis.

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Introduction

In infectious diseases, Tuberculosis is second only to Covid 19, considering the annual number of deaths. With multisystem involvement and the diverse clinical picture, early diagnosis could be difficult. Sometimes, it mimics an alternative diagnosis in which its treatment may be fatal for tuberculosis.

Case report

This 31y old lady had chronic diarrhea with frequent mucoid stools for 1 year and intermittent colicky abdominal pain with poor appetite and weight loss for the same duration. Inflammatory markers were high and ultrasound abdomen and colonoscopy showed thickened ileal loops and circum-ileal inflammation, respectively. The biopsy was in favor of Chron's disease, but crypt abscesses were absent. She was started on prednisolone and azathioprine. After three months of treatment, she gradually deteriorated developing blood and mucous diarrhea and rapid weight loss. Ileal biopsy for TB GeneXpert and TB culture were negative. While awaiting biologics, she developed subacute intestinal obstruction and underwent ileal resection. The resected ileum and a mesenteric lymph node showed caseous granulation and positive GeneXpert. An excised enlarged cervical lymph node showed typical caseous granulation and positive GeneXpert. With anti TB drugs replacing immunosuppressants, there was a rapid improvement with weight gain. Thus, the first diagnosis of Chron's disease was excluded and continued to be managed as disseminated TB.

Discussion

Immunosuppressants for suspected Chron's worsened her tuberculosis. Tuberculosis should be suspected early with necessary sampling. Colonoscopic biopsies could be non-representative. When treatment response is poor, revisiting the diagnosis before advancing treatments could save lives. In a patient with disseminated TB like in this case, starting biologics without re-evaluating the patient could have been lethal.

Acknowledgment

Dr. D. T. Gunasena Consultant Surgeon, Colombo North Teaching Hospital, Ragama Sri Lanka

AP06-279

Post-tuberculous brochostenosis: A rare case of complete obliteration of left mainstem bronchus in a patient with history of tuberculosis

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Introduction

Tuberculosis remains a major global health problem with the lungs being the most common localization of the disease(1). Bronchial stenosis is infrequent in pulmonary tuberculosis and usually affects small bronchi, and the involvement of the main bronchus is usually associated with tracheobronchial tuberculosis, a poorly recognized and underdiagnosed entity

Case Report

We present a case of a 22 year old female with a massive atelectasis on the left lung. She was previously treated for clinically diagnosed pulmonary tuberculosis initially presenting as progressive dyspnea and chronic cough one year prior to consult. She had recurrent bouts of dyspnea noted upon completion of her anti-koch's regimen. Hence, a chest CT scan was done and showed cut off of the left mainstem bronchus just as it bifurcates from the trachea with associated with massive atelectasis of the entire left lung with leftward mediastinal shift and compensatory hyperaeration of the right lung. She then underwent flexible bronchoscopy with findings of completely obliterated left mainstem bronchus. No mucosal changes nor endobronchial mass lesion was seen. Bronchial washing was sent for cytology with findings of acute on chronic inflammatory pattern. No malignancy nor granuloma seen. No further interventions done as the patient remained stable and asymptomatic.

Discussion

This case report emphasizes that although tuberculosis commonly affects the lungs, the disease can affect the tracheobronchial tree either as a complication or as a direct microbial involvement which needs to be documented with microbial and histopathological evidence. The goal of treatment for any case of tuberculosis is early diagnosis and treatment with close follow up to prevent complications.



AP06-280

Be awareness of COVID-19 case with Co-morbidity HIV/MTB can be lead to death

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Introduction

The coronavirus disease 2019 (COVID-19) pandemic has significantly impacted persons with human immunodeficiency virus (HIV) and pulmonary tuberculosis. HIV causes immunodepression by depleting CD4 cells, thus reducing the capacity of the organism to defend against bacterial, fungal, parasitic, and viral infections such as COVID-19 and tuberculosis.

Case Report

We reported a case of the human immunodeficiency virus and Tuberculosis of a 44-year-old men with confirmed COVID-19 admitted to emergency room Dr.Wahidin Sudirohusodo Hospital complaining shortness of breath, Cough, and history of fever. HIV test result reactive and RT-PCR SARS-COV 2 was positive. Chest Xray we found pneumonia sinistra. Patient was treat by standard treatment before sending to home with covid 19 mild case. After 3 days at home patient get worsening and back to emergency room with shortness of breath. From chest x-ray control we found pneumonia bilateral and GeneXpert MTB/RIF from sputum was detected and rimpaficin sensitive. Patient was hospitalized for 16 days in isolation room, 12 day on isolation ward and 4 days on ICU isolation.

Discussion

We can learn from this case if patient covid 19 with comorbid HIV and lung tuberculosis. We should be aware the patient can be worsening and leading to dead. Descriptive analysis has shown that SARS-CoV, MERS-CoV and COVID-19 associated with HIV/TB or TB are more common in males and the time-to recovery is long compared to the non-exposure groups. Meta-analysis suggests that HIV/TB co-infection or TB exposures increase the risk of severe/critical COVID-19 and the mortality.

Keywords

COVID-19, HIV, MTB

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AP06-281

Mycobacterial kansasii infection mimicking lung cancer with secondary myelofibrosis

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Introduction

We report a rare case that lung cancer was strongly suspected but diagnosed with mycobacterial kansasii (*M.kansasii*) infection on the final repetitive biopsy results with secondary myelofibrosis due to infection.

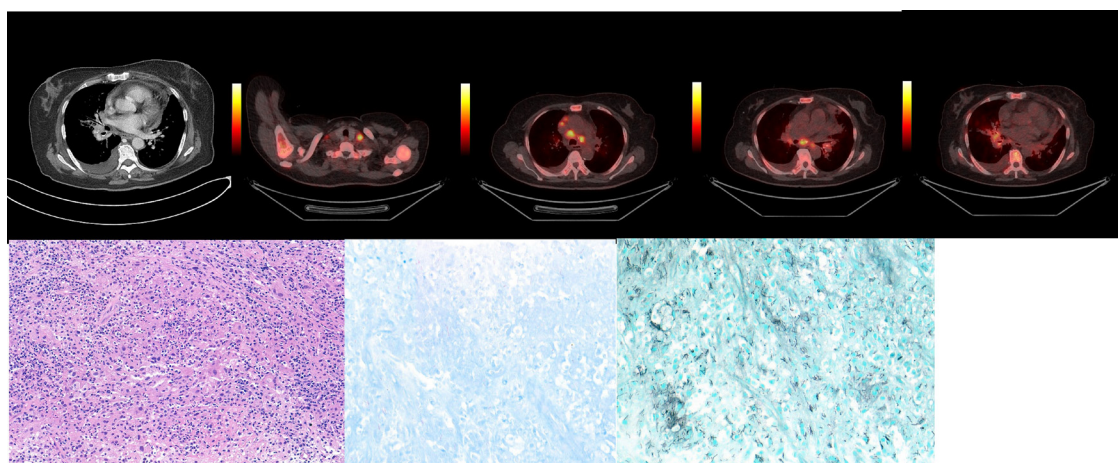
Case report

The 68-year-old women who had symptom of dyspnea was admitted to the hospital. Chest computed tomography (CT) showed right middle lobe (RML) mass and multiple lymph node enlargement. To diagnose, endobronchial ultrasound-guided transbronchial needle aspiration was conducted, with suspected malignancy on subcarinal lymph node. However, on biopsy result, the malignancy findings were not seen. Due to pancytopenia on laboratory finding, we conducted bone marrow biopsy and the result showed grade 2 myelofibrosis which cannot rule out cancer related secondary myelofibrosis. On Positron emission tomography (PET)-CT, RML malignancy with mediastinum, both supraclavicular fossa lymph node metastasis findings were strongly suspected, so we re-performed bronchial washing, but only non-tuberculosis mycobacterium (NTM) was identified. Regarding the images cannot rule out malignancy, we further performed the biopsy at the Lt supraclavicular fossa and right middle lung mass but there were only mycobacterium findings with chronic necrotizing granulomatous inflammation without malignancy findings.

For NTM treatment, assuming *M. avium*, we started rifampin, ethambutol, azithromycin and amikacin. However, in the NTM sensitivity test, *M.kansasii* was identified and we changed from the existing drugs to isoniazid, rifampin, ethambutol. After 6 months of *M.kansasii* treatment, CT finding improved, and pancytopenia was also resolved.

Conclusion

Thus, we could rule out malignancy finally and we diagnosed patient as with rare *M.kansasii* lung infection and secondary myelofibrosis due to infection.



AP06-282

Case report : an unstandardized therapy related to pre extended drug resistant tuberculosis

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Introduction

There are a lot of risk factors and predispositions for drug resistant tuberculosis. Among of them is unstandardized therapy.

Case report

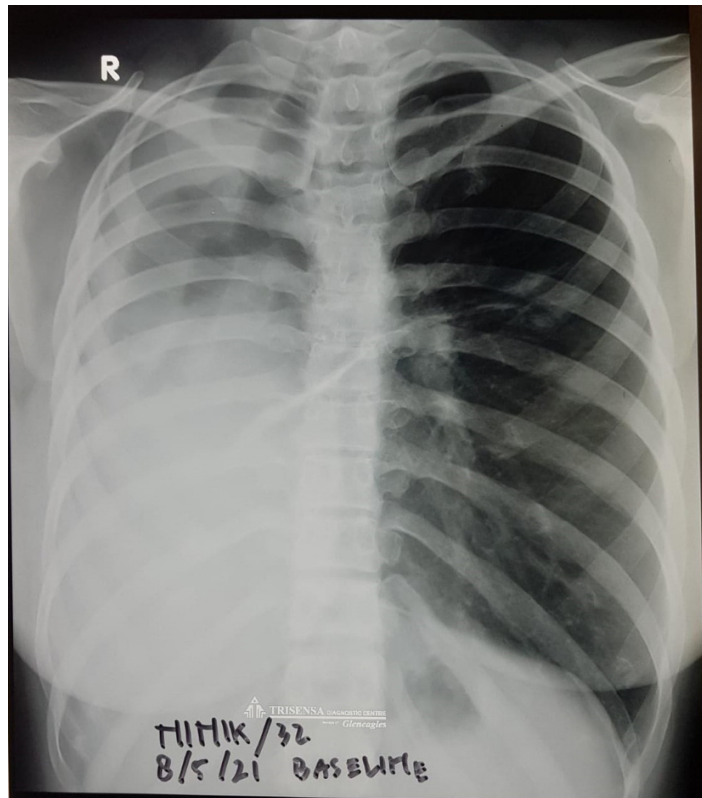
Female 30yo was diagnosed as pre-extended drug resistant tuberculosis. Patient had history of drug sensitive tuberculosis. Patient got unstandardized therapy for 2 years. Because of unprogress treatment, patient finally came to academic hospital. The examination result in pre extended drug resistant tuberculosis that was changed from drug sensitive.

Discussion

Drug resistant tuberculosis can derive from many predispositions. One of them is unstandardized therapy. either using unstandardized drugs or time of treatment can precipitate the drug resistant tuberculosis.

Keywords

tuberculosis, drug resistant, unstandardized therapy



AP06-283

Effective treatment for unexpansion lung in chronic tuberculous pyopneumothorax by open window thoracostomy: a case report

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Introduction

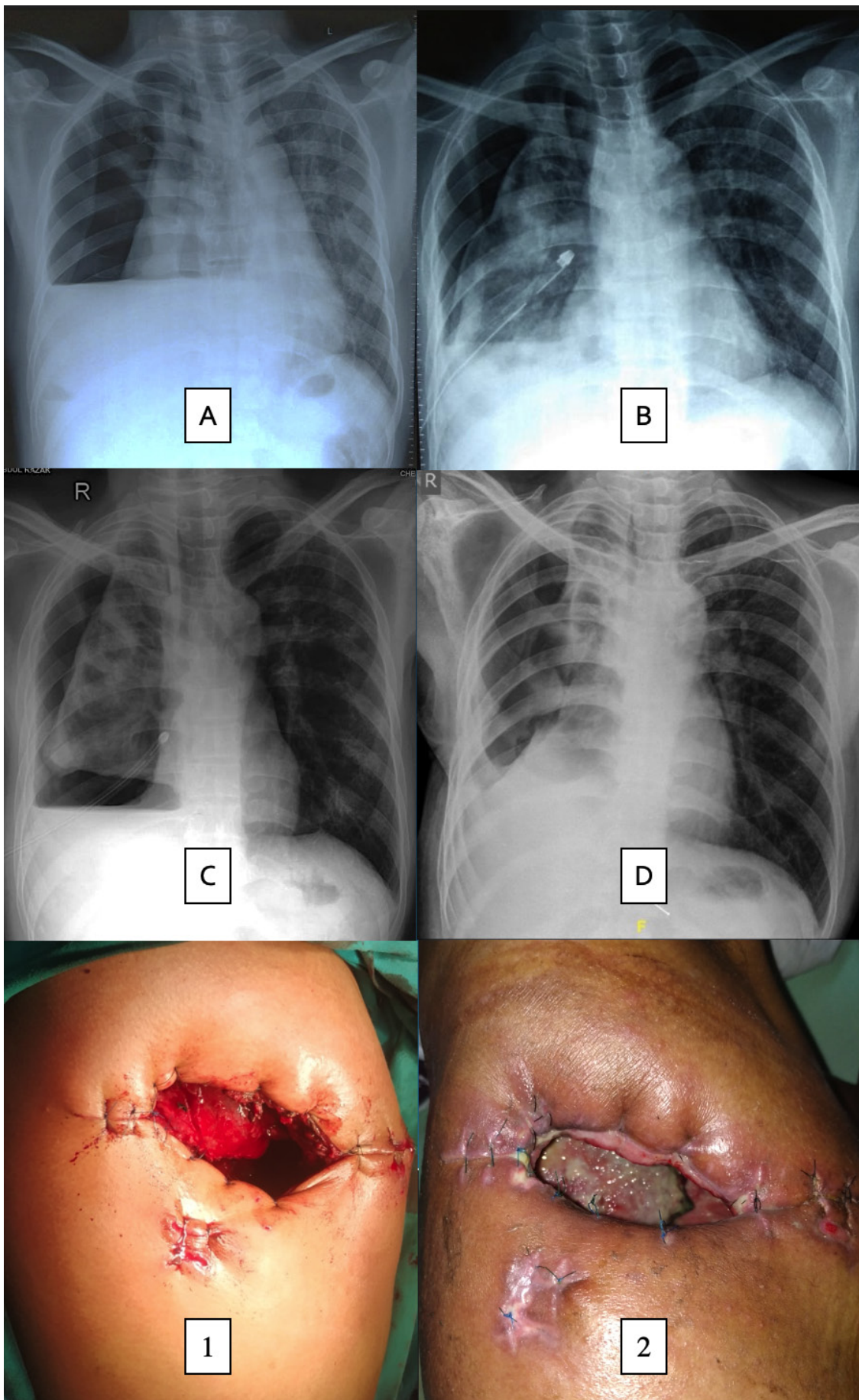
Tuberculous pyopneumothorax is one of the complications of pulmonary tuberculosis. One of the challenges in treating pyopneumothorax is if there is no lung expansion so that fluid production continues in the pleural cavity. We report a patient with tuberculous pyopneumothorax who we managed with anti-tuberculosis treatment and open window thoracostomy.

Case Report

A 37-year-old male came with shortness of breath that had been experienced since 2-month ago. There was cough 5 months with yellow sputum. Previously, the patient had been hospitalized and diagnosed with hydropneumothorax and had a chest tube for 3 weeks. A smear of fast-acid bacilli was positive on pleural fluid so that anti-tuberculosis treatment was started. After 3 times of pleurodesis with tetracycline, there was no lung expansion and no improve of fluid production, it was still more than 150 cc per day, and decortication was performed. However, the surgeon decided to do an open window thoracostomy at the time of surgery. Performed maintenance for 5 months and obtained improvement.

Discussion

Combination of treatment approaches in tuberculous pyopneumothorax with anti-tuberculosis treatment and anaerobic antibiotics, also we target to get lung expansion and reduced pleural fluid production. After antibiotics and anti-tuberculosis treatment were successful, there was an improvement clinically and the pleural fluid macroscopically, but there was no lung expansion, and surgical therapy could be performed. If decortication is unsuccessful, an open window thoracostomy can be performed.



AP06-284

Genetic and Phenotypic Epidemiology of Multi-Drug Resistant Tuberculosis in Vietnam

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Background and objective

Genetic and phenotypic epidemiological data on multi-drug resistant Mycobacterium tuberculosis are limited in Vietnam. Our study explores the genomics of tuberculosis in a high prevalence setting in Ca Mau, Vietnam.

Methods

Patients >15 years underwent annual screening for tuberculosis across Ca Mau Province, Vietnam, between 2014 and 2017. Sputum cultures that grew M tuberculosis were subjected to drug susceptibility testing (DST), using the breakpoint method, and whole genome sequencing (WGS).

Results

We identified 365 sputum cultures that grew M tuberculosis and processed 237 for DST and 265 for WGS. Resistance to rifampicin was present in 8 isolates (3.4%, 95%CI 1.8-6.8%). Rifampicin resistance was more common among patients previously treated for TB (22.2% vs 2.01%, p=<0.001). rpoB mutation occurred in 10 isolates (3.8%, 95%CI 1.8-6.8%) including 7 of those with phenotypic rifampicin resistance. Isoniazid resistance occurred in 7/8 isolates with rifampicin resistance. East-Africa-India lineage was most common (49.4% of isolates) followed by Beijing lineage (38.4%) then European-American lineage (8.4%).

Conclusion

Compared with other published estimates, the prevalence of rifampicin resistance was lower in this representative sample of isolates from the general population. This may reflect selection bias in samples received in reference laboratories.

AP06-285

BCG vaccination against *Mycobacterium tuberculosis* infection in pediatrics

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Aim

The aim of this study to determine the effect BCG vaccination against *Mycobacterium tuberculosis* infection as assessed by interferon γ release assays (IGRA) in pediatrics.

Methods

A systematic search was conducted on PubMed, Cochrane Library and Google Scholar with relevant pairing keyword. Identified the relevant studies published in English language, reporting vaccinated and unvaccinated with known recent exposure with pulmonary TB. A meta-analysis was carried out using Review Manager 5.3. The random-effects model was used to compute the pooled estimates of risk ratio (RR) and 95% confidence interval (CI).

Results

We identified a total of 14 relevant studies, ranging in age from 1 month to 18 years. Included studies comprised of total 3241 patients in the vaccinated group and 1233 patients in the unvaccinated group. The patients were screened for infection with *Mycobacterium tuberculosis* with the two types of interferon γ release assays (ELISpot or QuantiFERON) across the studies. The estimated overall risk ratio was 0.62 (95% CI 0.44, 0.87), indicating a significantly protective efficacy of 38% against infection among vaccinated after exposure compared with unvaccinated pediatric population. Subgroup analysis showed protection against infection was 37% (risk ratio 0.63, 0.57 to 0.69) compared with 25% (0.75, 0.64 to 0.87) against active TB. The funnel plot found no evidence of publication bias.

Conclusion

Evidence from the current meta-analysis found that the BCG vaccination showed significant protective effect against *Mycobacterium tuberculosis* infection as well as to infection. However, further long-term, clinical studies are warranted to justify the current findings.

AP06-286

TB screening for kidney transplant recipients. Current situation

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Aim

Conduct a retrospective analysis of previously recommended risk factors and determine their impact probability on TB reactivation after kidney transplantation.

Materials and methods

67 p. after kidney transplantation were examined for unclear intoxication and/or newly detected changes in the lungs: women - 35 p. (52.2%), men - 32 p. (48%), age 19 – 73 years, mean age – 42.85±1.68 years. We diagnosed respiratory diseases: TB - 40/67 p. (60%), non-TB etiology - 27/67 p. (40%). Factors were analyzed: contact with a TB patient, a TB dynamics, pathological changes in the lungs before kidney transplantation, a positive reaction to TST.

Results

TB contact before kidney transplantation was in 1 p. (1.5%), after kidney transplantation - in 1 p. (1.5%). Both factors aren't correlated with the diagnosis. Those who had TB before kidney transplantation - 3/67 p. (4.5%). Kendall's correlation coefficient=0.1. Computed tomography before respiratory disease was performed in 12/67 p. (17.9%). Changes in the lungs were before kidney transplantation in 5/67 p. (7.5%). Most patients haven't an X-ray archive. As it was found previously performance of CXR was uninformative in renal transplant recipients. Therefore, in 82.1% of cases late diagnosis of a respiratory disease is possible. Positive reaction to TST was registered in 19/67 p. (28.4%). Kendall's correlation coefficient=0.2.

Conclusion

Based on the analysis results it is concluded the factors that were previously required are non-exhaustive for TB screen for kidney transplant recipients

AP06-287

Challenge in diagnostic of primary MDR tuberculosis with spondylitis MDR-TB

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Introduction

MDR-TB, defined as resistance to isoniazid and rifampicin, a new challenge to the global burden of tuberculosis. The skeletal system can be involved in 1-3% of all tuberculosis patients. MDR-TB spondylitis may be due to acquired or primary tolerance due to previous inappropriate treatment. We report a patient with pulmonary and Spondylitis MDR-TB who we managed with MDR-TB treatment and open window hemithorax.

Case Report

We present a 46 years old male patient admitted to the hospital with chronic back pain, cough and night sweating. Compression fracture, destruction of vertebral bodies and paravertebral mass were found in radiograph examination. MDR tuberculosis infection was confirmed by culture and GenXpert MTB/RIF from sputum and spinal tissue. The patient treated with individual regimen of MDR-TB drugs consist of bedaquiline, levofloxacin, linezolid, clofazimine, cycloserine. On follow-up, the patient can perform daily tasks without any problem and pain

Discussion

MDRTB spondylitis is a rare case of extrapulmonary tuberculosis. The diagnosis based on the results of histopathological examination and Gen Xpert® MTB / RIF. Therefore, it is highly recommended to also check the Xpert® MTB / RIF whenever it is suspect tuberculous spondylitis to rule out resistance. A combination of MDR antituberculous chemotherapy and surgical intervention (debridement, decompression, and stabilization) leads to an excellent outcome, in which the patient can perform regular daily tasks without pain, even in complicated MDR tuberculous spondylitis cases

AP06-288

Incidence and associated risk factors of non-tuberculous mycobacterial pulmonary disease in patients with depression

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Background and Aim

It has been reported that the risk of mental health problems such as anxiety or depression increases in patients with non-tuberculous mycobacterial pulmonary disease (NTM-PD). However, few studies have investigated the increased incidence of NTM-PD in patients with mental health problems. In this study, we investigated the incidence and associated risk factors of NTM-PD in patients with depression.

Methods

Data from 2002 to 2013 were collected from patients at least 20 years of age in the National Health Insurance Service (NHIS) database. Patients were classified into depression (n=37,554) and control group (n=694,257), and matched in random order at a 1:4 ratio for age, sex and index date. The incidence rate was calculated in 100,000 person-years and multivariable Cox proportional hazards model was used to evaluate the adjusted hazard ratio of NTM-PD.

Results

The incidence of NTM-PD was 40 patients in the depression group and 164 patients in the non-depression group. The age-, sex-stratified effect of NTM-PD incidence was not significantly higher in depression patients compared to non-depression patients. The hazard ratio of NTM-PD adjusted for age, sex and comorbidities was 0.84 (95% CI: 0.59-1.18) in the depression group compared to the non-depression group.

Conclusion

The incidence of NTM-PD in patients with depression was not significantly increased compared to patients without depression. However, due to the small number of NTM-PD patients, this study may have been underestimated to detect differences between the two groups.

AP06-289

Unusual Case of Tuberculous Retropharyngeal Abscess: A Rare Clinical Manifestation of Extra-Pulmonary Tuberculosis in Adult

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Introduction

Retropharyngeal abscesses are infections deep in the neck space that can pose an immediate life-threatening emergency, with potential for airway compromise and other catastrophic complications. In adults, these abscesses can develop as a result of vertebral pyogenic osteomyelitis, tuberculosis of the cervical spine, or external injuries caused by endoscopes or foreign bodies. Tuberculosis of the retropharyngeal space is one of the rare forms of extra-pulmonary tuberculosis. Early diagnosis and prompt treatment are necessary to prevent the serious complications of the disease.

Case Report

We report a case of 35-year-old woman suffered from tuberculous retropharyngeal abscess. We treated our patient with surgical drainage and exploration (combined approach of transoral and transcervical) along with antibiotic and antituberculosis regimen.

Discussion

Retropharyngeal abscess is rare in adults and is a serious emergency. The variety of symptoms and non-specific signs of retropharyngeal abscess makes the clinical diagnosis remains challenging. Approach to the diagnosis of a retropharyngeal abscess will be further supported by radiological imaging which plays an important role in assessing the extension of disease and possible complications in important structures. Aggressive management by giving antituberculosis drugs with immediate surgical drainage is needed to prevent further unexpected complications.

Acknowledgements

The authors would like to thank the patient for her permission to publish this case report.

Conflict of interest

The authors declared that there was no conflict of interest related to this article.

AP06-290

Effect of smoking and malnutrition on early sputum culture conversion in multidrug-resistance tuberculosis patients with short term drug regimen in south sumatra indonesia

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Background and Aim

Multidrug-resistance tuberculosis (MDR-TB) is infection of mycobacterium tuberculosis with resistant towards at least two main first line medication of isoniazid and rifampicin. In Indonesia, MDR TB patient who had succes treatment was only 47%.¹ Several factor that influence the treatment outcome. Early sputum culture conversion (at second month) associated with higher chance treatment success in compare to late sputum culture conversion and lead to poor outcomes. This study aim to asses effect of smoking history and malnourished towards early sputum culture conversion among MDR TB patient with short term drug regimen in south sumatra indonesia.

Methods

This study design was observational study and was done at Mohammad Hoesin Hospital from April 2019 to January 2020. Participant who fulfill inclusion criteria was included. Smoking history, malnutrition status, and sputum culture conversion was collected and analyzed with statistic application tool.

Results

Total of 91 participants were included in this study. Analysis result shows MDR TB patients with smoking history had 1.1 risk ratio (RR), and 95% confidence interval 0.95 - 1.32. Malnourished MDR TB patient had 0.89 risk ratio (RR), and 95% confidence interval 0.62 - 1.28.

Conclusion

Malnourished MDR TB patients had a 0.89 times risk of not having early sputum culture conversion, compared to non-malnourished MDR TB patient. MDR TB patients with a history of smoking had a 1.1 times risk of not having early sputum culture conversion, compared to non-smoking MDR TB patient.

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AP06-291

An uncommon cause of unilateral 6th nerve palsy. Disseminated tuberculosis complicated with cerebral venous sinus thrombosis

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¹ Pulmonology unit, National Hospital of Sri Lanka, Colombo, Sri Lanka, ² Internal Medicine, National Hospital of Sri Lanka, Colombo, Sri Lanka, ³ Neurology, National Hospital of Sri Lanka, Colombo, Sri Lanka

Introduction

Disseminated tuberculosis (TB) has a 20% chance of involving central nervous system (CNS). CNS-TB presents with meningoencephalitis, tubercular abscess, tuberculoma or infarctions due to vasculitis. We present a rare case of cerebral venous sinus thrombosis (CVST) secondary to CNS-TB.

Case report

A 23-year-old female presented with low grade fever, nausea, dull headache for 2 months. Examination was unremarkable apart from bilateral posterior cervical lymphadenopathy. Septic and connective tissue disease screening were negative. Excisional biopsy of cervical lymph node revealed necrotizing lymphadenitis without granulomas. During hospital stay she developed sudden severe worsening of headache associated with diplopia and altered level of consciousness. Kernig's sign was positive with left side abducent nerve palsy and bilateral papilloedema. Magnetic resonance imaging (MRI) of brain with angiography and venography revealed 4 tuberculomas, basal meningeal enhancement and thrombosis of superior sagittal and bilateral transverse venous sinuses. Cerebrospinal fluid (CSF) analysis revealed a lymphocytic pleocytosis with hypoglycorrhachia. CSF TB GeneXpert was positive. Chest radiography was normal. Sputum for acid fast bacilli was positive. Workup of CVST including thrombophilic, malignancy and autoimmune screening was negative. A case of disseminated TB complicated with CVST was diagnosed and patient was commenced on weight adjusted doses of individual antitubercular therapy (ATT) with dexamethasone according to guidelines. Subcutaneous enoxaparin followed by apixaban was commenced for the CVST. There was a marked improvement of her symptoms following treatment.

Discussion

TB-CVST occurs due to endothelial injury, stasis and release of procoagulants. Early diagnosis and prompt initiation of ATT with steroids and anticoagulation are of paramount importance.



Figure 01- MRI brain showing multiple rim enhancing lesions in bilateral frontal lobes

AP06-292

Genetic and Phenotypic Epidemiology of Multi-Drug Resistant Tuberculosis in Vietnam

Jack Callum^{1,2}, Phuong Nguyen^{2,3}, Elena Martinez³, Van-Anh Nguyen⁴, Frances Garden⁵, Nhung Nguyen^{6,7}, Thu-Anh Nguyen^{2,3}, Hoa Nguyen^{6,7,8}, Son Nguyen^{7,9}, Khanh Luu³, Jennifer Ho^{3,5,10}, Nguyen Linh¹², Warwick Britton¹¹, Vitali Sintchenko⁵, Greg Fox^{1,2,3}, Guy Marks^{3,5}

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Background and Aim

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Methods

Patients >15 years underwent annual screening for tuberculosis across Ca Mau Province, Vietnam, between 2014 and 2017. Sputum cultures that grew M tuberculosis were subjected to drug susceptibility testing (DST), using the breakpoint method, and whole genome sequencing (WGS).

Results

We identified 365 sputum cultures that grew M tuberculosis and processed 237 for DST and 265 for WGS. Resistance to rifampicin was present in 8 isolates (3.4%, 95%CI 1.8-6.8%). Rifampicin resistance was more common among patients previously treated for TB (22.2% vs 2.01%, $p < 0.001$). *rpoB* mutation occurred in 10 isolates (3.8%, 95%CI 1.8-6.8%) including 7 of those with phenotypic rifampicin resistance. Isoniazid resistance occurred in 7/8 isolates with rifampicin resistance. East-Africa-India lineage was most common (49.4% of isolates) followed by Beijing lineage (38.4%) then European-American lineage (8.4%).

Conclusion

Compared with other published estimates, the prevalence of rifampicin resistance was lower in this representative sample of isolates from the general population. This may reflect selection bias in samples received in reference laboratories.

AP06-293

Physical Medicine and Rehabilitation Management in Patient with Post-Tuberculosis Lung Disease and Low Cardiorespiratory Endurance

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Introduction

Post Tuberculosis Lung Disease is a risk factor for long-term respiratory impairment with pulmonary dysfunction and result in a decrease in functional status. It leads to muscle atrophy and impaired exercise capacity, resulting in reduced exercise capacity, daily life activities, and a poor quality of life. Pulmonary rehabilitation (PR) is a comprehensive program, performed by a multidisciplinary team, given to improve functional status.

Case Report

A 26-year-old female was consulted to Physical Medicine and Rehabilitation Department due to shortness of breath. She felt breathless at rest and worsened when doing light activities. Three years ago, she was diagnosed with lung tuberculosis and had completed taking 6 months of anti-tuberculosis drugs. This condition limited her daily activities, getting easily tired at work and had to resign from her job. The physical examination, the heart shift to the right and chest expansion was 2,5-3-3,5 cm. The functional test showed that 6MWT distance 439 meters (VO₂max prediction 16,02 mL/kg/min, 4,58 METs). Borg scale before 6MWT was 8-0-0 and after 6MWT was 13-4-0,5. Bronchoscopy showed cicatricial stenosis completely shut the right main bronchus. Thorax CT showed a right destroyed lung with anterior left-to-right herniation and total narrowing of the right main bronchus.

Discussion

Post Tuberculosis Lung Disease can involve airflow obstruction and/or restrictive ventilatory defects. PR program for endurance training, breathing exercise, air stacking exercise, chest expansion exercise, modalities and posture correction were given. After 8 weeks there was improvement in chest expansion, cardiopulmonary endurance, and muscle endurance.

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AP06-294

Linezolid induced peripheral neuropathy, a potentially serious irreversible complication of second-line ATT

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Introduction

All Anti Tuberculosis treatments (ATT) have adverse effects. There are some irreversible adverse effects or complications that can be occurred with second-line ATT drugs.

Case report

A 17-year-old girl with painless cervical lymphadenopathy was screened for possible lymphoma. On the grounds of high ESR, Positive Mantoux, and positive TB PCR from lymph node aspirate, diagnosed with TB lymphadenitis. Her chest X-ray was normal and there was no history of Tuberculosis or contact history. She has no other medical co-morbidities.

Following the first two weeks of the standard ATT regime, her liver functions got deranged and the ATT was temporally withheld. Meanwhile, her lymph nodes were enlarging with a purulent discharge. Incision and drainage were attempted, and the samples were sent for cultures. She was restarted on a bridging treatment with Streptomycin, Levofloxacin, Ethambutol, and Linezolid was added to the regime.

After two months, she complained of burning sensation and numbness along with the bilateral lower limbs up to the knee level. There was no visual impairment or upper limb numbness. Lower limbs examination revealed a sensory-motor peripheral neuropathy. She denied having numbness or motor weakness in the past. Her biochemical investigations were normal, and the nerve conduction revealed a bilateral sensory-motor involvement. Visual assessment and optic nerve assessment were normal.

Her culture was positive for mycobacterium tuberculosis, with sensitivity to standard ATT drugs. Linezolid was omitted. She was challenged with HRZE under close observation. Her lower limb symptoms were persisting with only a subtle improvement in her motor functions.

Discussion

The subacute progression of peripheral neuropathy in our patient without other risk factors, and the laboratory findings yielded no other possible cause of the neuropathy. There is no known treatment for linezolid-induced peripheral neuropathy, although drug discontinuation appears to result in partial resolution of symptoms in some patients.

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AP06-295

Multidrug resistant tuberculosis with chronic kidney disease principles of management

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Introduction

End-stage renal disease (ESRD) complicates therapy in MDR TB. Instead of short-term therapy, long-term oral guideline with periodic evaluation of renal function and drug side effects was used.

Case report

A 49-year-old male patient diagnosed with MDR TB and ESRD. In accordance with DST result, a combination of Bedaquiline, Moxifloxacin, Clofazimine, Ethionamide, and Delamanid was planned to be consumed for 16 months after culture conversion. Baseline serum creatinine levels is 5.9 mg/dL. The baseline QTc interval was 345-401. Patient was given Bedaquilin 400 mg for 2 weeks and 200 mg 3 times a week for 22 weeks without interruption, Moxifloxacin 400 mg per day Clofazimine 100 mg per day, Delamanid 100 mg twice a day and Ethionamide 750 mg. AFB conversion and culture obtained after 3 months of treatment. Clinical and radiological improvement was reported. There was no worsening in renal function and QTc prolongation during treatment. The patient is treated with Moxifloxacin, Clofazimine and Ethionamide as for continuation phase of therapy last at least 18 month in total.

Discussion

MDR TB in ESRD treatment is a challenge for clinicians to choose an effective drug guideline with minimal side effects. Guideline therapy for Bedaquilin, Delamanid, Clofazimine, Fluoroquinolones (especially Moxifloaxacin) is a concern because of the high risk of QTc prolongation and other cardiovascular effect. Even though this therapy guideline is proven to be effective and safe, but in more severe case QTC monitoring is necessity.

Keywords

TB MDR, end-stage renal disease, bedaquilin, delamanid, clofazimine, moxifloaxacin

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AP06-296

The Diagnostic Conundrum of Rifampicin-Induced Thrombocytopenia

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Introduction

Rifampicin is an effective antituberculosis drug but with its potential side effects. The diagnosis of Rifampicin-induced thrombocytopenia is challenging due to its rare occurrence and similar presentation with Immune thrombocytopenia (ITP).

Case report

A 52-year-old gentleman with history of treated pulmonary tuberculosis 10 years ago, presented with cough, fever, and night sweats for three months. His sputum was positive for acid-fast bacilli and he was started on Ethambutol, Isoniazid, Rifampicin, and Pyrazinamide tablets. 12 days post-treatment, blood investigations revealed severe thrombocytopenia with reduction of platelet from 485,000/mm³ to 1000/mm³. Full blood picture showed true thrombocytopenia without evidence of platelet clumping. He was initially treated as ITP after discussion with the hematologist and was started on intravenous immunoglobulin 20mg OD (0.4mg/kg) for five doses. Anti-tuberculosis drugs were also withheld.

After 5 days, the platelet normalized to 270,000/mm³ and he was reintroduced with rifampicin. However, his platelet reduced back to 2000/mm³ after only 3 days on Rifampicin, thus providing strong evidence of Rifampicin-induced thrombocytopenia. Rifampicin was subsequently stopped and his anti-tuberculosis regime was changed to Streptomycin, Isoniazid and Ethambutol with subsequent clinical improvement.

Discussion

Rifampicin-induced thrombocytopenia is uncommon but can be a potentially life-threatening complication. It should be suspected especially if there are no obvious secondary causes of thrombocytopenia as highlighted in our case.

AP06-297

Primary tuberculous ilio-psoas abscess presenting as a recurrent thigh abscess: A rare presentation of tuberculosis

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Introduction

Musculoskeletal tuberculosis accounts for 10% of EPTB and typically originates in bones and joints with secondary involvement of soft tissues. We report a case of primary involvement of ilio-psoas extending to thigh muscles.

Case report

49 year old businessman with sero-positive rheumatoid arthritis and NSIP was managed with MMF. He presented with low grade fever and right thigh pain for 2 weeks duration. He did not have respiratory symptoms or active arthritis. Examination revealed a febrile patient with a tender lump 3cm*4cm in the thigh. USS revealed an intramuscular abscess and he was managed with antibiotics and surgical debridement. Pyogenic culture and melioidosis antibodies were negative. He presented in 4 weeks with a recurrence of symptoms. MRI thigh revealed an intramuscular abscess in biceps-femoris with exterior communication via sinus tract. CECT abdomen and pelvis showed an ilio-psoas abscess extending to thigh with no evidence of spinal involvement. The biopsy of the thigh abscess showed chronic granulomatous inflammation and genexpert and TB cultures were positive. There was no evidence of pulmonary tuberculosis. The patient was treated with ATT and showed a clinical and radiological improvement.

Discussion

Mycobacterial ilio-psoas abscess is typically secondary to spinal tuberculosis. Isolated tuberculosis of iliopsoas muscle without coexisting active skeletal or extra skeletal tuberculosis is rare. Tuberculous ilio-psoas abscess can extend to thigh muscles along the psoas sheath and rarely present as a thigh abscess. Evaluation of thigh abscess requires extended imaging including thorax, abdomen and pelvis to detect the extent of the disease.

AP06-298

Lung function profile in post-tuberculosis patients

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Background

Post-tuberculosis (TB) lung dysfunction often remain unrecognised, despite its relatively high prevalence and its association with reduced quality of life. There is need to extent knowledge of lung function impairment in post-TB patients. Therefore, better management to increase quality of life in post-TB patients can be done. This study aims to evaluate the lung function status after six months completed TB treatment.

Methods

A cross sectional study was conducted on post-tuberculosis patients after six months completed TB treatment at Persahabatan Hospital, Jakarta during November 2021 until May 2022. Pulmonary function test including spirometry and lung diffusion capacity (DLCO) were done according to the American Thoracic Society (ATS) and European Respiratory Journal (ERS) recommendation.

Results

In this study we have (n=30), with 15 female and 15 male. We found that 4(13%) patients had restrictive disorder, 1(3%) patient with obstructive disorder, 12(40%) patients with mixed disorder and 13(43%) patients within normal limits. There were 23(76%) patients out of 30 patients with decreasing of diffusion capacity. There were 10 patients with moderate diffusion capacity impairment and 13 patients with mild diffusion capacity impairment. Forced vital capacity (FVC), forced expiratory volume in 1 s (FEV1), FEV1/FVC were respectively 2408±746 ml (78.7%±21.7), 1825±774 ml(71.9%±27.8), 74.6%±16.1. The mean of percent predicted DLCO were 71.5%±24.2.

Conclusion

We found that there are 56% patients with lung function impairment and 76% patients reducing of diffusion capacity in post-TB patients.

Keywords

Post-tuberculosis, lung function, diffusion capacity

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AP06-299

***Mycobacterium tuberculosis* strain association with clinical severity and rifampicin resistance of pulmonary tuberculosis patients**

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Background and Aim

It is believed that *M. tuberculosis* strains has adapted to its human host geographically and also to escape drugs, resulting different tendency of certain strains to develop severe disease and drug resistance. This study aims to analyze whether *M. tuberculosis* strains are related to clinical severity and rifampicin resistance of pulmonary tuberculosis patients.

Methods

This is an observational analytical study. Study subjects were pulmonary TB outpatients in Dr. Soetomo hospital from June 2021 to December 2021 who met inclusion and exclusion criteria. Multiplex PCR is used to detect *M. tuberculosis* strain. The clinical severity were calculated using bandim TB score and resistance were determined using Genexpert. The data is analyzed using chi square test.

Results

A total of 102 subjects have met the inclusion criteria. We grouped *M. tuberculosis* strains into Beijing and non-Beijing which were 48 (47.1%) and 54 (52.9%) respectively. Rifampicin resistance found in 72.9% of the Beijing tuberculosis strain and in 48.1% of non-Beijing strains confirmed strong association between *M. tuberculosis* strain and rifampicin resistance with $p=0.011$ ($p < 0.05$). Furthermore, abdomen appeared bloated with increased bowel sounds. Laboratory investigations showed anemia (8.9 g/dL), hypoalbuminemia (1.3 g/dL), negative HIV, stool acid-fast bacilli (AFB) showed 3+ (>10 AFB/field in 20 fields), and rapid molecular testing of sputum showed *Mycobacterium tuberculosis* detected rifampicin sensitive. Colonoscopy were not performed. She received anti tuberculosis drug immediately and discharged with clinical improvement after 5 days of treatment.

Conclusion

Diagnosis of intestinal TB is challenging. Thus, various diagnostic modalities are carried out to investigate the disease, which is problematic in areas with limited health facilities. According to Sekine et al, stool AFB has sensitivity 37% (22-54) and specificity 96% (87-100). This result is no longer different with biopsy and intestinal fluid sample from colonoscopy. Stool AFB examination is crucial, especially in this situation because early identification and treatment are expected to provide a better prognosis.

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AP06-300

Efficacy of treatment of XDR-pulmonary tuberculosis in newly diagnosed and previously treated

Alexey Tikhonov (Russia)*, Vladimir Romanov, Atajan Ergeshov

Objective

to evaluate the effectiveness of treatment of XDR-pulmonary tuberculosis in newly diagnosed patients and previously treated.

Methods

a retrospective study. From 2016 to 2021, 250 patients with XDR-tuberculosis were treated at the Central Research Institute. The patients were divided into 2 groups, the 1st group consisted of 49 newly identified patients with lung destruction and bacterial excretion who received chemotherapy and underwent surgical treatment. The 2nd group included 201 previously treated patients who received chemotherapy and surgical treatment. All patients received basic TB therapy for 24 months. A comparison was made between the closure of the decay cavities and sputum negation in patients of groups 1 and 2 after 8 months. Results: in group 1, 35 patients (71.4%) had decay cavities closed by 8 months of treatment. In group 2 patients, the cavities were closed in 113 cases (56.2%). Sputum negation in group 1 was observed in 41 patients (83.7%) after 8 months, in group 2 negativity was observed in 153 cases (76.1%). ($P1-2 < 0.05$). Surgical treatment by the 8th month of treatment was used in group 1 in 38 patients (77.6%), in group 2 in 139 patients (69.2%).

Conclusions

in the treatment of XDR-TB in newly diagnosed patients, according to the criterion of sputum negation and cavity closure, better results were observed than in previously treated patients.

AP06-301

Profile of Multi Drug Resistance (MDR) patients at Soedarso General Hospital from January 2021 to December 2021

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Background

The increasing prevalence of drug-resistance Mycobacterium tuberculosis infection is a medical concern world wide especially in Indonesia. Based on data from Ministry of Health 2019 there were 11.500 confirmed cases of Rifampicin Resistance with success rate around 5%.

Aim

to determine the profile of MDR TB patients treated at Soedarso General hospital from January 2021 to December 2021.

Methods

This was descriptive retrospective study based on secondary data of medical record in period January to December 2021 which fulfilled the inclusion and exclusion criteria.

Result

There were 48 cases of MDR TB at Soedarso General Hospital from January to December 2021. MDR TB cases in men (N =32, 66,7%) were more common than women. Mostly MDR TB was found in 36-45 year age group (N=13, 27,1%). The most comorbid case was Diabetes Mellitus (N =12, 27,3%) and primary case found in 5 patients (10,42%).

Conclusion

MDR-TB cases are found more in men than women, in 36-45 age group, the majority comorbid is Diabetes Mellitus and 10, 42% patients had primary MDR TB case.

AP06-302

Long-term Neurocognitive Outcome in Adult Tuberculous Meningitis: a Systematic Review

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Background and Aims

Tuberculous meningitis (TBM) is an infectious diseases of the central nervous system that are still a global health challenge, including Indonesia. Patients who survive after experiencing TBM have a risk of functional, neurocognitive and psychological disorders that will affect daily activities. The aim of this study is to present a comprehensive review of data on neurocognitive outcome after TBM infection in adults.

Methods

We conducted a systematic literature search to identify studies addressing cognitive outcomes in adult TBM patients. Following a systematic literature search (Pubmed, Scopus, Ebsco), studies underwent duplicate screening by independent reviewers to assess eligibility for inclusion. Three independent reviewers extracted data from included studies.

Results

Among the article identified, there are 8 studies met our inclusion criteria, reporting on cognitive outcomes for 468 adults with TBM. All studies followed the patients for 12 months or more. Three studies used Mini-Mental State Examinations (MMSE) to assess cognitive function, while other studies used a variety of tools: HIV-associated neurocognitive disorder (HAND), Montreal Cognitive Assessment (MoCA), neuropsychological (NEUROPSI), and Wechsler Adult Intelligence Scale (WAIS). All studies reported an improvement in cognitive function after completion of TB therapy. Two studies comparing TBM with HIV, and showed TBM patients with HIV had worse cognitive outcomes than those without HIV.

Conclusion

Cognitive function assessment tools in TBM patients are diverse and after approximately 12 months of follow-up in patients on TB therapy, there was improvement in cognitive function. Standardized reporting of neurocognitive outcomes will be essential to improve data quality and data-sharing potential.

AP06-303

MIC Distribution of Anti-Tuberculosis Drugs in Mycobacterium tuberculosis Clinical Isolates from cPMTb Cohort

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Background

Minimum inhibitory concentration (MIC) of antibiotics has been widely conducted for drug susceptibility test (DST) of most bacterial infectious diseases, except tuberculosis (TB). Current phenotypic DST for TB uses one or two critical concentrations to determine the resistance of anti-TB drugs. The MIC test is necessary for therapeutic drug monitoring-based precision medicine and detecting borderline resistance to anti-TB drugs. Here, we present the distribution of MIC of anti-TB drugs among cPMTb cohort Mycobacterium tuberculosis (Mtb) isolates.

Methods

From 2019 to 2021, 408 Mtb strains were collected in the cPMTb cohort. The broth microdilution method in 96-well plates was used for the MIC test of anti-TB drugs, except for pyrazinamide (PZA). MGIT960 system was used for PZA MIC determination.

Results

The proportions of drug-resistant (DR) and drug-susceptible (DS) strains were 14% and 86%, respectively. Most of the DS MIC were distributed below the critical concentration of the drug. This study has found eight mismatched cases between MIC results and phenotypic or genotypic DST. Half of them were phenotypically INH low-level resistant but couldn't be detected genotypically for their minority.

Conclusion

MIC of cPMTb cohort 408 strains were distributed mostly below the critical concentration of all drugs. This MIC data could be used for the pharmacological index for the Korean population. As we found eight mismatched cases, the MIC test could be utilized to overcome the limitation of phenotypic DST using critical concentration and fill the gap between genotypic and phenotypic DST.

AP06-304

The role of thoracoscopic in the treatment of early sequelae of tuberculous pleural effusion in national lung disease hospital - vietnam in 5 years 01 / 2017 - 01 /2022

Do VU (Viet Nam)*

Background

Thoracoscopic may be used to treat the early sequelae of tuberculous pleural effusion with the good result

Objectives

Describe some characteristics of clinical, radiological and results of thoracoscopic in the treatment of the early sequelae of tuberculous pleural effusion

Methods

160 patients ages more than 15 years of tuberculous pleural effusion treated the early sequelae by thoracoscopic in National lung disease hospital from 01/2016 -01/2021.

Results

Among the study group: Males 90.7%, Females 9.3 %. The most frequent indication is pleural cavity encysted and pleural symphyses 108 patients (67.5%), pleural cavity encysted 26 patients (16.2%). Complications postoperative 15 patients (9.4%), no death. The mean pleural drain removal at $2,3 \pm 2,9$ days post-operation. The mean hospital stay postoperative $5,2 \pm 3,6$ days. The result after surgical treatment: 146 patients (91.2%) no pleural effusion with completely re- expansion of lung, 13 patients (8.1%) no pleural effusion with slight pleural thickening.

Conclusion

Thoracoscopic surgery for the sequelae of tuberculous pleural effusion is a method of treatment of a good security with a small percentage of complications and a good result.

AP06-305

An unusual presentation of disseminated tuberculosis

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Introduction

Mycobacterium tuberculosis with bone marrow involvement is rare. Hematological abnormalities associated with bone marrow tuberculosis include anemia, leukemoid reaction, and rarely pancytopenia.

Case report

We report a case of a 49-year-old man who presented with neck swelling and weight loss for 2 months. He had mild hepatosplenomegaly and cervical lymphadenopathy. Chest radiograph revealed diffuse miliary opacities. A complete blood count revealed severe thrombocytopenia (platelet count: $27 \times 10^9/L$), anemia with hemoglobin of 3.9 g/dL, and leucopenia (white cell count: $2 \times 10^9/L$). Cervical lymph nodes biopsy and bone marrow aspiration with trephine showed necrotizing caseating granuloma. Contrast-enhanced computed tomography showed miliary nodules, splenomegaly microabscesses, cervical and mediastinal lymphadenopathy. His serum IgG, IgA, and IgM were normal. Liver function tests, blood urea, and electrolytes were within the normal range. The common risk factors such as diabetes, human immunodeficiency virus infection, malnutrition, and immunosuppressant therapy, which might contribute her to being vulnerable to TB, were not found. He required a packed cell transfusion. Antituberculous therapy was initiated, including rifampicin, isoniazid, ethambutol, and pyrazinamide. He was clinically responded well to the antituberculous regimen.

Discussion

Pancytopenia in disseminated tuberculosis is due to the replacement of marrow cells or suppression through the release of interferons and lymphotoxins or deposition of mycobacterial antigen on the platelet surface. Disseminated tuberculosis remains a diagnostic challenge because of the nonspecific manifestations and negative microbiological and atypical radiologic findings.

AP06-306

Tuberculosis Presented as Confined Lower Paraaortic Lymphadenopathies in a Low CD4 Count Non-HIV Female Adult: A Case Report

Jetruide Kimverly Mae Segui (Philippines)*, Mariel Barcelon-Cruz

Introduction

For decades, tuberculosis is one of the most common infectious disease encountered in the Philippines, as per 2017 health statistics, it still ranked eighth as the leading cause of mortality in the country [1]. Tuberculosis affects different organ system commonly the lungs, followed by the brain, spine, meninges and lymph nodes. Lymph nodes commonly involved are the cervical, axillary and mediastinal. It may occur with upper para-aortic lymph nodes if with secondary gastrointestinal involvement, and rarely lower para-aortic lymph node in the presence of genitourinary infection but few reported without the said infection. [2]

Case Presentation

A 34-year old, female, admitted at our institution due to persistent low back pain for a month duration. She doesn't exhibit any respiratory nor urinary symptoms or any clinical signs of tuberculosis. Imaging of whole abdominal CT scan was done, which noted to have multiple enlarged lower para-aortic lymphadenopathis, other lymph nodes were unremarkable, this strongly suggest lymphoma versus metastasis, hence biopsy was done. The biopsy showed acute on chronic inflammation with chronic granulomatous inflammation, necrosis and fibrosis, strongly suggesting of tuberculosis and thereafter was then detected thru TB-PCR. Work-up for immunodeficiency state was done which also revealed seronegative for HIV with low CD4 count secondary to infectious state of TB, ruled out presence of malnutrition and malignancy [16], and was then diagnosed and treated as tuberculous adenitis with noted improvement of symptoms.

Conclusion

This case highlights presentation of isolated lower para-aortic lymphadenopathy in a low CD4 count and HIV seronegative patient without evidence of genitourinary infection, due to its broad differential diagnoses and diverse management, it warrants high index of suspicion, early detection and management to avoid any fatal complications.

AP06-307

A middle aged woman with DM type 2 (diabetic mellitus type 2) and silicotuberculosis : a case report

Susi Subay (Indonesia)*, Winariani Koesoemoprodjo, Adhitri Anggoro

Introduction

Silica dust exposure occurs in several industries in the world and causes health problems. Nearly 10% of industrial workers have been exposed to silica dust in excess of the safe exposure limits¹. TB (tuberculosis) is the biggest health problem faced by most developing countries, including Indonesia². Silicosis patients have a 2.8 to 39 times greater risk of developing Lung TB.

Case Illustration

A-44 years old woman worker in wig factory came to an ER (emergency room) with chief complaint is shortness of breath and worsening in the last week. There is cough for 1 month and worsening in last week, fever, fatigue, lost of appetite and bodyweight.

Discussion

This patient has DM type 2 that easily to get lung infection like TB and GeneXpert sputum result is MTb detected medium. History of working in a wig factory for 20 years, which is a risk of developing silicosis. From CT scan we got massive fibrosis with multiple thick-walled cavities suggesting silicotuberculosis and from bronchoalveolar lavage, there is 5.97 ppm SiO₂ of Silica. In this case, DM type 2 and history of silica dust exposure from her workplace (wig factory) make her susceptible to silicotuberculosis.

AP06-308

Double trouble , Bronchopleural Fistula and pleurocutaneous fistula in a single patient.

Madhushi Nanayakkara (Sri Lanka)*, Chandana Dahanayaka, Ayesha Jayawardana, Malinda Hettiarachchi, Eshanth Perera

Introduction

Bronchopleural fistula (BPF) is a sinus tract between a bronchus and the pleural space. It occurs most commonly after pneumonectomy or lobectomy. Out of infections tuberculosis(TB) is the most common infective cause for BPF.

Case report

A 55 year old male with a four month history of extra pulmonary TB and poor drug compliance, presented with one day history of abrupt onset pus discharge and gush of air coming out from the past Video assisted Thoracoscopy (VAT)site preceded by heavy bout of cough. Six months back he had undergone evaluation for right side hydro pneumothorax complicated with bronchopleural fistula. At that process he had been put intercostal chest tube failing which underwent VAT decortication. Examination revealed mucopurulent material coming through the sinus. Sputum direct smear for Acid Fast Bacilli(AFB), Pyogenic culture, AFB direct smear of the sinus discharge were negative. Contrast Enhanced CT of the chest (CECT) showed an encysted pneumothorax with persistent BPF connecting it with right middle lobe and there was no evidence of pleural effusion . Also clusters of tree in bud nodules were noted in both lungs ,indicating active pulmonary tuberculous disease. Fistulogram showed, pluerocutaneous fistula. Patient refused surgical interventions. Therefore managed with ATT and chest physiotherapy.

Conclusion

Empyema necessitans occurs when infected pleural fluid extends spontaneously in to the chest wall. This may occur as a result of partially treated chronic infections or as in this patient it may be facilitated by previous surgical procedures. Double fistula formation as in this patient is very rare.

AP06-309

Markers of clinical and radiological features of pulmonary tuberculosis related to the duration and characteristics of the inflammatory process in adult patients

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The purpose of our study was to identify the important clinical and radiological features, related to the development of pulmonary tuberculosis (TB), taking into account the duration and characteristics of the inflammatory process in adult patients.

Materials and methods

This is a prospective cohort study with culture-confirmed pulmonary TB from 15 regions of Ukraine. To study molecular mechanisms of drug resistance (DR), we performed full bacterial genome sequencing for DNA isolated from sputum samples. All patients under study underwent a standard chest X-ray test. All data of this study were collected as part of the international TB Portals program.

Results

2775 patients with TB were examined. According to laboratory drug susceptibility tests, the following percentages of resistant TB: MDR-TB-52.3% of all patients, Susceptible-TB-17.7%, XDR-TB-13.2%, Pre-XDR-TB-10.8%, Mono-resistant-TB-5.1%, Poly-resistant-TB-0.9%. For our cohort, 63% of patients did not have TB before (Case definition: New), 28.2% of patients had previously been treated for TB (Case definition: Relapse), and 6% and 2.8% of cases were identified as "Treatment after failure" and "Treatment after lost to follow-up". Our visual examination of X-ray data identified the following forms of the TB-process in the lungs: focal, infiltrative, caseous pneumonia, tuberculoma, miliary, disseminated, fibrous-cavernous and cirrhotic-TB. The distribution and prevalence of these forms were studied in the context of drug resistance and clinical history.

Conclusions

As a result of our analysis, taking into account the drug resistance factor as well as previous clinical history, we were able to identify the prevalent features of TB in adults in the form of focal, infiltrative, caseous pneumonia, tuberculoma, miliary, disseminated, fibrous-cavernous and cirrhotic forms. Each of these forms has clinical significance for the diagnosis and treatment of TB in patients.

AP06-310

Successful Treatment of Relapse Cutaneous Tuberculosis on Pregnant Woman with Ethambutol Allergic

Evelyn Nathania (Indonesia)*, Evelyn Nathania, Jahja Teguh Widjaja, Dian Puspitasari

Introduction

Tuberculosis infection is one of health problem in Indonesia and other developing countries. Infection among pregnant women often reveal unspecific clinical manifestation and cutaneous tuberculosis is a rare form of extrapulmonary tuberculosis

Case

A Pregnant woman with gestational age of 6-7 weeks visited our hospital with major complaints of red spots on her cheeks, physical examination reveals plaque with scales and the patient underwent punch biopsy. Histopathology examination showed unspecific finding, however PCR examination revealed Mycobacterium tuberculosis. About one year ago, patient suffered cutaneous tuberculosis and only treated with Rifampicin, Isoniazid and Levofloxacin, pyrazinamide and ethambutol were not given due to a strong suspicion of allergy to these drugs. She suffered relapse cutaneous tuberculosis and was given rifampicin, isoniazid and pyrazinamide. After 2 weeks the skin lesion improved significantly, and ethambutol was added into the regimen. The patient suffered from drug eruption, ethambutol discontinued, the skin lesion disappears after 4 months of treatment. We continued the regiment for one year and she showed better condition and delivered a healthy baby boy.

Discussion:

Cutaneous tuberculosis is the rare form of extrapulmonary tuberculosis (1-1.5%) and hard to diagnose and treat especially in pregnant woman. Pregnancy also carries its own risk and not to mention the drugs adverse event. Allergic to one of its drugs can increase its risk of being resistant and increase its mortality and morbidity. A prompt treatment is needed for tuberculosis patients, especially in pregnancy woman. An early detection and examinations are required to diagnose it properly.

AP06-311

A Rare Case of Dactylitis Tuberculosis

Sri Mayasari (Indonesia)*, Irawaty Djaharuddin, Edward Pandu Wiriansya

Background

Indonesia is the second largest contributor of Tuberculosis with a figure of up to 8.4% according to WHO (2020). Of all cases of extrapulmonary tuberculosis, Tuberculosis Arthritis has a percentage of about 10-11%. Whereas, Tuberculosis Dactylitis of the metacarpals and phalanges has a very rare percentage, with only 1% of Tuberculous Arthritis.

Case Report

A 58-year old man was consulted with recurrent swelling of the right metacarpal and had a tumor removal in that area. Specific granulomatous inflammation suggestive of tuberculosis was found as a result of tissue histology. Mycobacterium tuberculosis was detected in the molecular rapid test of pus tissue, although this was not the case from the molecular rapid test of sputum. No abnormalities were found on chest X-ray. The final diagnosis of the patient was metacarpal tuberculosis.

Discussion

A small percentage of Tuberculosis is found in the smaller joints such as the carpal joints, metacarpal joints and finger joints which is called tuberculous dactylitis. Tuberculosis infection of the joints tends to spread haematogenically. The initial phase of infection is characterized by inflammation of the metacarpal area which is clinically symptomatic of joint swelling, muscle spasm and limitation of joint motion. In advanced stages, granuloma formation occurs which induces joint effusion and pannus formation which initiates cartilage destruction. Molecular and histopathological tests in cases of arthritis tumors in areas that still have a high prevalence of TB can help for rapid diagnostics and integrated management of extrapulmonary tuberculosis.

Keywords

Tuberculous Dactylitis, Tuberculosis arthritis, Metacarpal Tuberculosis

AP06-312

What brings patients to the TB clinic? closing the case gap; findings from a district chest clinic in Sri Lanka

Sammani Wijerathne (Sri Lanka)*, Jeevani Samaraweera, Mangala Karunaratna, Nihal Jayaweera, Lal Pushpakumara, Sumedha Samankantha

Background and Aims

Sri Lanka is a low burden tuberculosis (TB) country with high health standards. Each district of the country has a chest clinic dedicated to the control of tuberculosis. However, according to WHO there is a case gap of 4000 between the number of estimated and detected cases. Patients with suspected TB not reaching the clinic or presenting delayed is one of the reasons for low case detection. The aim of this study was to find out how patients presented to the chest clinic in order to improve case detection.

Methods

Data from all TB cases over a period one and half years were collected from clinic records. Type of tuberculosis, distance to the clinic and how the patient presented to the clinic were recorded.

Results

150 cases were detected. 118 (79%) pulmonary TB and 32 (21%) extra pulmonary TB. 64% lived within 20km and 33% lived between 20 to 40km from the clinic. 59(39.3%) were referred from a hospital or ward other than a respiratory department. Respiratory department referrals were 79 (52.6%). Self was 2(1.3%), from GP s 7(4.6%), from screening 3 (2%).

Conclusion

Majority of the patients were sent by hospitals. From community only 6% were sent, either by GP or self-referral. This may reflect the case detection gaps particularly at early stages, more ill and late presentations coming via treating facilities. Improving awareness at community level, among patients as well as health care providers, can help bringing in more patients to chest clinics, thereby improving case detection.

AP06-313

Co-existing pulmonary aspergillosis with pulmonary tuberculosis (TB) in human immunodeficiency (HIV) patient: a case report

Titin Dani Martiwi (Indonesia)*, Eppy Eppy, Putri Permata Sari, Erlina Burhan, Heidy Agustin, Dewi Yenita Sari

Introduction

Pulmonary aspergillosis is fungal invasion in parenchymal lung. It usually in immunocompromise patient such as HIV are risk accompanied by opportunistic infection. In rare case, pulmonary tuberculosis can also be accompanied by pulmonary aspergillosis whose complaints recurrent hemoptysis. We report a patient with concomitant pulmonary aspergillosis with pulmonary tuberculosis in HIV patient.

Case report

A female, 44 years old came with recurrent hemoptysis. She was diagnosed with pulmonary tuberculosis and currently still on anti-tuberculosis drug. She had twice history of pulmonary tuberculosis and recovered. She also had HIV on antiretroviral for one year and diabetic mellitus type II on anti-diabetic oral for five years. During hospitalization anti-tuberculosis drug was continued and also received itraconazole 200mg. Complaint of hemoptysis was reduced. On physical examination, vital signs were within normal. Laboratory results showed blood glucose 285 mg/dL and HbA1C 9,4%, CD4 was 434 cells/mL, HIV viral load was 26.300 copies/mL. The microbiological result of Acid-fast bacillus (AFB) smear, molecular rapid test and culture were negative. Chest X-Ray and chest CT scan with contrast showed fibro infiltrate and cavity on right lung with impression pulmonary tuberculosis and suspect fungal infection. Positive galactomannan serum was found.

Discussion

Diagnosis of TB was based on clinical dan radiological feature even though the microbiological result were negative. While diagnosis pulmonary aspergillosis was based on complaint of recurrent hemoptysis, cavity on right lung in CT scan and confirmed by positive galactomannan serum. Risk factors for this patient has pulmonary aspergillosis were immunocompromise (HIV and DM type 2) and recurrent pulmonary tuberculosis.

AP06-314

Secondary pyomyositis in a Tuberculosis prevelant country

Madhushi Nanayakkara (Sri Lanka)*, Chandana Dahanayaka, Ayesha Jayawardana, Malinda Hettiarachchi, Eshanth Perera

Introduction

Pyomyositis is an acute bacterial infection of skeletal muscle that leading to localized abscess formation.

Case discussion

A 26 year old patient who had started on Anti tuberculous treatment for sputum positive pulmonary TB 9 weeks back, presented with worsening of cough for one month duration and painless anterior chest wall lump for two weeks. He had undergone renal transplant 5 months back and was on immunosupressants. Recipient and donor screening for Tuberculosis prior to renal transplant was negative. His peripheral oxygen saturation was 95%. He had non tender, anterior chest wall lump with pus discharge over the right first intercostal space. Contraste Enhanced Computed Tomography of the chest showed Anterior chest wall collection 95x41x84mm in size. it was predominantly intramuscular within the pectoralis major and minor muscles with localized extension in to subcutaneous tissue through a focal breach in the anterior facial layer. Also it had Intrathoracic extension in to the superior mediastinum through the 1st intercostal space forming 5.3x2x5cm size septated thick wall collection underneath 1st and 2nd costochondral junctions. Multiple enlarged and matted mediastinal lymphnodes were also noted. TB GeneXpert was positive from the abscess discharge. m-Pigtail catheter drainaige of the abscess was done. ATT continued along with immunosupressant and patient had complete resolution.

Conclusion

Pyomyositis of the pectoralis major muscle secondary to Tuberculosis is a rare manifestation of disseminated tuberculosis since skeletal muscles are not considered as a good source for Tb bacilli to grow.

AP06-315

Detection of stool acid-fast bacilli examination in intestinal tuberculosis : a rare case report

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Introduction

Tuberculosis (TB) is a global health issue. In 2020, around 1.3 million peoples died from TB. Extrapulmonary tuberculosis such as intestinal tuberculosis is rare and can present with or without pulmonary symptoms. Diagnosis can be missed since the symptoms are similar to other abdominal diseases thereby increasing mortality.

Case report

A 22-year-old woman presented to the hospital with chief complaint diarrhea in 1 month and worsen 3 days before admission. She also complained intermittent abdominal pain and fever, malaise, nausea, and weight loss of 12 kg in the last 3 months. There was no history of tuberculosis. She appeared cachectic and muscle wasting. The patient's body mass index was 11 kg/m². Furthermore, abdomen appeared bloated with increased bowel sounds. Laboratory investigations showed anemia (8.9 g/dL), hypoalbuminemia (1.3 g/dL), negative HIV, stool acid-fast bacilli (AFB) showed 3+ (>10 AFB/field in 20 fields), and rapid molecular testing of sputum showed Mycobacterium tuberculosis detected rifampicin sensitive. Colonoscopy were not performed. She received anti tuberculosis drug immediately and discharged with clinical improvement after 5 days of treatment.

Discussion

Diagnosis of intestinal TB is challenging. Thus, various diagnostic modalities are carried out to investigate the disease, which is problematic in areas with limited health facilities. According to Sekine et al, stool AFB has sensitivity 37% (22-54) and specificity 96% (87-100). This result is no longer different with biopsy and intestinal fluid sample from colonoscopy. Stool AFB examination is crucial, especially in this situation because early identification and treatment are expected to provide a better prognosis.

AP06-316

Comparison before and after the introduction of tuberculosis adequacy assessment in Korea in Veterans Health Service Medical Center

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Background and Aim

Health Insurance Review and Assessment Service has been conducting an adequacy assessment for tuberculosis since 2018 to improve the quality of treatment and to establish an effective tuberculosis management policy. The purpose of this study is to compare the data before and after the introduction of the adequacy assessment based on tuberculosis patients treated at a single institution to evaluate its effectiveness.

Methods

From 2015 to 2021, a total of 701 patients registered with tuberculosis at Veterans Health Service Medical Center were reviewed. A total of 541 patients were analyzed after excluding the number of people due to transfer to other treatment institution or misdiagnosis.

Results

Before and after the introduction of the tuberculosis adequacy assessment, 261 and 280 patients, respectively, received anti-tuberculosis treatment. There was no significant difference between the two groups in age (74 vs 77, median) and sex (28 vs 40, female patient). But the number of people who did not perform drug susceptibility test (30 vs 18, $p < 0.001$) and the number of visits during the treatment period for tuberculosis (3.9 ± 1.66 vs 4.6 ± 1.79 , $p < 0.001$) showed a significant difference between the two groups. There was no significant difference in treatment success between the two groups (78(29.89%) vs 87(31.07%), $p = 0.0897$).

Conclusion

Comparing before and after the introduction of the tuberculosis adequacy assessment in a single institution, there was a significant difference in performing drug susceptibility test and the number of visits during tuberculosis treatment period, but there was no significant difference in the treatment outcome.

AP06-317

A-rare case report: Cholangitis with stricture of the bile ducts in hepatobiliary tuberculosis

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Introduction

Abdominal tuberculosis (TB) is uncommon, comprising 3,5% of extrapulmonary TB, and hepatobiliary TB is very rare. Hepatobiliary TB includes miliary, tuberculous hepatitis or localized forms. Here we reported a rare case of cholangitis with stricture of the bile ducts in hepatobiliary tuberculosis.

Case report

A 37-year-old male presented with jaundice, right hypochondriac pain, significant loss of weight & appetite, and elevated liver function more than five times. Contrast enhanced CT of the abdomen showed intra and extrahepatic cholestasis ec suspect stenosis of distal common bile duct (CBD). Magnetic resonance cholangiopancreatography (MRCP) showed dilated intra hepatic biliary ducts and strictures of CBD. An exploratory laparotomy has done and seen dilated of gallbladder (GB) and distal CBD, punctured clear fluid from GB and distal CBD, multiple nodules appear on the curvatum minona and a biopsy is performed. Histopathology showed lymphoid follicles with foci of caseous necrosis with histiocytes and datia langhans suggested tuberculosis.

Discussion

The patient's diagnosis was hepatobiliary TB with cholangitis and bile duct stricture. There was also cholelithiasis which most likely caused by tuberculous cholangitis. The patient underwent biliary drainage during surgery to treat infection, improve liver function and administered antibiotics. In this case, the patient received anti-tuberculosis therapy and added a hepatoprotector. Clinical improvement is frequently seen within 2-3 month. The duration of therapy is recommended generally for 1 year. Study shows that with 4 drug regimen (isoniazid, rifampicin, ethambutol and pyrazinamide) 67% of cases respond well with good clinical response.

Keywords

Tuberculosis, Hepatobiliary, cholangitis, common bile duct

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AP06-318

Online quiz: An innovative formative assessment strategy for undergraduate medical students

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Background

It has been challenging to maintain interactive sessions with students and conduct assessments online due to the limitations of in-person training in the pandemic era. At each stage of the teaching learning process, formative evaluation is essential as it entails constant feedback and correctives. With the support of good formative evaluations, students can control their own performance.

Methods

We conducted three interactive online quiz and explore the educational value of formative assessment using online quiz for evaluating the students on the lesson "laboratory diagnosis of tuberculosis". Telegram Chatbot Quiz (Telegram Messenger Inc, London, UK) feature was to be used to build a real time online quiz. A telegram group of 100 undergraduate students enrolled in our undergraduate program was created. Sixty questions were formulated and the quiz was conducted in real time in three separate sessions. Before conducting the quiz, a preparatory session was organized. Each quiz session was followed by a group discussion and feedback questionnaire. For the group discussion session 100 students were divided into 4 groups, each comprising of 25 students. For each group discussion was conducted by a resident (post-graduate) using Zoom (Zoom Video Communications, Inc., San Jose, CA, USA).

Results

91 % of students attended the all the quiz sessions. 73 % of students responded to the feedback questionnaire with an 87 % satisfaction rate.

Conclusion

Online Quiz sessions is an innovative and interactive evaluation strategy that can be utilized for formative assessment of undergraduate medical students.

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AP06-319

A case of Contarini's Syndrome in a COVID-19 positive with viral myocarditis and diabetic ketoacidosis

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Introduction

Contarini's syndrome refers to the occurrence of bilateral pleural effusion with different etiology for each side. To date, only two published cases have recorded a tuberculous effusion on one side.

Case report

This is a case of a 69 year old female with a 7-week history of dyspnea, 2-pillow orthopnea, fever, and right-sided chest discomfort. Patient sought consultation and was prescribed with diclofenac and cefalexin.

Patient was admitted and intubated due to worsening dyspnea. Patient was managed as COVID-19 confirmed critical with viral myocarditis, CAP-HR, and diabetic ketoacidosis. Piperacillin tazobactam, azithromycin, dexamethasone, N-acetylcysteine, salbutamol ipratropium, and insulin were started. Pertinent tests included WBC of 6.1 with neutrophilic predominance and elevated procalcitonin. Chest Xray showed right-sided pleural effusion. Thoracentesis was done and revealed exudative pleural fluid (PF) with WBC of 20,000 with neutrophilic predominance, elevated glucose, low triglycerides and cholesterol and negative RT-PCR MTB. Cytology revealed acute inflammatory pattern. *Klebsiella pneumoniae* ESBL was isolated. Antibiotics were shifted to levofloxacin and meropenem.

Repeat Chest Xray showed left-sided pleural effusion. Thoracentesis was done and revealed exudative PF with WBC of 1,680 with neutrophilic predominance. No organism was isolated. RT-PCR for MTB was detected. Thus, anti-TB therapy was initiated.

After three weeks, ETA TB culture showed resistant to isoniazid, rifampicin, and pyrazinamide. *Acinetobacter baumannii* was isolated in blood. Antibiotics were completed for 14 days. Patient was eventually extubated and transferred to the ward.

Discussion

Among patients with bilateral pleural effusion, PF drainage and tests should always be considered. This will lead to a more accurate diagnosis.

AP06-320

Tuberculosis in organo-genitalia feminine : A case report

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Introduction

Extrapulmonary tuberculosis is the most problems facing our country, which has high prevalence (16%). Extrapulmonary tuberculosis such as genital tuberculosis is caused by Mycobacterium tuberculosis around 4-9% of extrapulmonary tuberculosis. It is difficult to diagnose because most of the symptoms are usually atypical which mimicking gynecological conditions. Investigations and multimodality management (surgery and antituberculosis therapy) are required to obtain great prognosis.

Case report

A 38-year-old woman was consulted from the Obstetrics and Gynecology Department with lump in the lower abdomen that was getting bigger and accompanied by abdominal pain for 6 months. There has been drastic decrease in satiety and weight in the last 3 months. There was no history of prolonged cough and night sweats. Ultrasound examination showed suspicion of uterine myoma. MSCT scan abdomen showed myoma and lower uterine segment mass. Chest X-ray result was normal. The patient was diagnosed with Neoplasm Ovarian Cyst was suspected malignancy and uterine myoma. Laparotomy and myomectomy were performed. Cytology results showed non-specific chronic cervicitis. Histopathological examination showed epithelioid granuloma cells with Datia Langhans cells and extensive caseous necrotic areas in the myometrium, endometrium and left fallopian tube. final diagnosis is tuberculosis in organo-genitalia feminine with uterine myoma and treated the patient with first-line anti-tuberculosis drugs.

Discussion

Genital tuberculosis should be considered as one of the differential diagnoses for patients with infertility and signs of gynecologic malignancy, especially those of reproductive age and living in endemic areas. Great prognosis is achieved with early diagnosis and prompt intervention.

Keywords

Feminine organo-genital tuberculosis, uterine myoma, multimodality management

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AP06-321

Secondary pulmonary alveolar proteinosis caused by *Mycobacterium Tuberculosis*: A case report

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Introduction

Pulmonary alveolar proteinosis (PAP) is a rare diffuse interstitial lung disease. PAP can be congenital, autoimmune, or secondary PAP. Secondary PAP caused by tuberculosis has a unique type of tuberculosis that can be misdiagnosed and lead to delay and failure in treatment.

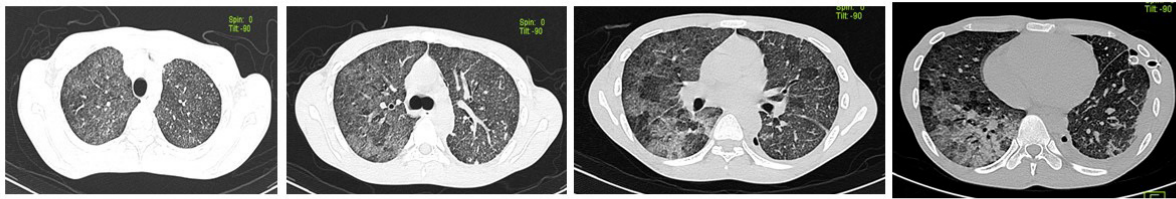
Case report

We report a 21-year-old male patient with dyspnea and dry cough. He had no specific history of exposure or smoking. The physical exam found a decrease in auscultation of both lungs. There were no special serum test results. High-resolution computed tomography revealed multiple pulmonary nodules along with the “crazy-paving” pattern. The bronchoalveolar lavage has a milky color and the result of GeneXpert MTB/RIF for *Mycobacterium Tuberculosis* was positive, with no Rifampicin resistance. He was given the first-line tuberculosis treatment and recovered well. After 1 month of treatment, the symptoms disappeared and at the end of treatment, all the lung damage has been gone.

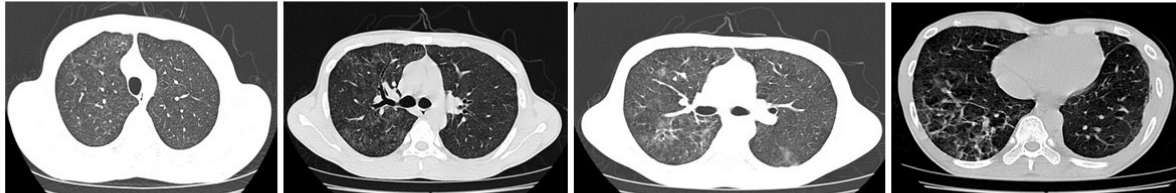
Discussion

Pulmonary alveolar proteinosis caused by tuberculosis is a unique form of tuberculosis. The diagnosis was based on the clinical manifestations, radiological findings, and bronchoalveolar lavage examination. Anti-tuberculosis regimens are effective and can reverse most of the lung damage if having an early diagnosis and prompt treatment. Gene-Xpert MTB/RIF test for tuberculosis is an essential test for any progressive pulmonary infection cases, especially in high burden tuberculosis countries.

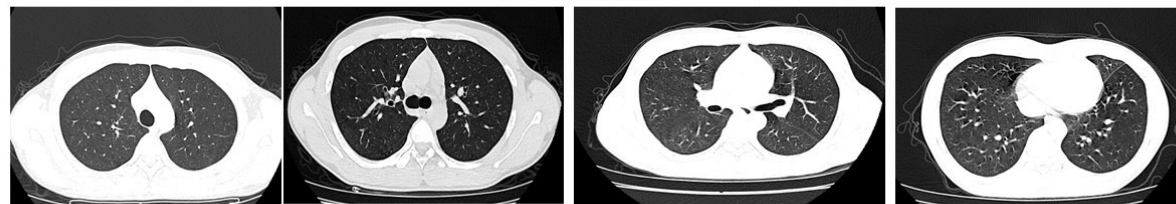
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a. At hospital admission



b. Two weeks later



c. After 6 months treatment

AP06-322

Intestinal tuberculosis - a great mimicker of crohn's disease

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Introduction

Tuberculosis is an endemic infection in Sri Lanka and intestinal tuberculosis is the sixth common presentation of extrapulmonary tuberculosis. Crohn's disease is a chronic inflammatory bowel pathology. It is a challenge to differentiate the two as both share similar clinical characteristics, and the most affected site is ileocaecal. An incorrect diagnosis may prolong the disease and favor complications such as intestinal perforation or disseminated TB.

Case report

A 25year old boy presented with evening pyrexia, and cough for 1 month. He also had lower abdominal pain for one year with a 30kg weight loss. A year before this presentation, he was evaluated for recurrent lower abdominal pain and loss of weight for 6-month with no other constitutional symptoms. He had received a diagnosis of Crohn's disease based on colonoscopy and histopathological findings. He was started on immunosuppressive treatment and defaulted after 6 months due to poor treatment response and had taken alternative treatments which were also ineffective. During the current presentation, his sputum TB GeneXpert became positive, and the chest X-ray showed features of active pulmonary tuberculosis. He was started on anti-tuberculosis treatment with a confirmed diagnosis of pulmonary tuberculosis and a presumptive diagnosis of intestinal tuberculosis. With treatment, his respiratory and gastrointestinal symptoms improved significantly, and he gained 30kg.

Discussion

Intestinal tuberculosis is a great mimicker of Crohn's disease. It is challenging to confidently differentiate between the two due to shared clinical, endoscopic, imaging, and histopathologic features. Therefore, it is very important to aim for an accurate diagnosis as poor management can lead to complications such as perforation and increased mortality.

AP06-323

Recurrent hydropneumothorax leading to bronchopleural fistula

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Introduction

Recurrent hydropneumothorax has high mortality and morbidity. Bronchopleural fistula (BPF) is one of the cause of recurrent hydropneumothorax and still major therapeutic challenges for clinicians even today. One of common causes of BPF is tuberculosis by causing necrosis in lung bronchus.

Case report

A 42 years old male came to the hospital with shortness of breath since 1 week ago. This patient had history hydropneumothorax and installation chest tube for three times. The patient also had tuberculosis treatment for 6 months and smear acid fast bacilli result in the end of treatment was negative. X-ray thorax was pneumothorax and after chest tube insertion, the patient still show shortness of breath. Chest tube evaluation was a lot of bubble and suspected for bronchopleural fistula. Patching with muscular flap was performed. After the surgery, there was no more hydropneumothorax.

Discussion

Tuberculosis is still main threat for morbidity and mortality in endemic country. Even with adequate therapy, tuberculosis can still gave complication like pneumothorax due to necrosis in bronchial and pleural layer. In rare case,, BPF can happen and present with symtompms that range from acute symptoms like tension pneumothorax to subacute empyema. BPF should be suspected in sequele tuberculosis with recurrent pneumothorax. Radiological features that suggest the presence or the development of a BPF include an increase in the intrapleural airspace, the appearance of a new air-fluid level. Method for closure BPF via thoracotomy is recommended. Nakajima et al. reported that single-stage closure may be appropriate when using a musculocutaneous flap.

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Disclosure Statement

Conflict of interest : None

AP06-324

Effectiveness of household contact investigation combined with tuberculosis preventive treatment in an intermediate tuberculosis burden country: A nationwide investigation

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Background and Aim

This study aimed to evaluate the effect of a nationwide household contact (HHC) investigation combined with tuberculosis preventive treatment (TPT) in an intermediate TB burden country, including HHCs with rifampicin-resistant TB (RR-TB).

Methods

In this retrospective cohort study, we analyzed data of HHC investigation between January 2015 and December 2018 in a linked database of the nationwide TB registry and healthcare administrative database of South Korea. The primary outcome was the incidence rate of active TB following the HHC investigation combined with TPT. The risk factors for latent TB infection (LTBI) and active TB among HHCs and the effect of TPT on HHCs with RR-TB were also analyzed.

Results

Total of 119,233 HHCs, the age-standardized incidence rates of active TB per 100,000 person-years decreased from 463.9 in 2015 to 252.6 in 2018. TPT completion lowered the risk of active TB in HHCs (aHR, 0.14 [95% CI, 0.09–0.22]). Comorbid diabetes (aOR, 1.21 [95% CI, 1.13–1.29]) or renal failure (aHR, 3.57 [95% CI, 1.39–9.19]) increased the risk of LTBI and active TB in HHCs. Among HHCs of RR-TB patients, there was no significant difference in the risk of active TB between the TPT complete group and the LTBI-negative group (aHR, 2.27 [95% CI, 0.58–8.83]).

Conclusion

Nationwide HHC investigation combined with TPT may be effective in an intermediate TB burden country. Comorbid diabetes or renal failure should be prioritized for HHC investigation. TPT regimens including isoniazid or rifampin had a preventive effect on HHCs of RR-TB in an intermediate-TB burden country.

AP06-325

A Case of Tuberculosis Presenting as Mediastinal Mass

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There is a wide range of differential diagnosis that can be considered for a mediastinal mass. It is a common challenge in today's practice to determine the exact cause that can present with a mediastinal mass. The nonspecific clinical manifestations and relative inaccessibility for tissue sampling even adds more challenge for clinicians in evaluating mediastinal diseases. We present a case of a 33 year old female, who completed the standard 6 months of TB treatment but still presents with persistent mediastinal mass on Chest CT scan. A needle aspiration biopsy was done which only yielded inflammatory cells and on follow-up, the patient presented with progression of the said mass. Patient was admitted and was scheduled for thoracotomy for further work-up. MTB GeneXpert was detected on the paratracheal mass hence extrapulmonary TB treatment was started. For patients presenting with mediastinal mass, Tuberculosis should be part of the differential diagnosis and adequate tissue sampling should be emphasized to yield the proper diagnosis.

AP06-326

Henoch schonlein purpura in pulmonary tuberculosis patient

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Background

Henoch-Schonlein Purpura (HSP) is caused by the deposition of an IgA-immune complex in small blood vessels, which can lead to vasculitis. The link between HSP and pulmonary tuberculosis is still a source of ideas, and more study is underway. The effects of HSP as a clinical manifestation of a side effect of anti-tuberculosis treatment in pulmonary TB patients

Case

A 25-year-old woman presented to the hospital with a 3-week-old fever, cold sweats at night, weight loss, loss of appetite, dry cough for the past two months. Based on the history and chest x-ray examination, the patient was diagnosed with clinically confirmed pulmonary tuberculosis. She was treated an intensive phase (2RHZE) and a continuation phase (4RH). The patient complained of abdominal pain and joint pain after one week, the appearance of a palpable red rash (purpura) on both legs. She was diagnosed as HSP by dermatologist. The rash has began to fade when treatment was temporarily stopped. A drug challenge was performed to determine which anti-tuberculosis were causing the patient's problems. The rash resurfaced after being given isoniazid. After that, the patient continued to take Anti tuberculosis drugs without isoniazid.

Discussion

Pulmonary TB in the presence of HSP is a rare occurrence, and the link between the two diseases is currently being discussed. Because these cases are uncommon in daily clinical practice, the literature on pulmonary TB associated with HSP is equally restricted. TB can produce an increase in IgA levels as well as IgA deposition in tiny blood vessels.

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AP06-327

A case of isoniazid- induced cerebellitis

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Introduction

Acute cerebellitis is a rare inflammatory syndrome. While majority of the cases have unknown aetiology, some have been attributed to infections and sporadic cases due to medication. Isoniazid- induced cerebellitis has been described in patients with chronic kidney disease or on dialysis, with characteristic Magnetic Resonance Imaging (MRI) findings of symmetrical dentate nucleus hyperintensities on T2-weighted and fluid-attenuated inversion recovery (FLAIR) images. The pathophysiology of isoniazid toxicity in patients on dialysis is complex, including B6 deficiency, altered metabolism of B6 caused by isoniazid and more rapid clearance due to dialysis. Treatment involves cessation of isoniazid and B6 supplementation, although not much is known about reintroducing isoniazid.

Case report

We report a 69-year-old gentleman with pulmonary tuberculosis (pTB) treated with Rifampicin, Isoniazid, Ethambutol and Pyrazinamide. He had end-stage renal failure (ESRF) on intermittent haemodialysis. He developed a progressive acute pan-cerebellar syndrome 7 days into treatment, characterized by dysarthria and upper limb dysmetria, worsening up to day 11. Brain MRI revealed symmetric mildly raised T2 weighted/ FLAIR signal in the dentate nuclei, and a diagnosis of isoniazid-induced cerebellitis was made. Isoniazid was stopped, and B6 supplementation was commenced, with significant improvement of symptoms. The patient had recovered completely 1 month later and a repeat MRI showed resolution of the symmetrical signal changes in the dentate nuclei.

Conclusion

Isoniazid- induced cerebellitis is rare but treatable. It is important to recognise the signs of isoniazid neurotoxicity especially in patients with ESRF, a population that is at higher risk of both tuberculosis and drug-induced toxicities.

AP06-328

Development of Population Pharmacokinetics Model and Bayesian Estimation of Rifampicin Exposure in Indonesian Patients with Tuberculosis

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Background and Aim

Interindividual variability in the pharmacokinetics (PK) of anti-tuberculosis (TB) drugs has been reported as the leading cause of treatment failure. Standard TB management should be improved to ensure adequate exposure to first-line anti-TB drugs, particularly rifampicin (RIF). This study aimed to evaluate comprehensively the influence of demographic, clinical and genetic covariates on the RIF PK parameters.

Methods

210 TB patients with 300 concentrations were enrolled for model establishment. Clinical data, Solute Carrier Organic Anion Transporter Family Member-1B1 (SLCO1B1) haplotype for *1a, *1b, and *15, and RIF concentrations from Dr. Soetomo General Academic Hospital, Indonesia, were collected. The nonlinear mixed-effect method was used to develop the population PK model.

Results

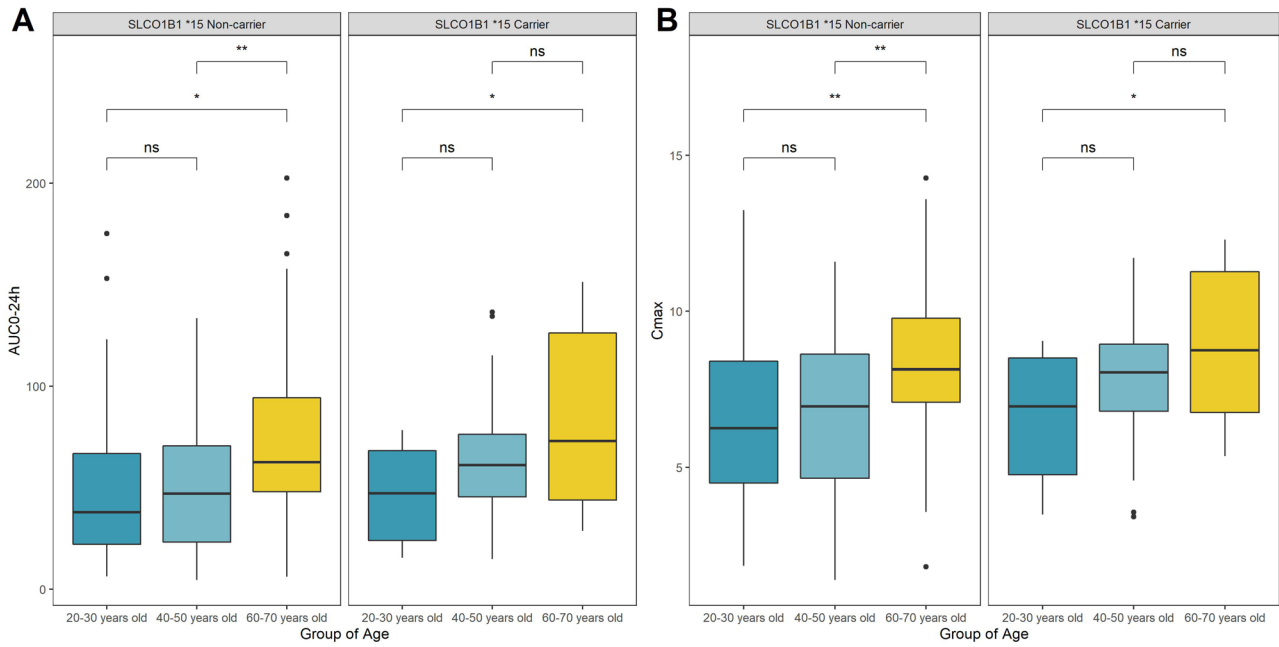
One-compartment model with first-order absorption-elimination and allometric scaling for body size effect described PK of RIF adequately. Age and SLCO1B1 haplotype *15 were significantly associated with changes in apparent clearance (CL/F). Following the CL/F for patients in their 40-year-old, the increase of age by 10 years decreased 10% of CL/F (CL/F: 7.85 L/h). Additionally, patients with SLCO1B1 haplotype *15 had 20% lower CL/F compared to wild-type. The model showed good performance as indicated in visual predictive check and non-parametric bootstrap.

Conclusion

Age and SLCO1B1 haplotype *15 were identified as the significant covariates on RIF CL/F. The geriatric patients with haplotype *15 were susceptible to have higher exposure of RIF due to lower CL/F. With more proper validation, our model may be used to optimize the pharmacotherapy through model-informed precision dosing-based therapeutic drug monitoring implementation.

Acknowledgements

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AP06-329

Pharmacogenomic variations associated with drug response of rifampin in Korean patients

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Background and Aim

Rifampin (RIF) shows a wide inter-individual variation of its pharmacokinetics leading to treatment failure. Limited clinical evidence was reported on pharmacogenomic variants in association with the disposition of RIF, most of which were done on Caucasian or African subjects. In this study, we aim to discover and evaluate drug absorption, distribution, metabolism, and excretion (ADME) genetic biomarkers associated with the pharmacokinetics (PK) of RIF in Korean patients.

Methods

The interindividual variability of clearance (η CL/F) value of RIF was estimated using an in-house population pharmacokinetics model. We selected the lower end of the distribution of η CL/F (below 0.25, corresponding to percentile 25) as "cases", and above percentile 75 as "controls". Genotyping was performed by an Infinium Global Diversity Array with Enhanced PGx array. The genotyping results were validated by comparison with SNaPshot genotyping data for targeted biomarkers in pharmacogenes.

Results

After quality control, a total of 727,658 SNPs were detected from 317 subjects. Compared with previous studies on the distribution of ADME markers in the Korean population, our study showed the consistent result. An rs17137390 SNP located in the intergenic region of SLCO4C1 and ST8SIA4 genes showed the trend to be associated with PK of RIF under the dominant genetic model (OR: 7.3, 95% CI: 2.19-25, $p = 4.5 \times 10^{-5}$). Our genotyping data is ongoingly generated and will serve as core data for genetic association results.

Conclusion

The genetic biomarkers of ADME genes could be useful to predict the potential cause of pharmacokinetics

variability of RIF in Korean patients.

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AP06-330

The effect of anti-TNF agents on the development of drug resistance in pulmonary tuberculosis

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Purpose

We investigated the risk factors for the occurrence of multi-drug resistant (MDR) tuberculosis (TB) among patients with pulmonary TB.

Materials and Methods

Based on claims data from the Health Insurance Review and Assessment service in South Korea, we retrospectively investigated patients (> 18 years old) with active pulmonary tuberculosis who were treated with anti-TB therapy between January 1, 2007 and February 28, 2021.

Results

Among 262,027 patients with pulmonary tuberculosis who underwent anti-TB therapy, 2.0% were identified as MDR-TB. Patients with MDR-TB were male predominant (66.8% vs. 58.7%, $p < 0.01$) and younger (mean: 47.0 ± 17.3 vs. 53.4 ± 19.8 years, $P < 0.01$), than those without MDR-TB. MDR-TB odds were 2.5 times higher in patients with pulmonary tuberculosis who received anti-TNF agents before the prescription of anti-TB medications compared to patients who did not receive anti-TNF agents (odds ratio, 2.53; 95% confidence interval [CI], 1.36-4.67), after adjusting for other TB risk factors (age, gender, inhaled corticosteroid, diabetes mellitus, liver disease, pneumoconiosis, and organ or blood recipients). The risk for the occurrence of MDR TB who underwent anti-TB therapy was 2.48 times higher in patients who received anti-TNF agents before the prescription of anti-TB medications than in those who had never been exposed to anti-TNF agents (hazards ratio, 2.48; 95% CI, 1.37-4.48).

Conclusion

This study suggested that an anti-TNF agent could be a driver of MDR-TB in pulmonary TB patients.

AP06-331

Characteristics and outcomes for tuberculosis (TB) patients treated with fixed dose combination (FDC) therapy

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Background and Aim

Standard treatment for drug-susceptible (DS) tuberculosis (TB) in Australia traditionally entails multiple medications with several tablets of each to make up the required dose. Fixed dose combination (FDC) therapy combines rifampicin, isoniazid, pyrazinamide and ethambutol (RHZE) into a single tablet, multiples of which are used to deliver the required dose. Previous studies have shown FDC therapy to be non-inferior to standard treatment in relation to treatment failure, treatment adherence and adverse events. We aimed to evaluate the outcomes of patients with receiving FDC therapy in Australia.

Methods

This retrospective cohort study was performed on patients commenced on FDC therapy between January 2019 and May 2021 at two tertiary hospitals in Australia. The clinical characteristics of patients and treatment details were extracted from medical records. The incidence of adverse events and treatment outcomes were also evaluated.

Results

The study identified 50 patients. Median age was 37 years (interquartile range 13.75), 46% were female, 64% (32/50) had pulmonary disease, 28% (14/50) had extra-pulmonary disease and 8% (4/50) had both. 88% (44/50) completed the intended treatment. 8% (4/50) were required to change from FDC therapy to single tablets due to adverse events or clinical disease progression. Itching (18/50) was the most common adverse event. There were no grade 4 or 5 adverse events. On average, patients on FDC took 7.46 fewer tablets compared to standard therapy, and 13 required additional individual tablets to supplement FDC dosing. For those changed to continuation phase with FDC isoniazid + rifampicin (HR) alone, patients took 0.93 fewer tablets compared to standard therapy.

Conclusion

FDC therapy provides a well-tolerated and effective treatment option for patients with drug-susceptible TB that reduces pill burden. Within our cohort, adverse events were comparable to standard therapy, and completion rates were high. Further studies are required to assess treatment relapse rates.

There are no disclosures or competing interests to disclose

AP06-332

Comparison Effect of Antidiabetic drugs with Metformin and without Metformin to Conversion Acid-Fast Bacilli Sputum in Pulmonary Tuberculosis Patients with Type 2 Diabetes Mellitus

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Background and Aim

Patients with Type 2 Diabetes Mellitus are high risk for pulmonary tuberculosis. This study aims to determine the effect of combination treatment of metformin and without metformin on the conversion of sputum smear in pulmonary TB patients with type 2 DM.

Materials and Methods

This cross-sectional study was conducted at Wahidin Sudirohusodo Hospital, Makassar from August 2019. This study involved 93 new cases of pulmonary TB subjects with T2DM. New cases of pulmonary TB patients were obtained by examining AFB sputum in DM patients who had symptoms of pulmonary TB and had no history of suffering or receiving previous anti-TB drug therapy. Pulmonary TB patients received category 1 anti-TB drugs and DM subjects were treated with anti diabetic and divided into 2 groups (with metformin and non-metformin). Smear sputum were examined in the 2-month after intensive phase of antiTB drug therapy to assess the conversion of AFB sputum.

Results

From 93 new cases of pulmonary TB and T2DM, 49 subjects received a combination regimen of metformin and 44 subjects non-metformin. In this study, there were 47 (95.9%) subjects who conversion sputum smear in the metformin group more higher than in the non-metformin 35 (79.5%) group and statistically significant ($p = 0.048$).

Conclusion

There was significant effect of metformin to non metformin groups on the conversion of AFB sputum smear in new cases of pulmonary TB patients and T2DM.

Keywords

Tuberculosis, Metformin, Sputum Smear Conversion.

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AP06-333

Clinical characteristics and predictive factors of delayed tuberculosis diagnosis during hospital admission

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Background and Aim

Delayed diagnosis of tuberculosis (TB) can lead to unexpected exposure of healthcare workers (HCWs). This study aimed to identify predictive factors and clinical impacts of delayed TB diagnosis.

Methods

We retrospectively reviewed the electronic medical records of index patients and HCWs who were subject to contact investigation after TB exposure during hospitalization in the National Medical Center from January 2018 to July 2021.

Results

Among 25 index patients, 23 (92.0%) were diagnosed with TB based on positive Xpert MTB/RIF assay results and 18 (72.0%) had negative acid-fast bacilli smear results. Sixteen (64.0%) were hospitalized through the emergency room and 18 (72.0%) were admitted to a non-pulmonology/infectious disease department. According to the patterns of delayed isolation, patients were classified into seven clusters: A, Pre-admission exposure (n=7); B, Positive conversion after serial results (n=4); C, Coexistent respiratory disease (n=2); D, Delayed check of test results (n=1); E, Delayed evaluation (n=4); F, Late onset of symptoms (n=2); and G, Asymptomatic diagnosis (n=5). Among 157 close contact events in 125 HCWs, 75 (47.8%) occurred in Cluster A. Twenty-five (20%) HCWs had multiple TB exposures (n=57 events), of which 37 (64.9%) belonged to Cluster A. After contact investigation, latent TB infection was diagnosed in 1 (0.9%) HCW, an emergency medicine resident exposed during intubation, in Cluster A.

Conclusion

Delayed isolation and TB exposure mostly occurred in the pre-admission stage. Effective screening and infection control is necessary for HCWs contacting new patients in high-risk departments.

AP06-334

Population pharmacokinetics analysis for interethnics comparison of pyrazinamide exposure between Korean and Indonesian patients with tuberculosis

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Background and Aim

Optimizing drug exposure to improve tuberculosis (TB) treatment outcome was of great importance. TB relapse and drug resistance could be reduced with the refined therapeutic management. Pyrazinamide (PZA) remained as the main component in TB treatment. This study aimed to evaluate the factors that significantly affected the pharmacokinetics (PK) of PZA and investigate interethnic differences in PZA exposure.

Methods

845 TB patients with 988 concentrations were enrolled for model establishment. Demographic, clinical data, and PZA concentrations from multisite in Korea and Indonesia were collected. The nonlinear mixed effect method was used to develop the population PK model.

Results

One-compartment model with first-order absorption-elimination and allometric scaling for body size effect described PK of PZA adequately. Ethnicity was found to be a significant covariate in typical clearance (CL/F). Indonesian patients had 40% higher CL/F than Korean patients (CL/F: 4.4 L/h). Additionally, there was a 30% increase in CL/F of 70 years old subjects with DM. Ethnicities did not show any influence on the variability of volume distribution. The model showed good performance through internal and external validation.

Conclusion

Lean body weight was the most significant covariate in CL/F for both ethnicities. Our result suggested that Indonesian patients had a higher risk for low exposure to PZA than Korean patients. Additionally, more than 70

years old with DM as comorbidity would likely have lower exposure to PZA due to increased CL/F. Our model can be used to optimize drug exposures in both Korean and Indonesian TB patients.

Acknowledgements

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AP06-335

Distribution of drug exposure and pharmacokinetic/ pharmacodynamic predictor of first-line anti-TB drugs in a Korean prospective cohort study

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Background and Aim

Pharmacokinetics (PK) and pharmacodynamics (PD) of anti-tuberculosis (TB) drugs are considered the key to the optimization of TB treatment. However, few prospective studies have reported PK or PK/PD data with large sample size. We, therefore, investigated drug exposure of first-line anti-TB drugs along with MIC in a Korean TB cohort with around 2000 patients.

Methods

Plasma concentration of isoniazid (INH), rifampin (RIF), ethambutol (EMB), and pyrazinamide (PZA) were measured from the blood samples randomly taken after usually two weeks of treatment in 650-1000 patients of a Korean TB cohort. MICs were determined for around 250 patients at baseline. Maximum concentration (C_{max}) and 0-to-24 hour area under the curve (AUC₀₋₂₄) in the plasma and AUC₀₋₂₄/MIC in the lung were determined using the nonlinear mixed-effects models we developed. For the prediction of AUC₀₋₂₄/MIC in the lung, the lung to plasma free drug concentrations ratio was additionally considered.

Results

INH, RIF, EMB, and PZA each had the median C_{max} of 4.83, 12.0, 1.55, and 28.6 mg/L. Patients who could not attain the recommended target value of C_{max} were 5% for INH, 4% for RIF, 72% for EMB, and 3% for PZA. The median AUC₀₋₂₄/MIC in the lung for INH, RIF, EMB, and PZA were 5193, 727, 59.1, and 14.2, respectively.

Conclusion

Distribution of drug exposure and PK/PD predictor of first-line anti-TB drugs in Korean TB patients were reported in this study. Only less than 5% of patients exhibited low drug exposure levels in those drugs, except for EMB.

AP07-336

CORRELATION OF NEUTROPHIL/LYMPHOCYTE RATIO TO LUNG FUNCTION EXAMINATION RESULT IN COPD PATIENTS AT HARUM MELATI RESPIRATORY CLINIC, LAMPUNG, INDONESIA

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Background and Aim

Chronic obstructive pulmonary disease is a destructive and progressive disease that affects both locally in the lung and systemically. The ongoing inflammatory process will cause changes in lung structure, such as narrowing of the respiratory tract and damage to the lung parenchyma, resulting in alveolar damage and decreased lung elasticity. The inflammatory response in the lung could change the leukocytes which will increase significantly with the increasing number of inhaled toxic substances. This study aimed to determine the correlation between neutrophil/lymphocyte ratio and lung function examination results.

Methods

This study used a descriptive-analytical method with a retrospective approach. The total subjects included were 200 divided into four clinical groups of COPD based on the GOLD spirometry classification. Neutrophil and Lymphocyte numbers were measured by a hematology analyzer.

Results

Most of the respondents were 90.5% male. Pulmonary function examination results were classified into mild (17%), moderate (32%), severe (39.5%), and very severe (11.5%). Bivariate analysis using spearman's correlation test to lung function result and lymphocyte number found a significant correlation (p-value 0,05).

Conclusion

The neutrophil/lymphocyte ratio did not correlate with the severity of lung function examination results in COPD patients at Harum Melati Respiratory Clinic, Lampung, Indonesia.

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AP07-337

Bufei Yishen formula III suppress airway mucus hypersecretion in rats with chronic obstructive pulmonary disease: via EGFR/ERK signaling

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Background and Aim

To explore the mechanism of Effective-compound combination of Bufei Yishen formula III (ECC-BYF III), exercise rehabilitation (ER) and their combination in inhibiting airway mucus hypersecretion in chronic obstructive pulmonary disease (COPD) rats via EGFR/ERK signaling.

Methods

Forty-eight SD rats were divided into control, model, ECC-BYF III, ER, ECC-BYF III+ER, and acetylcysteine (NAC) groups (n=8). From week 1-8, COPD rats were exposed to cigarette smoke and bacteria and were given various treatments from week 9-16. Rats were sacrificed at week 16, pulmonary function and pathological changes of lung tissue were observed. The levels of mucoprotein 5AC (MUC5AC), mucoprotein 5B (MUC5B) and the protein expression of EGFR and ERK in lung tissues were measured.

Results

Compared with control group, rats in model group exhibited decreased pulmonary function and damaged lung pathological, increased goblet cells, enhanced expressions of MUC5AC and MUC5B in lung tissue, as well as elevated phosphorylated protein expression of EGFR and ERK in lung tissues. Compared with model group, all the treatment therapies improved pulmonary function, alleviated its pathological injury, decreased goblet cells and reduced the levels of MUC5AC and MUC5B expression. ECC-BYF III, ER, ECC-BYF III+ER and NAC down-regulated the expression of EGFR and ERK phosphorylated protein. ECC-BYF III+ER had better effect in decreasing EGFR and ERK phosphorylated protein than ECC-BYF III and ER.

Conclusion

ECC-BYF III, ER and their combination all have beneficial effect in inhibiting airway mucus hypersecretion, and the mechanism may be through regulation of the EGFR/ERK signaling.

AP07-338

CORRELATION OF BLOOD LEVEL OF EOSINOPHIL AND SEVERITY OF DYSPNEA IN COPD PATIENT AT HARUM MELATI RESPIRATORY CLINIC, LAMPUNG, INDONESIA

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Background and Aim

Chronic Obstructive Pulmonary Disease (COPD) is a disease that causes respiratory symptoms and limits the airflow caused by significant influences on substances or gases. According to the World Health Organization, 600 million people were suffering from COPD in the world in 2012, while Indonesia had 4.8 million patients with a prevalence of 5.6 percent. Eosinophil levels of more than 2% in blood and sputum is associated with worse clinical symptoms. Stanescu et al, found that an increase in the number of eosinophils was associated with greater dyspnea due to airway obstruction. This study aimed to analyze the correlation of blood level of eosinophil to the severity of dyspnea in COPD patients.

Methods

The research method was descriptive-analytic with a retrospective design. The total number of subjects included was 200. Dyspnea severity was measured with the modified medical research council questionnaire (mMRC).

Results

The most subject was 90.5% male, with the most group of age were middle-age (>65 years old) (44%). The patient's blood eosinophil levels were divided into low (24.5%), normal (36%), and high (39%). The severity grade of dyspnea were classified into mMRC 0 (2.0%), mMRC 1 (7.5%), mMRC 2 (20.5%), mMRC 3 (42%), and mMRC 4 (28%). Bivariate analysis showed that the level of blood eosinophil had a significant correlation with the dyspnea severity grade in mMRC score (p-value <0,05).

Conclusion

The severity of dyspnea in COPD patients had a significant correlation with the higher level of the patient's blood eosinophils.

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AP07-339

Factors associated with elevated blood eosinophil count in patients with chronic obstructive pulmonary disease

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Background and Aim

Elevated blood eosinophil count is considered a biomarker of the distinct phenotype in patients with chronic obstructive pulmonary disease (COPD). However, there is little knowledge about which factors are related to the blood eosinophilia in this population.

Methods

We included patients with COPD from Korean COPD Subgroup Study (KOCOSS), which is a multicenter-based, prospective, consecutive cohort in Korea. Inclusion criteria were as follows: 1) physician-diagnosed patients with COPD 2) current or past smokers with smoking amount > 10 pack-years 3) post-bronchodilator forced expiratory volume in 1 second (FEV1)/forced vital capacity (FVC) < 0.7 and FEV1 < 80%pred 4) without a history of asthma. The outcome was elevated blood eosinophil count, defined as ≥ 300 cells/ μ L. The multivariable logistic regression analysis was used to investigate the association between factors and elevated blood eosinophil count.

Results

Of 1,315 patients, 296 patients (22.5%) had an elevated blood eosinophil count. In the multivariable logistic analysis, younger age (adjusted odds ratio [aOR] = 1.20, 95% confidence interval [CI] = 1.01–1.43; per 10 year decrease) and higher smoking amount (aOR = 1.08, 95% CI = 1.02–1.14; per 10 pack-years increase) were associated with an elevated blood eosinophil count. Lung function did not show association with elevated blood eosinophil count.

Conclusion

In patients with COPD, age and smoking amount were associated with elevated blood eosinophil count.

Acknowledgment

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AP07-340

Impact of vitamin D on lung function test and exacerbation rate in COPD patients: Evidence from randomized controlled trials

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Background and Aim

The clinical benefits of vitamin D are inconsistent in patients with COPD. Therefore, the aim of this meta-analysis was to evaluate the impact of vitamin D on lung function test and exacerbation rate.

Methods

A systematic literature search was performed on PubMed/Medline and Cochrane Library using relevant pairing keywords. Google Scholar and open search were also conducted to search for grey literature. Eligible studies are identifying randomized controlled trials (RCTs) to evaluate the impact of vitamin D on lung function test and exacerbation rate in COPD patients. English language articles were retrieved, screened, and reviewed by the independent authors. Meta-analysis was carried out by Review Manager Version 5.3 (Revman 5.3), and generic inverse variance and random-effects model were used to compute the hazard ratio (HR) and mean difference (MD) with 95% CI.

Results

A total of 11 articles including 1986 COPD patients in this analysis. Result from met-analysis showed an almost significance of vitamin D therapy in patients with COPD on forced expiratory volume in 1 second (FEV1) (MD: 0.62, 95% CI: -0.06, 1.30, P= 0.07) with significant heterogeneity among the studies (I²= 94%, p

Conclusion

The results from current analysis indicated that vitamin D used in patients with COPD might improve the FEV1. However, other lung function tests failed to show any significant improvement and reduction of acute exacerbation. Therefore, further RCTs and real-world studies with a large sample size are required to confirm the present findings.

AP07-341

Metabolomics reveals dysregulated sphingolipid and amino acid metabolism associated with chronic obstructive pulmonary disease

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Background and Aim

Chronic obstructive pulmonary disease (COPD) is a heterogeneous disease presenting as multiple phenotypes, such as declining lung function, emphysema, or persistent airflow limitation caused by several risk factors, including cigarette smoking and air pollution. The inherent complexity of COPD phenotypes propounds difficulties for accurate diagnosis and prognosis. Although metabolomic profiles on COPD have been reported, the role of metabolism in COPD-related phenotypes is yet to be determined. In this study, we investigated the association between plasma sphingolipids and amino acids, and between COPD and COPD-related phenotypes in a Korean cohort.

Methods

Blood samples were collected from 120 patients with COPD and 80 control participants who underwent spirometry and quantitative computed tomography. The plasma metabolic profiling was carried out using LC-MS/MS analysis.

Results

Among the measured plasma sphingolipids, an increase in metabolism of three specific sphingomyelins, SM (d18:1/16:0), SM (d18:1/24:0), and SM (d18:1/24:1) was significantly associated with COPD. Overall, no significant correlation was identified between any SM and the emphysema index, FVC and FEV₁ in the COPD cohort. Kynurenine was the only amino acid significantly associated with reduced FEV₁ in COPD. In contrast, no correlation was found between the emphysema index or FVC and the elevated metabolites.

Conclusion

Our results provide dysregulated plasma metabolites impacting COPD phenotypes, although more studies are needed to explore the underlying mechanism related to COPD pathogenesis

Acknowledgement

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Disclosure statement

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AP07-342

Network pharmacology and experimental validation to reveal effects and mechanisms of icariin combined with nobiletin against chronic obstructive pulmonary disease

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Background and Aim

Chronic obstructive pulmonary disease (COPD) is a chronic respiratory disease characterized by airflow limitation and persistent respiratory symptoms. According to previous studies, icariin combined with nobiletin (I&N) significantly ameliorates COPD, but the therapeutic mechanisms remain unclear. To explore the effects and mechanisms of I&N in the treatments of COPD according to network pharmacology and experimental validation.

Methods

The targets of I&N and COPD were screened and their intersection were selected. Next, the protein-protein interaction (PPI) networks, Gene Ontology (GO) and Kyoto Encyclopedia of Genes and Genomes (KEGG) pathway enrichment analyses were performed. Further, a COPD rat model were established to validate the effect and mechanisms of I&N.

Results

189 potential targets related to COPD and I&N were obtained from six databases. 16 highest score targets among 189 targets were obtained according to PPI networks. GO and KEGG pathway enrichment analyses of 16 highest score targets suggested target genes were mostly enriched in TNF signaling pathway, MAPK signaling pathway and PI3K-AKT signaling pathway. Then, molecular docking indicated strong binding interactions between I&N and the top 7 targets, including TNF, AKT1, VEGFA, EGFR, JUN, SRC and MMP9. The studies indicated I&N reduced levels of IL-6, IL-1 β and TNF- α in lung tissue of COPD rats, and inhibited activation of MAPK signaling pathway and PI3K-AKT signaling pathway.

Conclusion

Icariin combined with nobiletin has beneficial therapeutic effects on COPD by inhibiting inflammation. The potential mechanisms maybe involved in regulating MAPK and PI3K-AKT signaling pathway.

AP07-343

Utility of C reactive protein and procalcitonin to predict presence of pneumonia in acute exacerbation of chronic obstructive pulmonary disease.

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Background and Aim

Conflicting data exists regarding the role of C reactive protein (CRP) and procalcitonin (PCT) to identify pneumonia during acute exacerbation of chronic obstructive pulmonary disease (AECOPD). We aim to assess the utility of CRP and PCT to identify pneumonia during AECOPD admission.

Methods

Retrospective analysis of AECOPD admissions from 1st January 2016 to 30 June 2017 with CRP and PCT performed within 24 hours of presentation. We defined pneumonia as consolidation reported on chest radiography (CXR). Logistic regression and receiver operating characteristic (ROC) curve analysis were performed.

Results

There were 535 cases (mean age 75, 86.7% male) studied. The 162 (30.3%) admissions with CXR consolidation had higher median CRP [27.0 (11.0 - 74.1) vs 18.0 (4.8 - 51.5), $p < 0.001$] and PCT [0.11 (0.07 - 0.24) vs 0.09 (0.06 - 0.16) $p < 0.001$]. Using univariate logistic regression, only CRP and not PCT was a significant predictor of CXR consolidation. CRP remained the only significant predictor [adj OR 1.004 (1.001 - 1.007), $p = 0.006$] after multi-variate analysis in a model including PCT and white cell count. The area under the ROC curve (AUC) for CRP and PCT to identify CXR consolidation were 0.587 (95% CI 0.535 - 0.639) and 0.588 (95% CI 0.535 - 0.640) respectively. The AUCs did not improve in a combined CRP with PCT model.

Conclusion

CRP is a significant predictor of CXR consolidation in AECOPD although it has poor discriminative value in isolation. Addition of PCT does not appear to increase diagnostic yield.

The author has no relevant disclosures

AP07-344

Association between serum IL-25/TSLP and COPD exacerbation risk according to eosinophil levels.

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Background and Aim

Recent evidences have shown that Th2 inflammation is associated with various characteristics in chronic obstructive pulmonary disease (COPD) patients. In this study, we analyzed association of serum IL-25/TSLP and COPD exacerbation risk according to different eosinophil level.

Methods

This study was based on KOCOSS cohort, which is a nationwide multicenter COPD cohort participated by 54 medical centers in South Korea. We extracted patients' data collected between April 2012 and August 2020. Also, we measured serum level of TSLP and IL-25 in those who agreed to provide blood sample. We analyzed exacerbation risk according to TSLP and IL-25 in different eosinophil level.

Results

Total of 562 patients were enrolled in this study. Overall, there were no significant difference in sex, smoking history, symptom scores, asthma history, physician-diagnosed asthma-COPD overlap (ACO), lung function test, eosinophil level, and exacerbation history between IL-25/TSLP high and low group. In analysis of 1-year exacerbation risk, IL-25 high group was associated with lower risk of moderate-to-severe exacerbation (OR=0.69, 95%CI [0.49-0.99]). High IL-25 is associated with lower risk of moderate-to-severe exacerbation (OR=0.34, 95%CI [0.15-0.79]) in only eosinophil low group (<300). Moreover, TSLP high group was associated with lower risk of severe exacerbation (OR=0.36, 95%CI [0.15-0.84]). High level of TSLP was associated with lower risk of moderate-to-severe (OR=0.53, 95%CI [0.31-0.90]) and severe exacerbation (OR=0.13, 95%CI [0.01-0.43]) in only eosinophil high group (≥300).

Conclusion

Exacerbation risk showed negative correlation with serum IL-25 level in eosinophil low group and also negative correlation with TSLP in eosinophil high group.

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AP07-345

MicroRNA-149-3p regulates cigarette smoke extract-induced autophagy and cellular senescence in human bronchial epithelial cells through targeting NDRG1

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Background and Aim

Cigarette-smoke (CS) exposure and aging are the leading causes of chronic obstructive pulmonary disease (COPD)-emphysema development, however, the mechanism for the occurrence and treatment of emphysema is still not fully understood. In previous study, we identified microRNA (miRNA)-mRNA correlations that are related to impaired autophagy and cellular senescence in CSE-exposed epithelial cells new-generation sequencing (NGS). Here, we investigated that miR-149-3p has effects on impaired autophagy and cellular senescence by CSE exposure.

Methods

MiR-149-3p mimic and NDRG1 siRNA were used to validate the miRNA-mRNA correlations on CSE-induced impaired autophagy and senescence. Also, to confirm the impaired autophagy and senescence response were assessed by qRT-PCR, western blot, DALGreen detection and Senescence-associated (SA) β -galactosidase stain.

Results

MiR-149-3p was downregulated in CSE-induced cells and resulted in the impaired autophagy by increased expression levels of p62 and decreased formation of autolysosome, and the cellular senescence by increased number of senescent cells presented. From these results, we confirmed that the overexpression of miR-149-3p mimic restored the impairment autophagy by decreased expression level of p62 and increased formation of autolysosome, and inhibited senescence markers. In addition, we confirmed that association between miR-149-3p and NDRG1 using TargetScan and found that mRNA and protein levels of NDRG1 were negatively regulated by miR-149-3p. Furthermore, like the overexpression of miR-149-3p, the downregulation of NDRG1 by siRNA transfection significantly recovered the impaired autophagy and inhibited senescence responses induced by CSE-exposure.

Conclusion

Therefore, we suggest that miR-149-3p regulates CSE-induced impaired autophagy and senescence through targeting NDRG1 in bronchial epithelial cells, which provides important evidence for potential therapeutic.

AP07-346

Effect of Slit/Robo signaling on regeneration in lung emphysema

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Background and Aim

Emphysema, a pathological component of chronic obstructive pulmonary disease, causes irreversible damage to the lung. Previous studies have shown that Slit plays essential roles in cell proliferation, angiogenesis, and organ development. In this study, we evaluated the effect of Slit2 on the proliferation and migration of mouse lung epithelial cells and its role in regeneration in an emphysema lung mouse model. Here, we have shown that Slit2/Robo signaling contributes to the regeneration of lungs damaged by emphysema.

Methods

Proliferation and Migration on mouse lung epithelial cells were performed by cell counting using CCK-8 and wound healing assay. Mice were induced an experimental elastase- induced emphysema model by intratracheal injection of porcine pancreatic elastase at day 0. The mice were treated with Slit2 by intranasal administration.

Results

Mouse lung epithelial cells treated with Slit2 exhibited increased proliferation and migration in vitro. Our results also showed that Slit2 administration improved alveolar regeneration in the emphysema mouse model in vivo.

Conclusion

Slit2-mediated cellular signaling processes may be involved in the proliferation and migration of mouse lung epithelial cells and are also associated with the potential mechanism of lung regeneration. Our findings suggest that Slit2 administration may be beneficial for alveolar regeneration in lungs damaged by emphysema.

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AP07-347

Particulate matter 2.5 aggravates lung injury through the NLRP3/caspase-1 pathway in chronic obstructive pulmonary disease

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Background and Aim

Exposure to fine particulate matter (PM_{2.5}) and smoking are common risk factors of chronic obstructive pulmonary disease (COPD), and both promotes pulmonary inflammation and cell death. However, the mechanism of inflammation and cell death by PM_{2.5} combined with smoking remains unclear. Pyroptosis, a form of programmed cell death mediated by the NLRP3 (nucleotide-binding domain-like receptor protein-3), has been reported to promote lung injury by inducing inflammation or apoptosis⁽¹⁻³⁾. Using in smoking-exposed mouse in-vivo model and human cellular in-vitro model, the combined effect of PM_{2.5} and smoking were investigated.

Methods

Using C57BL/6 mice, the alveolar destruction was investigated by the mean linear intercept (MLI) and TUNEL assay. The infiltration of inflammatory cells was monitored in Bronchoalveolar lavage (BAL) fluid. Pro-inflammatory cytokines of lung tissue and in BAL fluid were also assessed. The mechanism of inflammation and cell death was analyzed using BEAS-2B cells. Cell viability and death were measured by MTT and LDH release assay after exposure to PM_{2.5} and cigarette smoke extract (CSE). The involvement of pyroptosis-related genes was also explored by qRT-PCR and Western blotting after treatment of NLRP3 siRNA. To correlate clinical impact, the COPD patients (n=104) panel were also analyzed.

Results

The combined exposure of PM_{2.5} and smoking increased MLI and TUNEL-positive cell significantly in lung tissue, associated with the increased cell infiltration of macrophages and neutrophil, and the secretion of inflammatory cytokines in lung tissue and BAL supernatant. The exposure to PM_{2.5} and CSE decreased cell viability, increased LDH release, and upregulated the transcription of NLRP3, the caspase-1, IL-1 β and IL-18 in BEAS-2B cells. NLRP3 silencing with siRNA decreased pyroptosis and the recovery of cell viability. In COPD patients panel, the quality of life as the exposure to PM_{2.5} were aggravated only in current smokers.

Conclusion

PM_{2.5} aggravates smoking-induced airway inflammation and cell death both in-vivo and in-vitro models via pyroptosis.

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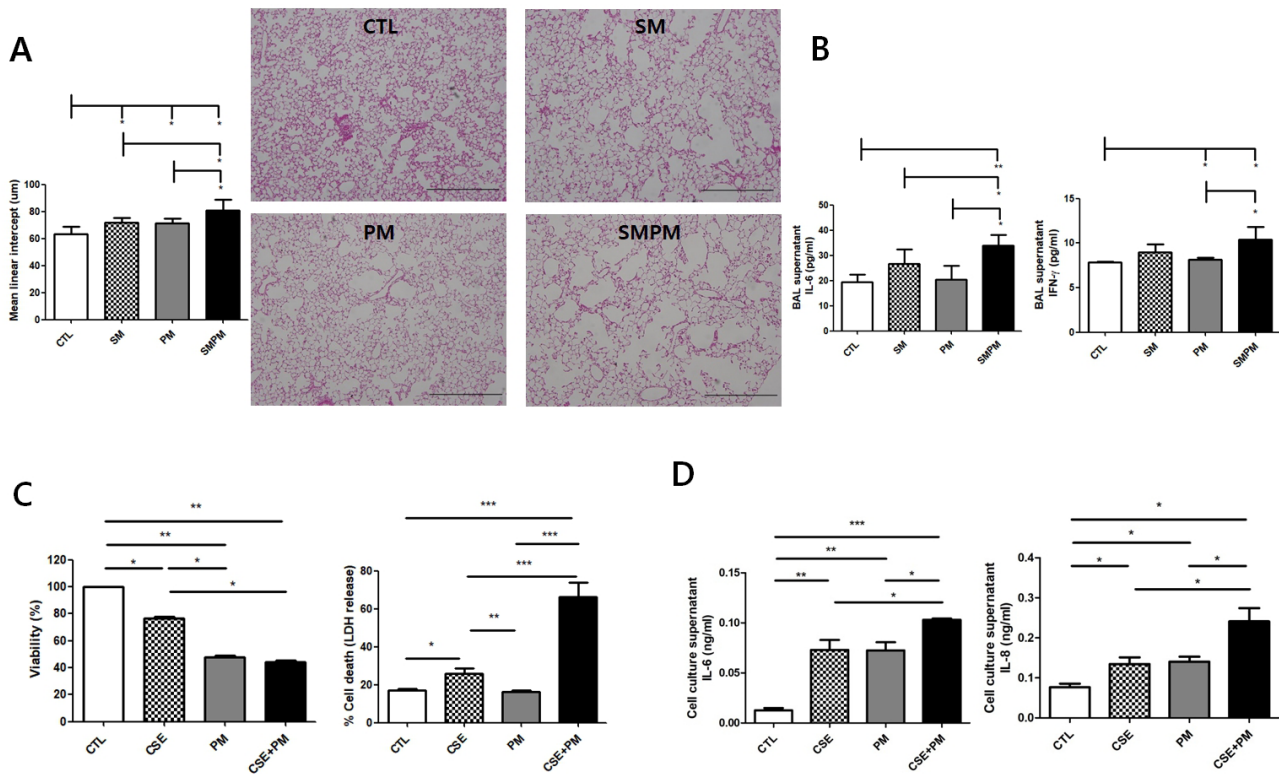


Figure .

PM2.5 aggravated inflammation and cell death in smoking-exposed mouse model and BEAS-2B cellular model.

(A) MLI and representative images in lung tissue (B) The levels of IL-6 and IFN-γ in BAL supernatant

(C) Cell viability and death in BEAS-2B cells (D) Inflammatory cytokines, IL-6 and IL-8 ELISA in cell culture supernatants

AP07-348

ECC-BYF alleviate mitochondrial oxidative damage in treatment of COPD: via PKM2/Nrf2 pathway

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Background and Aim

Chronic obstructive pulmonary disease (COPD) severely endangers the public health. By establishing COPD rats, observe the effect of Effective-component compatibility of Bufeiyishen formula (ECC-BYF III), while explore the mechanism of ECC-BYF III regulating the PKM2/Nrf2 pathway to suppressing mitochondrial oxidative damage.

Methods

48 SD rats were randomly divided into Control, Model, ECC-BYF III and N-acetylcysteine (NAC) groups. Cigarette smoke exposure combined with repeated bacterial infections was used to establish COPD models in 1-8 weeks. From week 9 to 16, each group was given corresponding drug intragastrically, and all rats were sacrificed at the end of 16 weeks, in the meanwhile related indicators were detected.

Results

Significant deterioration was detected in body weight, pulmonary function and pulmonary histopathology in COPD rats ($P < 0.01$), and oxidative stress was illustrated by increased MDA and decreased levels of SOD2, T-SOD, GSH-Px and T-AOC ($P < 0.01$). COPD caused mitochondrial dysfunction ($P < 0.01$). After the intervention of NAC and ECC-BYF III, both body weight, pulmonary function and pulmonary histopathology were improved (PPPP $P < 0.05$, $P < 0.01$). Additionally, the mRNA and protein expression of PKM2, Nrf2, GCLC, GCLM and NQO1 were upregulated (PP <0.01).

Conclusion

ECC-BYF III has a good therapeutical on COPD rats, can significantly improve the pulmonary function, pulmonary histopathology damage of rats, and protect the function of mitochondria, the mechanism of which may be related to the activation of PKM2/Nrf2 pathway, and the upregulation of the antioxidative protein express.

AP07-349

THE LEVEL OF PERIPHERAL BLOOD EOSINOPHILS AND ENDOBRONCHIAL MICROCIRCULATION IN PATIENTS WITH SEVERE COPD

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Background and Aim

The eosinophilic type of inflammation in COPD in some cases determines response to the therapy. The aim of this study was to assess the parameters of endobronchial microcirculation (LDF) depending on the level of peripheral blood eosinophils in patients with severe COPD.

Methods

Endobronchial microcirculation was assessed in 11 individuals with eosinophil count 0.05). A more significant decrease in the PM level was found to 16.3 ± 2.4 PU versus 17.9 ± 1.6 PU in group 2 and the Ae and An ranges (2.12 ± 0.12 PU versus 2.35 ± 0.25 PU and 2.81 ± 0.35 versus 3.2 ± 0.17 PU for groups 2 and 1 respectively).

Conclusion

A higher level of eosinophils in the peripheral blood can be combined with more serious microhemocirculatory disorders in the bronchial mucosa. Potentially the effectiveness of anti-inflammatory therapy in this group of patients is slightly higher than in patients with low eosinophil levels.

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AP07-350

Identification of novel COPD susceptibility genes using Genome-Wide Interaction Study

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Background and Aim

Several studies have shown that some genetic variants associated with COPD have been identified in genome-wide association studies (GWASs), especially in patients with moderate to severe COPD; however, genetic susceptibility for lung function decline in the general population has not been widely studied. This study aimed to investigate the genetic susceptibility associated lung function decline with or without COPD, using data from a community-based cohort.

Methods

A total of 8,554 subjects were recruited from two community-based cohorts. We conducted a genome-wide interaction study to identify the association between genetic variants and pulmonary function, and also examined how these variants relate to lung impairment in accordance with smoking status with amounts.

Results

A total of 8,554 participants were observed for 12 years. We found annual mean FEV1 declines of 41.7 mL for men and 33.4 mL for women, and the annual rate of decline in FEV1 was fastest for current smokers. We also found a previously identified locus near FAM13, the most significant SNPs from the results of two likelihood ratio tests for FEV1/FVC. Furthermore, we found that certain SNPs tended to have lower FEV1/FVC values, and lung function decreased much faster with time interactions. The SNP most associated with lung function decline was the rs75679995 SNP on chromosome 7, and those SNPs located within the TAD of the DNAH11 region and the eQTL of rs9991425 revealed a higher expression of MFAP3L and AADAT genes.

Conclusion

This is the first gene-time interaction study of lung function decline as a risk factor for COPD in the Korean population

AP07-351

Clinical Profile and Outcome of COVID 19 Positive Patients with Chronic Obstructive Pulmonary Disease (COPD) in a Tertiary Government COVID 19 Referral Center

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Introduction

It is anticipated that Chronic Obstructive Pulmonary Disease (COPD) has greater risk in acquiring COVID-19 infection and poorer outcome. However, current worldwide data are conflicting.

Objectives

This study primarily aims to compare the outcomes of COVID-19 patients with COPD and those without COPD in terms of length of hospital stay (LOS), recovery or mortality, treatment received and predictors of mortality.

Methods

This is a retrospective cohort chart review of 1,017 admitted adult COVID-19 patients from May to December 2020. Age, gender, smoking status, current control and medications for COPD, COVID-19 severity, symptoms, treatment, and outcomes of the two study groups were compared.

Results

Prevalence rate of COPD was 3.8%. COVID-19 patients with COPD were older (median age of 69 vs 54, $p=0.001$), male (87% vs 50%, $p<0.001$), hypertensive (72% vs 48%, $p=0.004$), and with tuberculosis (31% vs 11%, $p=0.002$). COVID-19 patients with COPD more commonly needed oxygen therapy, High Flow Nasal Cannula, Mechanical Ventilation, Tocilizumab, Convalescent Plasma Therapy and Dexamethasone, and had longer LOS. Significant risk factors for mortality are malignancy, investigational therapies, smoking and older age. There was no difference in survival rates between the two groups.

Conclusion

COPD patients are at increased risk for severe disease and longer length of hospital stay but does not have a significant association with mortality based on univariate and multivariate analysis. Significant predictors for mortality include older age, smoking, presence of malignancy, and use of investigational therapy (Remdesivir, Tocilizumab, CPT or Dexamethasone).

AP07-352

Depression and anxiety among patients with chronic obstructive pulmonary disease(COPD) in a tertiary care centre in Kerala

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Background and Aim

Chronic Obstructive Pulmonary Disease (COPD) is a major public health problem and Its prevalence is on the rise with substantial morbidity and mortality. Though the primary target of COPD is lungs, systemic involvement is common including psychosocial morbidities like depression and anxiety. Most of the research in this area are from the west and studies from India are limited . This study is aimed to find out the prevalence of depression and anxiety in patients with COPD. The assessment of depression and anxiety in COPD with respect to various socio demographic factors, health indices and scales and chronic medical conditions like diabetes and hypertension is also an important objective of the study.

Methods

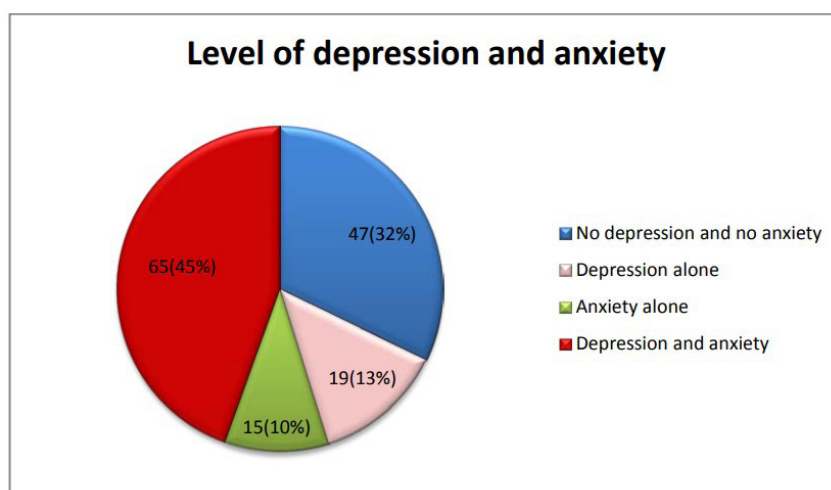
The participants of the study were 146 patients with stable COPD of different grades of severity. A cross sectional analytical survey was used for the study. Patient health care questionnaire 9(PHQ-9) and Generalized anxiety disorder questionnaire (GAD-7) were used to screen depression and anxiety respectively. Statistical techniques such as student 't' test, 'F' test and correlation were used for the study.

Results

The study reveal that depression and anxiety are common in COPD and the disease severity, duration of illness, recurrent hospitalisations, grades of dyspnoea and BODE index score are some factors affecting it.

Conclusion

There is significant relationship between depression and anxiety in COPD. It demands a large multi centre study involving primary health care facilities to tertiary care centres to address this unaddressed issue.



AP07-353

PREVALENCE OF FRAILITY IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND ITS CORRELATION WITH DISEASE SEVERITY

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Background and Aim

Frailty is a syndrome characterized by accumulation of multisystemic physiologic deficits. COPD patients are more likely to be frail, with a prevalence of 6%-57.8%. The aims are to assess the prevalence of frailty among patients of COPD, correlation between frailty and Dyspnoea severity and relationship between frailty and Quality of life in COPD patients.

Methods

A descriptive cross-sectional study being conducted among 150 COPD patients attending clinic at VPCI, Delhi, India. Age, sex, BMI, smoking status and cumulative smoking pack-years recorded along with PFT. Frailty is assessed using Frailty phenotype and Short Physical Performance Battery (SPPB).

Results

100 patients have been enrolled and evaluated. The patients have a mean age of 59.19 years, with a mean duration of illness of 7.48 ± 2.84 years. 63.75% of patients are current smokers with an average smoking history of 22.5 pack years. Majority of the patients have been found to belong to GOLD B and D. The study patients had an average BMI of 22.206 ± 3.815 kg/m². The mean FEV1/FVC ratio of the patients has been found to be 46.577 ± 12.86 with a mean Post Bronchodilator FEV1 of 1.25 ± 0.596 litres ($50.46\% \pm 18.83\%$). On evaluation for Frailty Phenotype, 32 patients (53%) were categorised as Frail, 16 patients (26%) as Pre-Frail and 12 patients (20%) as Not Frail. Assessment by SPPB revealed that 25 patients (41%) were Frail, 18 patients (30%) were Pre-frail and 17 patients (28%) were Not frail.

Conclusion

(The study is currently under process and is expected to be completed within the next 2 months.)

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AP07-354

Influence of COPD on hospital outcomes of PCI in patients with ACS

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Background and Aim

The aim was to evaluate the impact of chronic obstructive pulmonary disease (COPD) on hospital outcomes of percutaneous coronary interventions (PCI) in acute coronary syndrome (ACS) patients.

Methods

626 patients with ACS and PCI were included in cohort study. Median age 63 [56; 70] years, 418 (67%) men. Based on the "Chronic Airways Diseases, A Guide for Primary Care Physicians, 2005" questionnaire, 429 (69%) patients without COPD and 197 (31%) with COPD were identified. "No-reflow" (NR) phenomenon (in accordance with ESC criteria) was registered in 59 (9%) patients. 13 (2.1%) was died. Groups were compared on unbalanced data. Then a two-factor logistic regression analysis was performed considering the propensity score. Finally, the data were balanced by using the Kernel "weighting" method and a logistic regression analysis using "weighting" coefficients was carried out.

Results and Conclusions

Unbalanced data: in COPD the odds ratio (OR) of death 3.60 (1.16-11.12), $p=0.03$, the OR of NR 0.65 (0.35-1.22), $p=0.18$. Logistic regression with propensity score: OR of death 3.86 (1.09-13.74), $p=0.04$, OR of NR 0.61 (0.31-1.19), $p=0.15$. Logistic regression with "weight" coefficients: OR of death 12.49 (2.27-68.84), $p=0.004$, OR of NR 0.63 (0.30-1.33), $p=0.22$. Comorbid COPD in ACS patients increases in-hospital mortality and does not affect the CMVO development after PCI.

AP07-355

Prevalence of anxiety in patients with chronic obstructive pulmonary disease

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Background and Aim

COPD is common in the world population and also causes many complications such as pulmonary hypertension and heart disease. Psychiatric problems including anxiety disorder can be found among COPD patients. The main objective was to find the prevalence of anxiety disorder in COPD patients and the secondary objective was to study the association between anxiety disorder and COPD.

Methods

This study was a cross-sectional study. The study was collected by questionnaires from 1 January 2021 – 31 December 2021 in the MSMC COPD clinic. Subjects completed pulmonary function test (PFT), mMRC dyspnea scale, clinical COPD questionnaire score (CCQ), COPD assessment test (CAT), six-minute walk distance, DSM-5 criteria for anxiety disorder, history of acute exacerbation. All the data were analyzed by Fisher's exact test.

Results

Eighty-one patients were enrolled and 97.53% of patients were male. The study showed 1.23 % of COPD patients (only 1 patient) had a generalized anxiety disorder. Patients in GOLD stage 1, 2, 3, and 4 were 19.75%, 35.8%, 2.47%, and 0% respectively. Patients were in groups A, B, C, and D were 46.91% 30.86 %, 11.11%, and 11.11% respectively. When analyzed by Multiple logistic regression, we couldn't find any association between the severity of COPD and anxiety disorder.

Conclusion

1.23 % of all COPD patients were diagnosed with generalized anxiety disorder. Any severity in COPD patients was not statistically significant in developing anxiety disorder among COPD patients in the MSMC COPD clinic.

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AP07-356

Prevalence of malnutrition and its relationship with disease category in patients with COPD in a low socioeconomic region in sri lanka

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Background and Aim

Malnutrition is common in COPD and has significant impact on disease severity and clinical outcomes. A poor nutritional status in COPD contributes significantly to patient morbidity, disease progression and quality of life. This study was conducted with the objective of identification of prevalence of malnutrition among COPD patients attending a peripheral District General Hospital and its relationship with disease category.

Methods

A descriptive cross-sectional study conducted among patients with a diagnosis of COPD attending outpatient medical and respiratory clinics in DGH-Nawalapitiya during a period of three months. Social demographic and clinical data were obtained using a data sheet. The GOLD 2020, combined COPD assessment method was used to determine patients GOLD category of disease severity. MNA (Mini Nutritional Assessment) test was used for nutritional assessment.

Results

The prevalence of malnutrition in our patients was 8.5%. 38.3% of the patients were underweight. Disease category according to combined COPD assessment significantly worsened with malnutritional risk. Patients were more symptomatic as demonstrated by the higher modified Medical Research Council dyspnea scale score when the frequency of malnutrition increased ($p=0.006$). Positive significant correlation was found between frequent COPD exacerbations and malnutritional risk ($p<0.001$).

Conclusion

Malnutrition is a frequently encountered problem in COPD patients. Such patients are prone to have poor clinical outcomes and be more symptomatic. There is a significant increase in hospital admissions and frequency of exacerbations among malnourished COPD patients. Regular nutritional assessment at early stages of the disease is crucial for all COPD patients to prevent and treat malnutrition and to minimize frequent exacerbations.

AP07-357

Association between depression and severity of COPD in stable COPD patients

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Background and Aim

Depression is one of the comorbidities in COPD and increases morbidity and mortality. However, there are no definitive screening recommendations and studies about the association between severity of COPD and depression were lacking. The primary objective was to find out the association between depression and severity of COPD in stable COPD patients. The secondary objective was to find the correlation between other factors and depression.

Methods

The present study was a cross-sectional study. Stable COPD patients who visited the lung clinic of HRH Princess Maha Chakri Sirindhorn Medical Center between November 1, 2020, and May 31, 2021, were screening for depression by screening with 9Q questionnaire (cut-off value was ≥ 7 for depression). Stable COPD patients were defined as no exacerbation in 1 month. Group of COPD, GOLD stage, income, duration of disease, relationship in a family, and smoking history were recorded.

Results

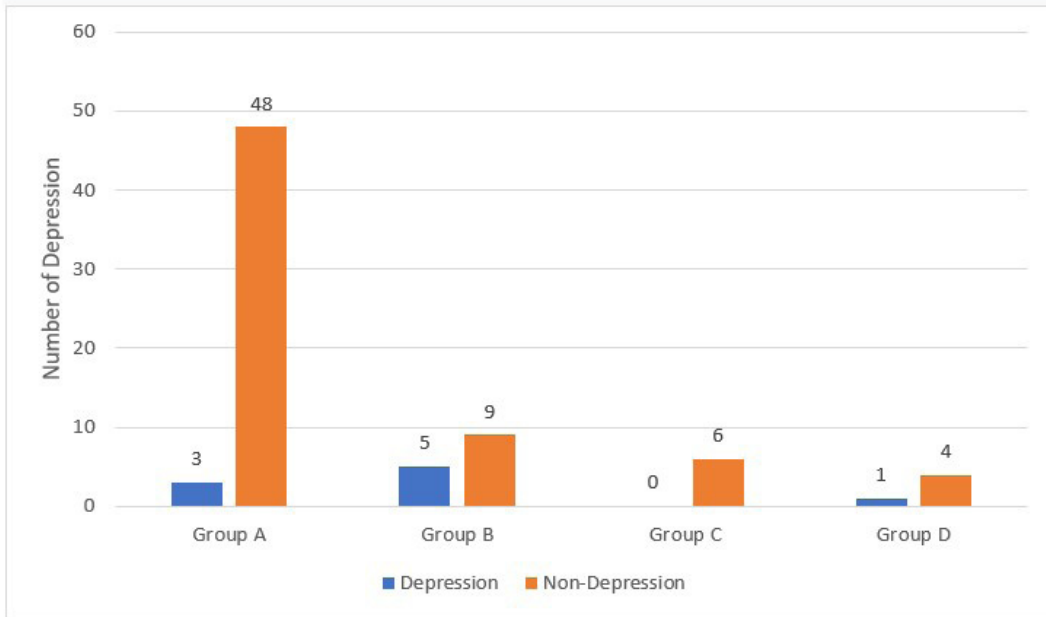
Seventy-six patients were enrolled (male 96.05%). Patients in COPD group A, B, C, and D were 67.1%, 18.4%, 7.9% and 6.6% respectively. Most of the patients were in GOLD stage 2 (42.1%). The prevalence of depression was 11.8%. Depression occurred in COPD Group B significantly more than in other groups (35.7%, p-value 0.015). GOLD staging, income, duration of disease, relationship in a family, and smoking were not associated with the prevalence of depression. In subgroup analysis, a CAT score ≥ 10 was significantly associated with the prevalence of depression (30%, p-value 0.008).

Conclusion

More symptoms and high CAT score were associated with depression in stable COPD patients.

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Rates of depression in different COPD groups



P-Value = 0.015

AP07-358

Effects of tiotropium on the risk of coronary heart disease in patients with COPD: a nationwide cohort study

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Background and Aim

Inhaled long-acting muscarinic antagonist (LAMA) is recommended for the treatment of chronic obstructive pulmonary disease (COPD). However, there is still concern that LAMA may cause cardiovascular adverse events in COPD patients. Therefore, this study aimed to determine whether the administration of tiotropium, the first commercially available LAMA, could increase the risk of coronary heart disease (CHD) in COPD patients through a nationwide cohort study.

Methods

We used the Korean National Health Insurance Service-National Sample Cohort (NHIS-NSC) database between 2002 and 2014 for the analysis. We applied a washout period of COPD diagnosis during 2002-2003 and excluded the patients who used an inhaler before the diagnosis of COPD. We also excluded patients who were diagnosed with CHD before inhaler use.

Results

Among a total of 5,787 patients, 1,074 patients were diagnosed with CHD. In the Cox regression models with time-dependent tiotropium usage, we found that tiotropium significantly increased the risk of CHD in a subgroup of age ≥ 55 years compared to non-users of tiotropium (adjusted hazard ratio [aHR], 1.24; 95% confidence interval [CI], 1.003–1.54). When analyzed by dividing into tertiles (high/middle/low) according to the cumulative tiotropium exposure, the high tertile exposure group of tiotropium was associated with a higher risk of CHD compared with the low tertile exposure group of tiotropium. Additionally, the risk of CHD was higher in the high tertile exposure group of tiotropium in the age ≥ 55 and older group and in the never smoker group.

Conclusion

When prescribing tiotropium for COPD patients, particularly those over 55 years of age and never-smokers, it is desirable to evaluate the risk of CHD in advance and closely follow-up for CHD occurrence.

AP07-359

Associations between Morphological Phenotypes of COPD and Clinical Characteristics in Surgically Resected Patients with COPD and Concomitant Lung Cancer

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Background and Aim

The associations between morphological phenotypes of COPD based on the chest computed tomography (CT) findings and clinical characteristics in surgically resected patients with COPD and concomitant lung cancer are unclear. Objective: The purpose of this study was to clarify the differences in clinical characteristics and prognosis among morphological phenotypes based on the chest CT findings in these patients.

Methods

We retrospectively reviewed the medical records of 132 patients with COPD and concomitant lung cancer who had undergone pulmonary resection for primary lung cancer. According to the presence of emphysema and bronchial wall thickness on chest CT, patients were classified into three phenotypes: non-emphysema phenotype, emphysema phenotype, or mixed phenotype.

Results

The mixed phenotype was associated with poorer performance status, higher score on the modified British Medical Research Council (mMRC) dyspnea scale, higher residual volume in pulmonary function, and higher proportion of squamous cell carcinoma than the other phenotypes. Univariate and multivariate Cox proportional hazards regression analyses showed that the extent of emphysema on chest CT, presented as a low attenuation area (LAA) score, was an independent determinant that predicted prognosis. In the Kaplan-Meier analysis, the log-rank test showed significant differences in survival between the non-emphysema and mixed phenotypes, and between the emphysema and mixed phenotypes.

Conclusion

The cross-sectional pre-operative LAA score can predict the prognosis in these patients. The COPD phenotype with both emphysema and bronchial wall thickness on chest CT was associated with poorer performance status, greater extent of dyspnea, greater impairment of pulmonary function, and worse prognosis.

AP07-360

Comparison of chronic cough in asthma-COPD overlap and COPD patients: a clinical cohort study

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Background

Asthma-COPD overlap (ACO) and COPD share airflow limitation and common symptoms of cough.

Aims

We aimed to compare the characteristics of chronic cough in ACO and COPD, and to investigate the effect of chronic cough on exacerbations among subjects with ACO and COPD.

Methods

Among patients in the Korea COPD Subgroup Study (KOCOSS) cohort, we analyzed data of adult patients with ACO as defined by modified Spanish criteria and COPD.

Results

Of 1,393 patients (mean age: 69.00 years, male: 97.0%), 549 (39.4%) and 844 (60.6%) were diagnosed with ACO and COPD. Proportions of patients with chronic cough in both ACO and COPD were 24.4% and 20.2%. Compared with the COPD group, a greater proportion of ACO patients with chronic cough reported female patients, family history of asthma and previous exacerbations. They showed significantly reduced lung function (FEV₁ %: 49.08 ± 16.72 vs 53.17 ± 17.08, p = 0.037) and health-related quality of life (SGRQ-C score: 47.98 ± 23.60 vs 1.58 ± 24.51, p = 0.022), and increased peripheral eosinophil counts (3.75 ± 3.60 vs 2.88 ± 2.70, p = 0.031) than those with COPD. In both ACO and COPD, cough was an independent risk factor for deterioration in lung function, symptom status and quality of life. Subsequent logistic regression model demonstrated that there was a decreased risk for any exacerbation in ACO without chronic cough (odds ratio (OR) 0.469, 95% CI 0.248-0.886), COPD with chronic cough (OR 0.312, 95% CI 0.157-0.619) and without cough (OR 0.314, 95% CI 0.171-0.574) when compared to ACO with chronic cough.

Conclusion

Chronic cough patients with ACO and COPD experienced deteriorations in lung function, health status and the presence of exacerbations, which lead to a worsening in their health-related quality of life. Patients with ACO and chronic cough were at increased risk of subsequent exacerbations compared with COPD patients with chronic cough.

AP07-361

Effects of wearing a mask on oxygenation and hemodynamics in patients with mild to moderate COPD

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Background and Aim

Despite concern regarding the adverse effects of face masks, there is little evidence to support mask-wearing in patients with COPD. In this study, we evaluated the impact of wearing masks on oxygen saturation and hemodynamic responses during exercise and daily activities in patients with mild to moderate COPD.

Methods

This prospective randomized crossover study enrolled patients aged 40 years or older with symptomatic COPD with a percentage predicted FEV1 > 50%. First, we examined the impact of face masks during a treadmill exercise. Hemodynamics were monitored, including HR, systolic and diastolic blood pressure (SBP and DBP), and EKG. In addition, echocardiography was performed before and just after treadmill exercise. Next, we assessed the effects of wearing masks on hemodynamic responses during daily activities for 24 hours in the same patients with the use of 24-hour ambulatory BP and Holter monitoring.

Results

A total of 30 patients were included in the study. During the treadmill exercise, the oxygen saturation decreased significantly from baseline both in the off-mask ($p < 0.001$) and on-mask phases ($p < 0.001$). However, the lowest oxygen saturation was not different between the off-mask and on-mask phase. The HR increased considerably from baseline both in the off-mask ($p < 0.001$) and on-mask phases ($p < 0.001$), while the maximum HR was similar between the off-mask and on-mask phases. No patient showed a significant drop in BP or EKG changes during treadmill exercise. In the analysis of echocardiography, the mean E/e' ratio did not change significantly during exercise in the off-mask phase. Next, 24-hour monitoring of the HR and BP showed no significant difference in the mean HR, mean SBP, or mean DBP between the off-mask and on-mask phase.

Conclusion

These findings suggest that wearing a face mask does not have serious effects on oxygenation and cardiovascular hemodynamics in patients with mild to moderate COPD

AP07-362

Clinical and metabolic phenotype of chronic obstructive pulmonary disease (COPD) in combination with insulin resistance syndrome

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Background and Aim

The presence of comorbidity in patient with COPD is a problem of modern medicine. The aim of study – to investigate the clinical and metabolic phenotype of COPD in comorbid course of the disease in insulin resistance (IR).

Methods

Group 1 included 42 patients with COPD of group B according to the GOLD, group 2 – 47 patients of group B in IR with a body mass index of 33,4 [29,24; 38,51] kg/m² and serum leptin level¹. The Statistica 10 software was used for statistical processing. This study was performed in accordance with the Declaration of Helsinki. This human study was approved by Ethics Committee of the Amur State Medical Academy.

Results

The number of exacerbations per year is related to waist circumference, CRP and leptin levels in group 2 patients (respectively: $r=0,57$; $p<0,01$; $r=0,59$; $p<0,01$ and $r=0,73$; $p<0,01$). Positive correlations of leptin level with CRP and interleukin-6 (respectively: $r=0,85$; $p<0,001$; $r=0,81$; $p<0,001$) suggest an important role of this peptide in the development of subclinical inflammation. COPD has stronger impact on life quality of group 2 patients (Table). 18.2% of patients with comorbid COPD, IR and hyperleptinemia have a history of acute coronary syndrome and strokes.

Conclusion

The clinical and metabolic features in the comorbid COPD and IR suggest the progression of subclinical inflammation in hyperleptinemia and chronic hypoxia, and increased risk of developing acute CVDs.

Clinical and laboratory characteristics of COPD groups

Indicators	1 st group	2 nd group
Waist circumference, cm	86,31 [81,64; 94,32]	101,93 [98,83; 106,17]*
FEV ₁ , %	64,36 [58,41; 72,39]	53,58 [49,82; 61,48]*
Leptin, pg/ml	6,38 [4,72; 9,17]	27,41 [21,54; 31,62]**
Endothelin-1, pg/ml	0,83 [0,69; 1,15]	1,86 [0,98; 2,37]*
CRP, mg/ml	9,73 [8,52; 11,91]	17,37 [14,64; 19,73]**
Ceruloplasmin, mc/ml	29,73 [21,72; 34,18]	26,64 [19,29; 32,54]*
mMRC	2 [1; 2]	3 [2; 3]*
CAT-COPD Assessment Test	9 [6; 11]	22 [15; 26]**
Number of exacerbations per year	2 [1; 3]	4 [3; 5]**

All data are expressed as Me [Q1; Q3];

* - statistical differences (* $p<0,05$, ** $p<0,01$, *** $p<0,001$).

AP07-363

Cardiovascular risks associated with long acting muscarinic antagonist use in COPD - A territory wide study

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Background and Aim

Long Acting Muscarinic Antagonists (LAMA) is a cornerstone in management of chronic obstructive pulmonary disease (COPD). Despite its effectiveness, its potential cardiovascular risks has been one of the concern with conflicting results from randomized trials and meta-analyses.

Methods

A territory-wide retrospective cohort study in Hong Kong between January 1, 2016 and December 31, 2019 was performed. Cardiovascular outcomes were compared between patients with or without LAMA therapy. Propensity score matching was applied to 1:1 balance the LAMA and non-LAMA group. Multi-variate Cox regression was performed with adjustment of age, sex and baseline cardiovascular conditions.

Results

During the study period, 29,482 COPD patients (mean age 77.5 ± 10.0 years and 47.9% male) received bronchodilator therapies from public hospitals in Hong Kong. Pre-existing cardiovascular conditions were present in 6,057 patients (20.5%), including atrial fibrillation (7.26%), heart failure (9.78%), myocardial infarction (4.65%), and ischemic stroke (6.08%). Cardiovascular outcomes were analysed after 101,805 patient-years of follow up. 13,512 patients, with 6,756 in each group (LAMA and no LAMA) were included in final analysis. Patients in LAMA group had higher risk of developing cardiovascular outcomes when compared to non-LAMA group, with unadjusted HR (HR) of 1.164 (95% CI = 1.09 – 1.243, $p < 0.001$).

Conclusion

LAMA use is associated with increases risk of cardiovascular outcomes among COPD patients when compared to alternative bronchodilators. Close monitoring of cardiac function and rhythm is warranted, especially in patients with pre-existing cardiovascular conditions.

AP07-364

Clinical impact of chronic cough in patients with asthma-COPD overlap

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Background

Chronic cough is one of the common symptoms of asthma-COPD overlap (ACO), although the clinical impact remains questionable.

Aims

We aimed to identify the clinical characteristics of ACO patients with chronic cough and evaluate the impact of chronic cough on the risk of acute exacerbation.

Methods

Among patients in the Korea COPD Subgroup Study (KOCOSS) cohort, we analyzed 549 ACO patients by using modified Spanish criteria.

Results

Among all subjects with ACO (mean age: 69.12 years, male: 96.5%), 27 (4.9%), 75 (13.7%), 107 (19.5%) and 340 (61.9%) were classified in the chronic cough only, those with sputum only, those with chronic bronchitis, and those without cough and sputum groups. Chronic cough patients (n=134) showed higher symptom scores with frequent exacerbations and reported lower quality of life compared to the patients without chronic cough (n=415). They had lower ratio of FEV1/FVC and DLco (% predicted). Both the presence and severity of chronic cough contributed to poor quality of life and symptom scores. Chronic cough was found to be an independent risk factor for reduced lung function, increased respiratory symptoms, and lower quality of life. Moreover, the severity of chronic cough was associated with any or frequent (≥ 2) episodes of moderate-to-severe exacerbations (odds ratio (OR) 2.646, 95% CI 1.164-6.012 and OR 2.665, 95% CI 1.027-6.916, respectively).

Conclusion

Chronic cough is prevalent in patients with ACO and is the risk factor of clinical deterioration and exacerbations. Appropriate and timely management in these patients are warranted to minimize the negative impacts and prevent future exacerbations.

AP07-365

Undiagnosed obstructive airway disease in an multi-ethnic Asian cohort: prevalence, severity and associations

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Background and Aim

The underdiagnosis of obstructive airway diseases, such as asthma and chronic obstructive pulmonary disease (COPD) is prevalent worldwide. Despite its implications on morbidity and its burden on the economy, there are limited studies in Asian populations prompting the need for further research. Our study aims to assess the prevalence, severity, and associations of undiagnosed airway disease in a multi-ethnic Asian population, as part of the Singapore Population Health Study (2016-2020), a population-based cohort study.

Methods

A total of 5184 participants aged 18-79 years were recruited. Among them, 1420 participants completed the entire study: medical interview, physical examination, and spirometry. Data on demographics, socio-economic status, comorbidities, lifestyle, physical activity, sleep quality, quality-of-life and spirometry were collected. Outcomes were classified into 3 groups: (a) known airway disease (KAD) i.e., subjects with known history of asthma, COPD (b) undiagnosed airway disease (UAD) i.e., subjects with obstructive spirometry without KAD (c) controls with normal spirometry. Significant associations with UAD were identified using multinomial logistic regression, adjusting for potential confounders.

Results

UAD accounts of 4% of the entire study population and 25% of subjects with obstructive airway disease (UAD+KAD). Amongst those with UAD, 32(56.1%) had mild airway obstruction, 21(36.8%) moderate and 4(7%) severe. Associated factors of UAD include older age, male sex, underweight BMI, and current smokers. Participants with UAD also have a lower Charlson comorbidity index compared to KAD.

Conclusion

Despite an advanced healthcare system, the prevalence of UAD remains significant. Spirometry case-finding strategies can help identify these cases and allow the implementation of early management strategies.

AP07-366

Recent Prevalence of and Factors associated with Chronic Obstructive Pulmonary Disease: Analysis from the Korea National Health and Nutrition Examination Survey Between 2015 and 2019

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Background and Aim

Limited information is available regarding the recent prevalence of and factors associated with chronic obstructive pulmonary disease (COPD).

Methods

We conducted a cross-sectional observational study using the Korea National Health and Nutrition Examination Survey 2015–2019. We included 15,613 participants and analyzed the trends of and factors associated with COPD.

Results

During the study period, the overall prevalence of COPD was 12.9%. Over five years, the yearly prevalence of COPD was fairly constant, ranging from 11.5% to 13.6%. Of note, the prevalence of COPD has decreased in men while increased in women, narrowing the gender gap from 15.7% in 2015 to 11.4% in 2019. In the multivariable analysis, age over 70 years or older was the most significant factor associated with COPD (adjusted odds ratio [aOR] = 17.86, 95% confidence interval [CI] = 14.16–22.52; compared with age 40–49), followed by asthma (aOR = 3.39, 95% CI = 2.44–4.71), male (aOR = 2.64, 95% CI = 2.18–3.19), and current smoker (aOR = 2.60, 95% CI = 2.08–3.25). Additionally, ex-smokers, low income, decreased FEV₁ %pred, and pulmonary tuberculosis showed a significant association. On the other hand, body mass index (BMI) \geq 25 kg/m² (aOR = 0.62, 95% CI = 0.54–0.71; compared with BMI 18.5–24.9 kg/m²) had an inversed association with COPD.

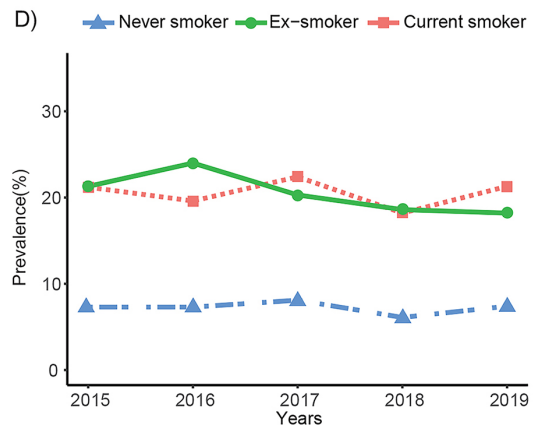
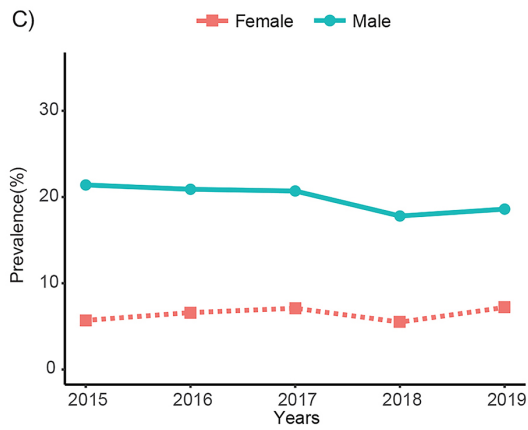
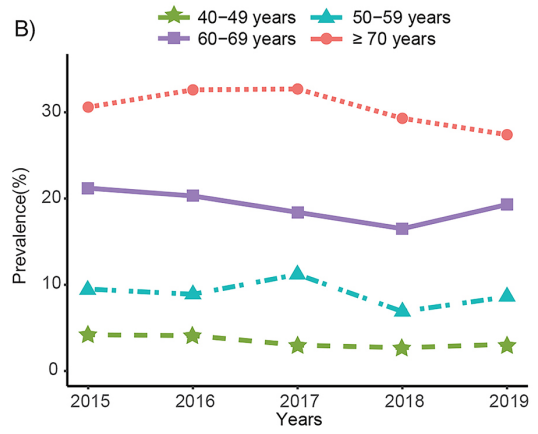
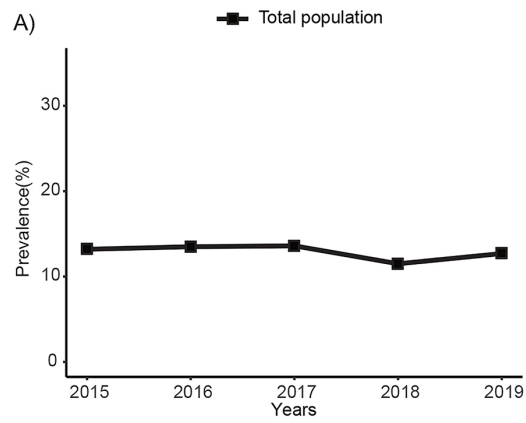
Conclusion

In South Korea, the recent prevalence of COPD was similar, but the gender gap between men and women was narrowed. The most significant factor associated with COPD was old age.

Disclosure

Funding

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AP07-367

A study on the association between serum Cadmium concentration and kidney or lung function Using Korean National Health and Nutrition Examination Survey Data

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Background and Aim

Cadmium entering the body increases the alveolar wall thickness in the lungs and causes lung diseases such as COPD and emphysema. In the kidney, it acts on the tubules and impairs the filtration function, which generally leads to a decrease in GFR and decreased buffering capacity. The purpose of this study was to research the relationship the kidney or lung function according to the concentration of cadmium in the blood.

Methods

The study population included 7,448 adults above the age of 40 years who participated in the Korea National Health and Nutrition Examination Survey(KNHANES) from 2008 to 2017, excluding 2014-2015, when there were no measured values for heavy metals. To investigate the relationship between blood cadmium concentration and eGFR or FEV1/FVC by gender using linear regression, and adjusted for sex, age, BMI, education, smoking status, hypertension, diabetes, and COPD.

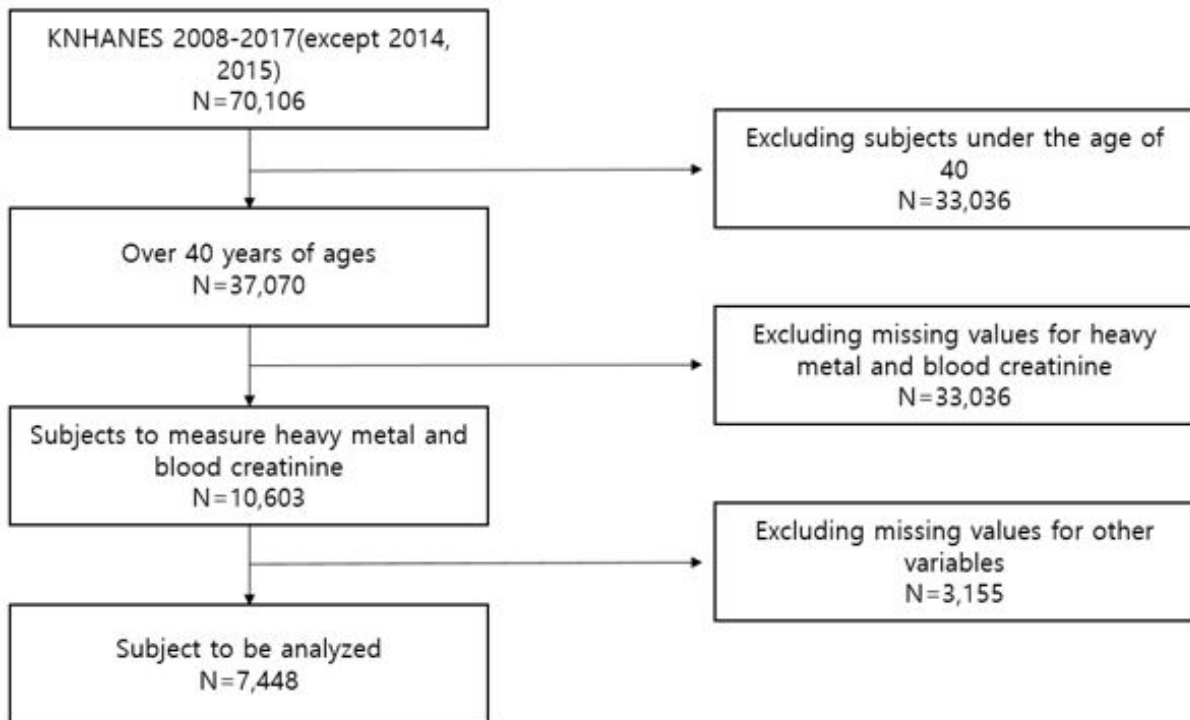
Results

As a result, the eGFR value according to the blood cadmium concentration increased in all subjects, but there was not significant, and FEV1/FVC decreased statistically significant(beta -0.006, 95% CI -0.010~-0.002). According to gender, the eGFR value increased in males and decreased in females according to the increase in blood cadmium concentration, but there was not significant. FEV1/FVC values according to the increase in blood cadmium concentration decreased significant in males(beta -0.0096, 95% CI -0.0157~-0.0034), but not decreased significantly in females.

Conclusion

Although there was no statistical relationship between blood cadmium concentration and eGFR according to all subjects and gender, FEV1/FVC according to blood cadmium concentration decreased statistically significant in all subjects and males.

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AP07-368

Prevalence of chronic obstructive pulmonary disease in a high-risk lung cancer screening population

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Background and Aim

The chronic obstructive pulmonary disease (COPD)-related hospital visit rate is less than 5% of the total COPD patients. One of main reason is a low rate of conducting pulmonary function tests for high risk patients such as people aged 40 years or over with history of smoking. This study reports pulmonary function test results in Korean national lung cancer screening participants.

Methods

We included from the Korean national lung cancer screening from September 2019 to November 2021. Korean national lung cancer screening with low-dose CT was performed in high-risk subjects, aged 54–74 years, with a smoking history of 30 pack years or more. Among them, 249 participants (age 64.63±5.35) revisit the Wonkwang university hospital for counselling screening results by pulmonology specialist.

Results

Smoking history was reported by 216 participants; among them 187 (75%) were current smokers (mean pack-years=41.77±16.23). Respiratory symptoms of participants were cough (11.6%), sputum production (26.5%) and dyspnea (25.7%). 136 (54.6%) was conducted spirometry; among them 47 (36.2%) met spirometry criteria for COPD. According to classification of airflow limitation 70.2% of diagnosed COPD were in Global Initiative for Chronic Obstructive Lung Disease (GOLD) 1, 21.3% in GOLD 2, 8.5% in GOLD 3 and 0% in GOLD 4 stage. As a result of the pulmonary function test and chronic respiratory symptoms, 34 (26.1%) had preCOPD and 2 had preserved ratio impaired spirometry (PRISm).

Conclusion

Spirometry-defined COPD is highly prevalent in Korean national lung cancer screening participants. Early detection of COPD using pulmonary function test is important and necessary to manage and prevent the disease in the high-risk population.

AP07-369

Association of BMI with Misdiagnosis of COPD among AECOPD Patients

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Background

Overweight and obese patients are more likely to be given a misdiagnosis of COPD attributed to AFO (airflow obstruction). Patients with PRISm (Preserved Ratio Impaired Spirometry) are often ignored though the course of lung function trajectories and mortality is closer to COPD. Aims: To explore the BMI association of AFO (Post-bronchodilator FEV1 / FVC0.92) among hospitalized AECOPD patients.

Methods

We collected 539 patients from electronic database records in the First Affiliated Hospital of Guangzhou Medical University, patients aged over 40 was included, asthma and lung cancer patients were excluded. Kendall-Tau and chi-square test were used to examine relationship of BMI category (underweight, normal, overweight, obesity) with AFO groups (AFO or not) and spirometry groups (AFO, normal and PRISM) respectively. Then we used logistical regression model and multinomial logistical regression model to explore correlation of continuous BMI with AFO groups and spirometry groups respectively.

Results

PRISm prevalence was 1.11% and misdiagnosis rate of COPD was 1.86%. The overweight or obesity prevalence of PRISm and AFO patients were 66.67% and 19.01%. There was a significant difference between BMI category and AFO groups ($p=0.015$). And the correlation of BMI with spirometry groups was statistically different ($ppp=0.019$) compared to AFO group, but there was no big difference between PRISm and AFO groups ($p=0.015$).

Conclusion

Though the prevalence of overweight and obesity in PRISm patients was higher than AFO group, the BMI value of AFO participants was lower. Misdiagnosis of COPD still existed despite complete pulmonary function tests were performed. These findings may provide some evidence to recognize AFO, PRISm and normal spirometry patients to alter the providers' appearance of COPD diagnosis.

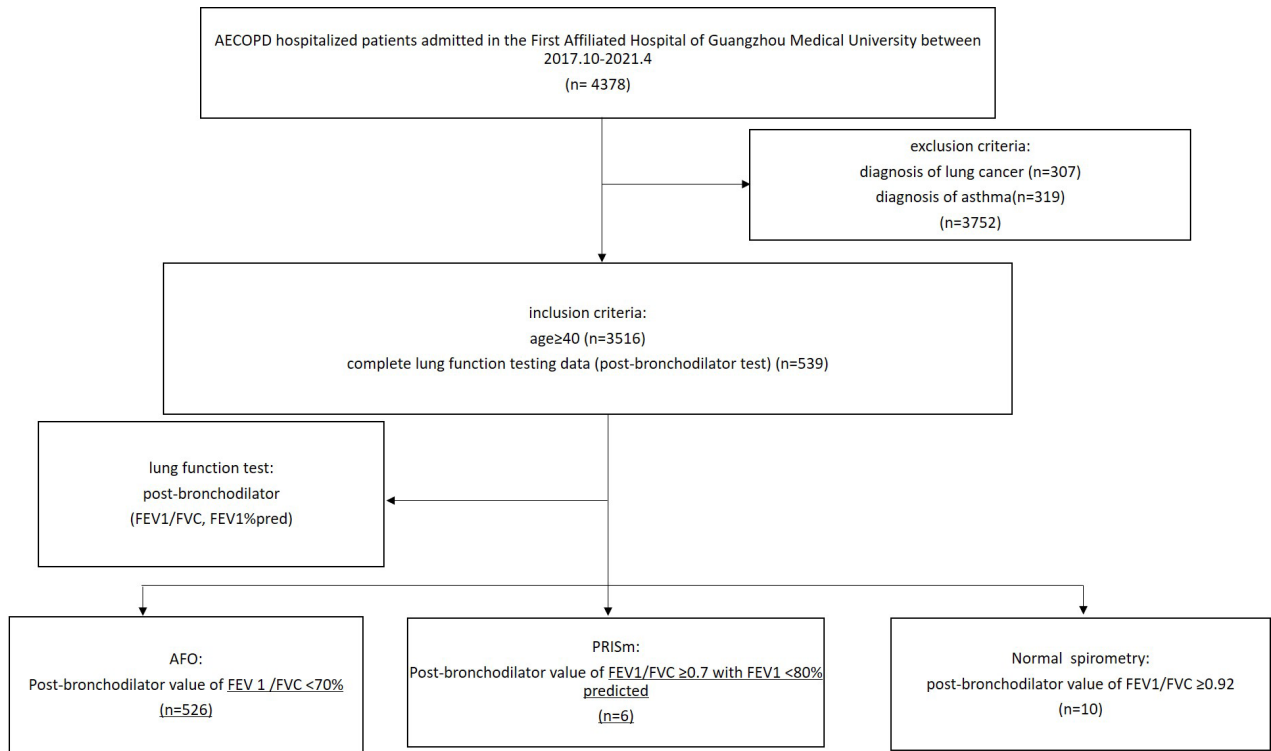
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AP07-370

COPD, cataract and inflammation process

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Background and Aim

Elucidation of the molecular mechanisms of cataract development in COPD patients, observed in 30% of COPD patients, is of interest. The inflammatory process characteristic of COPD may be one such mechanism. The aim of the study was to compare the content of pro-inflammatory interleukins in the blood of COPD patients with and without cataracts.

Methods

105 COPD patients and 60 healthy people without clinical signs of inflammatory diseases participated in the study. Among COPD patients, 54 had a cataract. The study groups were matched in terms of age and gender. The content of pro-inflammatory IL-6, IL-8, IL-18 and anti-inflammatory IL-10 was measured in the blood serum by ELISA method.

Results and Conclusions

The content of IL-6 had no statistically significant differences between the studied groups. In contrast, the content of other determined interleukins was maximum in the group of COPD patients with cataracts. In particular, in the groups COPD + cataract, COPD and healthy people, the content of interleukins was, respectively, IL-8 - 15.1 ± 2.3 pg/ml, 4.61 ± 1.0 pg/ml and 3.25 ± 1.2 pg/ml, IL-10 - 3.95 ± 0.6 pg/ml, 1.77 ± 0.3 pg/ml and 1.63 ± 0.21 pg/ml, IL-18 - 231 ± 12 pg/ml, 184 ± 10 pg/ml and 156 ± 15 pg/ml. The obtained results indicate a possible contribution of the inflammatory process to the development of cataracts in patients with COPD.

AP07-371

Correlation between malnutrition defined by laboratory test and exacerbation in severe COPD patients

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Background and Aim

Malnutrition would have a greater impact on prognosis in patients with severe chronic obstructive pulmonary disease (COPD) than those with mild-to-moderate COPD. There are several methods to evaluate the malnutrition, however, in this study, we aimed to investigate the effect of malnutrition through the serum profiles on exacerbation in severe COPD patients.

Methods

From the Korean COPD Subgroup Study (KOCOSS) cohort, we divided the patients with mild-to-moderate (FEV1 \geq 50%) into those with severe (FEV1

Results

Of 3,440 participants, 2,302 (67%) were classified as mild-to-moderate COPD patients and 1,138 (33%) as severe ones. Both groups showed the significant differences in BMI, mMRC scale, platelet count, neutrophil/lymphocyte ratio, total protein, albumin, alkaline phosphatase, and triglyceride. In univariate analysis, mMRC scale (adjusted odds ratio [OR] 1.825, 95% Confidence interval [CI] 1.616-2.06, $p<0.001$), WBC (OR 1.124, 95% CI 1.066-1.185, $p<0.001$), hemoglobin (OR 0.837, 95% CI 0.777-0.901, $p<0.001$), and albumin (OR 0.837, 95% CI 0.777-0.901, $p<0.001$) were associated with moderate-to-severe exacerbation. Furthermore, in multivariate analysis, mMRC scale (OR 1.435, 95% CI 1.185-1.738, $p<0.001$), WBC (OR 1.09, 95% CI 1.029-1.155, $p=0.004$), hemoglobin (OR 0.86, 95% CI 0.763-0.968, $p=0.013$), and albumin (OR 0.348, 95% CI 0.230-0.528, $p<0.001$) were still the risk factors related with moderate-to-severe exacerbations.

Conclusion

In this prospective cohort study, we found that serum WBC, hemoglobin and albumin were closely associated with the moderate-to-severe exacerbation in severe COPD patients.

AP07-372

A study of Adenosine Deaminase Activity and its isoenzyme in COPD patients with acute exacerbations.

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Background and Aim

The activity of adenosine deaminase decreases in COPD patients and the level of adenosine increases. Decreasing ADA activity in COPD patients can play a significant role in the formation of pulmonary injury.

Aim The aim of this work

was to evaluate the changes in serum total ADA level and its isoenzymes (ADA1 and ADA2) in COPD patients with acute exacerbations to determine the possible contribution of these enzymes in COPD.

Subjects and methods

This study was carried out on 60 subjects at Chest Department, Tanta University Hospitals and were divided into three equal groups: group I included 20 healthy non-smokers subjects as control group, group II included 20 asymptomatic smokers and group III included 20 COPD patients with acute exacerbations.

Results

There was statistically significant decrease in the activity of ADA total and ADA isoenzyme (ADA1 and ADA2) in COPD patients compared with control group. A positive correlation between ventilatory functions of COPD patients and activity of ADA total and ADA isoenzyme. Conclusion These data are strongly suggestive of the role of adenosine deaminase activity and its isoenzymes in formation of pulmonary injury in COPD. Keywords: Adenosine deaminase, isoenzyme, COPD exacerbations.

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Table 3: Comparison Adenosine deaminase activity and Isoenzymes (ADA1 and ADA2) among the three studied groups

Parameters Groups	Total ADA			ADA 1			ADA2		
	Mean ± SD	F	P-value	Mean ± SD	F	P-value	Mean ± SD	F	P-value
Control	17.94 ± 3.344	7.148	0.0032*	7.750 ± 1.632	6.677	0.0044*	10.19 ± 2.124	6.266	0.0058*
Smokers	14.94 ± 2.071			6.430 ± 1.259			8.33 ± 1.971		
COPD	14.07 ± 1.353			5.690 ± 0.802			7.32 ± 1.322		

AP07-373

Effect of Broncho-vaxom® (OM-85) on risk of chronic obstructive pulmonary disease (COPD) exacerbation

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Background and Aim

Broncho-vaxom has been shown to be a potential drug in reducing risk of COPD exacerbation in studies with relatively small number of patients with short duration. In this study, we evaluated clinical efficacy of Broncho-vaxom (BV) in reducing risk of COPD exacerbation

Methods

The study was based on a HIRA database which contains national insurance reimbursement information that covers almost all population in South Korea. We extracted data from 2016 to 2019, and selected patients who initiated BV in 2017 to 2018. We collected baseline characteristics including demographics, comorbidities, inhaler use, hospital and insurance type at 1-year preceding BV initiation. We analyzed exacerbation history of 1-year preceding and following years.

Results

Total of 238 patients were enrolled in this study. Mean age was 69.2±9.14, and 79.8% were male. Forty-five percent of patients experienced at least 1 exacerbation, and 26.5% experienced pneumonia previously. Mean modified Carlson Comorbidity index was 2.62±2.12. In comparison between pre-BV and post-BV, BV reduced risk of moderate (OR=0.59, 95%CI [0.38-0.91]) and moderate-to-severe exacerbation (OR=0.571, 95%CI [0.37-0.89]). BV use were not significantly associated with antibiotics-used COPD exacerbation risk, but it was associated with moderate OCS-used COPD exacerbation (OR=0.58, 95%CI [0.34-0.99]). On analysis of time to first exacerbation, use of BV were significantly associated with moderate exacerbation (HR=0.68, p=0.02), but did not meet statistical significance on moderate-to-severe nor severe exacerbation.

Conclusion

Use of BV were associated with reducing moderate and moderate-to-severe exacerbation. Also, BV was associated with delaying future moderate COPD exacerbation.

	Number of patient with events (%) (n=238)		Crude OR (95% CI)	Adjusted OR (95% CI)
	pre-BV	post-BV		
COPD exacerbation				
Moderate	127 (0.53)	104 (0.44)	0.678 (0.471-0.976)	0.591 (0.383-0.914)
Severe	91 (0.38)	81 (0.34)	0.833 (0.572-1.215)	0.818 (0.545-1.230)
Moderate to Severe	165 (0.69)	141 (0.59)	0.643 (0.440-0.941)	0.571 (0.368-0.886)

AP07-374

Early COPD subtypes as predictors of COPD exacerbation

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Background and Aim

COPD is a heterogeneous disease, and acute exacerbation is a major prognostic factor. The purpose of our study was to determine the subtype of early COPD as a predictor of acute exacerbation through cluster analysis.

Methods

Six variables were selected for cluster analysis: age, body mass index, smoking status, smoking pack-years, COPD assessment test (CAT) score, and post-bronchodilator FEV1 % predicted. Among the Korea COPD Subgroup Study (KOCOSS) cohort, 924 patients with FEV1 \geq 50% predicted and data for 6 variables were included.

Results

Four groups were classified through clustering analysis; cluster 1 (n = 224), cluster 2 (n=235), cluster 3 (n = 248), cluster 4 (n = 217). Among 4 groups, cluster 2 showed the oldest mean age (68.6 ± 6.7 [cluster 1] vs 74.2 ± 5.4 [cluster 2] vs 63.3 ± 6.6 [cluster 3] vs 71.9 ± 6.6 [cluster 4]), the highest smoking pack years (42.5 ± 21.8 vs 55.3 ± 27.7 vs 37.1 ± 16.0 vs 29.8 ± 16.4), the highest median CAT score (12.1 ± 6.7 vs 17.5 ± 8.1 vs 12.2 ± 6.5 vs 11.4 ± 7.4) and the lowest 6-minute walk distance (396.8 ± 115.9 vs 351.7 ± 119.3 vs 427.4 ± 99.4 vs 388.2 ± 113.9). Cluster 2 had a greater risk of acute exacerbation (OR, 1.93, 95% CI 1.29-2.88) than the other groups.

Conclusion

Our cluster analysis revealed that a subtype of early COPD patients is susceptible to acute exacerbation. A more aggressive treatment strategy is needed in this subtype.

AP07-375

Serum Alkaline phosphatase and acute exacerbation of COPD

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Background and Aim

History of exacerbation is a well-known predictor of COPD exacerbation. However, little is known about serum biomarkers and exacerbation. Here we reported the association between serum alkaline phosphatase (ALP) and COPD exacerbation from a large COPD patient cohort.

Methods

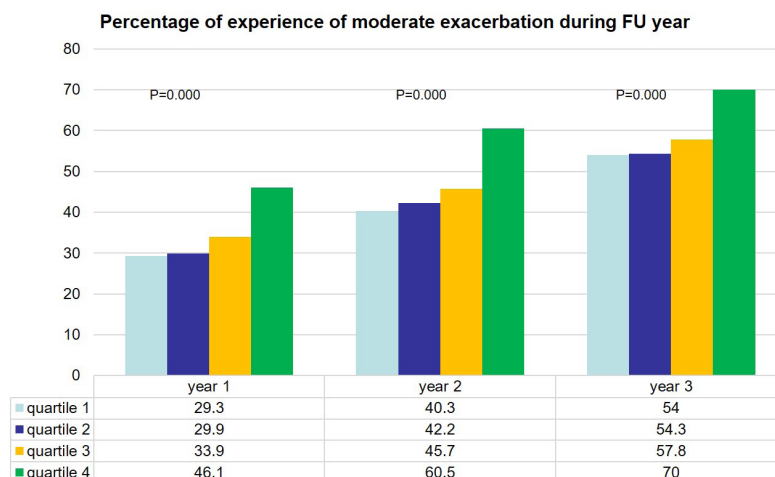
We analyzed the data of 1608 COPD patients who were followed up for at least one year. We evaluated the incidence and frequency of acute exacerbation according to baseline serum ALP level presented by quartile.

Results

The ALP level differed significantly according to exacerbation history before enrollment (98.3 IU/L for patients without exacerbations, 113.0IU/L for patients with one exacerbation, and 118.54IU/L in patients with two or more exacerbations, $p < 0.0001$). During the three-year follow-up period, patients with higher values of ALP had more moderate exacerbations than those with lower values. The proportion of patients who experienced exacerbation was 29.3% in quartile 1, 29.9% in quartile 2, 33.9% in quartile 3, and 46.1% in quartile four during the first year of follow-up. The mean exacerbation frequency was 0.68 in quartile 1, 0.78 in quartile 2, 0.89 in quartile 3, and 1.14 in quartile four during the first year of follow-up.

Conclusion

Baseline serum ALP levels are different between patient groups stratified by exacerbation history. Patients with higher ALP levels experienced more moderate exacerbations during follow-up. More studies are needed to validate the role of alkaline phosphatase in COPD.



AP07-376

The plasma level of angiogenic transcription factor SOX18 in COPD patients and its association with lung function and exacerbations

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Background and Aim

The SRY-related high-mobility group box 18 (SOX18) is an angiogenic transcription factor that participates in the development of vessels. The expression of SOX18 is increased in acute lung injury and asthma exacerbation, but the role of SOX18 in chronic obstructive pulmonary disease (COPD) has not been studied. To investigate the relationship between SOX18 and COPD, we evaluated the association of SOX18 with the clinical parameters of COPD, including lung functions and exacerbations.

Methods

We recruited a cohort of 30 patients with COPD and 25 healthy controls, and compared their clinical parameters. We measured the plasma SOX18 level of healthy controls and COPD patients who were in stable and exacerbated states.

Results

The COPD patients were all males, and predominantly smokers; their baseline lung function was lower than healthy controls. The mean SOX18 plasma level was 0.0272 ± 0.0145 ng/mg in the control group, 0.1574 ± 0.0692 ng/mg in the stable COPD group (COPD-ST) and 0.2336 ± 0.1921 ng/mg in the exacerbated COPD (COPD-EXA) group. The plasma SOX18 level was significantly higher in both COPD-ST and COPD-EXA groups compared to the control group. The plasma SOX18 level was inversely correlated with BMI, FVC, and FEV1 of COPD patients ($r = -0.448$, $P < 0.001$, $r = -0.511$, $P < 0.001$, and $r = 0.607$, $P < 0.001$, respectively).

Conclusion

The plasma SOX18 level was elevated in COPD patients regardless of exacerbation and negatively correlated with lung function. This suggests that SOX18 may play a role in pathogenesis of COPD.

Acknowledgement

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Disclosure statement

The authors declare no conflicts of interest in this study.

AP07-377

Small airway narrowing and the risk of COPD exacerbation: analysis from prospective KOCOSS Cohort

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Background and Aim

Small airway narrowing is the major cause of increased airflow resistance in COPD. Small airway disease is a recognized feature of COPD and has been characterized by pathology, imaging, and physiological studies. However, the role of small airway narrowing in COPD exacerbation has rarely been studied. Therefore this study aimed to investigate the impact of small airway narrowing on COPD exacerbation.

Methods

To evaluate small airway narrowing, we identified the forced expiratory flow at 25% and 75% of the pulmonary volume (FEF_{25-75}) of patients with COPD from the Korean COPD Subgroup Study (KOCOSS) cohort, which is multicenter-based, prospective, consecutive cohort in Korea. The primary outcome was a developed of COPD exacerbation during three years of follow-up.

Results

Of 2,916 participants, 2,823 patients measured the FEF_{25-75} in the baseline enrollment, and 1,293 were analyzed for the development of COPD exacerbation. The rate of COPD exacerbation was assessed with number of exacerbations, by classifying into the 4 IQR groups. Of 1,293 patients, the proportion of moderate to severe exacerbation and severe exacerbation was 41.7% and 11.4%. The more severe the small airway narrowing, the more acute exacerbation experienced. In the lower quarter group, 57.4% experienced moderate to severe exacerbation, and in the upper quarter group, 28.9% experienced moderate to severe exacerbation ($p < 0.0001$)

Conclusion

In this prospective cohort study, we found that small airway narrowing (representing FEF_{25-75}) showed an association with an increased risk of COPD exacerbation.

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AP07-378

Practice Patterns Survey on Tiotropium among Clinicians in Nepal

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Background and Aim

In Nepal, tiotropium bromide was the first long-acting bronchodilator approved for COPD-maintenance treatment. It is critical to acquire clinician's perspective and real-world experience to understand practice patterns across country.

Methods

This cross-sectional, non-interventional, questionnaire-based survey evaluated the knowledge, attitudes, and practice patterns regarding tiotropium among clinicians in Nepal.

Results

A physical survey was carried out in 171 clinicians, including general physicians (39%), pulmonologists (10%) and consultant physicians (51%) practising in hospitals or clinics, or both. Ninety-eight percent stated that their COPD patients are above age of 40. With an average of 7 years of practice, 53% stated that their patients had been experiencing COPD symptoms for >5 years before visiting them. 85% of clinicians opined that most of their patients are in GOLD group-B or C at first consultation. Fifty-nine percent diagnose COPD as per guideline recommendations, whereas 34% depend only on their clinical judgement. Tiotropium was prescribed by all clinicians. Thirty-one percent of patients are considered to experience exacerbations despite using tiotropium regularly. Ninety-three percent of clinicians observed improvement in symptoms in most of their patients within 30 days of initiation of tiotropium. Sixty-six percent think that more than 80% of their patients are adherent to prescribed therapy. Dry mouth was the most common side effect reported by patients on tiotropium, followed by dyspepsia and pharyngitis.

Conclusion

Clinicians in Nepal tend to follow guideline recommendations for diagnosis and management of COPD. Tiotropium seems to meet expectations of most of the clinicians to manage their COPD patients.

AP07-379

Evaluating the outcomes affected by switching from multiple-inhaler triple therapy to single-inhaler triple therapy in patients with stable COPD

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Background and Aim

Multiple-inhaler triple therapy (MITT) used to be prescribed for COPD treatment with triple therapy (TT). After approval of fluticasone furoate/umeclidinium/vilanterol (FF/UMEC/VI), patients can receive single-inhaler triple therapy (SITT). The purpose of this study is to assess the effect on lung function, health status and dyspnea by exchanging MITT for SITT.

Methods

We conducted an observational study of the patients attending our outpatient clinic diagnosed with COPD according to the GOLD report. There were 29 patients receiving MITT with blood eosinophil count 100/ μ l or more who were provided switching medication to SITT. We compared lung function and patient-reported outcomes (PROs) between the last 6 months MITT period and the initial 6 months SITT period.

Results

There were no significant differences between 6 months before and after the exchange in relation to spirometric parameters including FEV1 (mean 1.46L vs 1.43L) and FEV1/FVC (48.7% vs 47.8%). As for PROs, we didn't find any statistical differences in CAT scores (11.9 vs 12.0), SGRQ Total scores (44.4 vs 48.4) and Dyspnea-12 Total scores (3.8 vs 3.8). In 29 patients, a total number of exacerbations during the last MITT period and the initial SITT period were 10 and 11, respectively.

Conclusion

We could not point out any clinical indices that showed significant changes between pre- and post- switching treatment from MITT to SITT in our cohort. Extension of observation period or comparison tests seem to be needed in consideration of lung functional decline over time in patients with COPD.

AP07-380

A real-world study about exacerbations and medical cost of COPD according to inhaler use

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Background and Aim

Real-world studies which merge patient cohort and health insurance claim databases are scarce regarding inhaler use and exacerbation. In this study, we explored the experience of COPD exacerbation stratified by inhaler classes. We also compared the health care utilization according to inhaler use.

Methods

By merging the patients' cohort and claim database, we compared the experience of exacerbation and health care utilization according to baseline inhaler use for a 2-year follow-up period.

Results

A total of 648 patients were enrolled. Fifty-two patients (8.0%) used the combination of ICS and LABA, 102 (15.7%) used LAMA only, and 218 (33.6%) used ICS + LABA+ LAMA. A total of 274 (43.2%) patients did not use any inhaler at baseline.

Of the patients treated with ICS/LABA, 44.2% and 48.1% experienced exacerbations yearly. Patients with LAMA or ICS/LABA/LAMA had similar exacerbations each year (43.3% and 43.3% for LAMA, 60.6% and 60.1% for ICS/LABA/LAMA). However, for the patients without inhalers at baseline, the proportion of patients with exacerbations increased from 25.2% to 44.5%.

The medical cost of the patients without treating inhalers was the higher than that of patients with ICS/LABA or LAMA alone (804 USD and 1056 USD in year 1 and 2 for the non-treatment group, 458 USD and 505 USD for ICS/LABA, 414 USD and 628 USD for LAMA in each year, respectively).

Conclusion

This study showed that about half of COPD patients experienced exacerbations during a 2-year follow-up. However, the proportion of patients with exacerbation of patients without inhalers increased during follow-up. A similar pattern was shown in terms of the medical cost. These findings may support the importance of early treatment of COPD.

AP07-381

COMPARISON OF CLINICAL EFFICACY AND PATIENT'S SATISFACTION OF TIOTROPIUM RESPIMAT® ADMINISTRATION WITH AND WITHOUT AERO-CHAMBER IN PATIENT WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

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Background and Aim

Study assessed the effect of the addition of aero-chamber in the delivery of SPIRIVA RESPIMAT® on the effects on the frequency of exacerbations, hospital admissions, difference in FEV1, inhaler technique errors quality of life and patient's satisfaction in patients with COPD in addition to standard care of treatment.

Methods

Randomized, crossover study of outpatient COPD patients in UKMMC. Eligible subjects randomized to 2 groups: aero-chamber or non-aero-chamber. Only SPIRIVA RESPIMAT® was to be used with the aero-chamber. Treatment with their pre-existing inhalers continued. Crossover was at week 9 and subjects underwent a 2-week period of no intervention. During this period no patients were allowed to use their aero-chambers and inhaler technique counselling was not performed. At week 11, only one group was allowed to use their aero-chamber and both groups received counselling for inhaler technique. This was continued for 8 weeks. Subjects were assessed at weeks 0, 8 and 18 for FEV1, CAT, SGRQ, and satisfaction questionnaire. Assessment of inhaler technique was assessed periodically except weeks 9 to 10.

Results

September 2019 and October 2020, enrolled and randomly allocated 96 subjects: 49 to aero-chamber and 47 to non-aero-chamber group. Mean age 70.95± 9.21 with duration COPD 4.5year. Males' predominance; 84 (87.5%, with majority are 47 (49%) Chinese. In the CAT questionnaire, majority 62(64.4%) scored 11-20, only 1 (1%) scored > 31.

There is no association between aero-chamber usage with both exacerbation and hospital admission.

Conclusion

There was no difference between FEV1, CAT score in Tiotropium Respimat with or without aero-chamber.

UKMMC Respiratory clinic and respiratory unit staff.

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AP07-382

Assessment of Correct Inhaler Prescription using In-Check DIAL G16® in Advanced Chronic Obstructive Pulmonary Disease (COPD) Patients.

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Background

There are many different inhalers developed for COPD treatment with different device's internal resistance; each requires different inspiratory flow rate. This study assessed the peak inspiratory flow rate (PIFR) using In-Check DIAL G16® among patients with advanced COPD. We study the exacerbation rate, change of FEV1 and COPD Assessment Test (CAT) score after matching appropriate inhaler devices to the measured PIFR.

Methods

Randomised, prospective interventional study among advanced COPD patients. PIFR was measured in all subjects. Subjects with unmatched PIFR were randomized into 2 groups. In interventional group, inhalers were changed to an appropriate inhaler that matched their measured PIFR. In non-interventional group, subjects continued the same inhalers prior to randomization. Subjects were followed-up at 4,8 and 12 weeks.

Results

We enrolled 56 subjects: 34 had matched PIFR and 22 with unmatched PIFR (11 in the interventional group and 11 in the non-interventional group). There were 38% (n = 21) subjects with PIFR of ≤ 60 L/min (against the resistance of Diskus™). In interventional group, mean predicted FEV1 % at baseline was 54.6% and 56.6% at 12 weeks (p=0.026) respectively, with mean difference of 1.91% compared to the non-interventional group (p=0.012). Mean CAT score at baseline was 24.4 and 19.6 at 12 weeks with p=0.012.

Conclusion

More than a quarter of the subjects had PIFR < 60 L/min. There was a significant improvement of CAT score and FEV1 at 12 weeks after matching the inhaler with inspiratory flow. However, there was no difference of exacerbation rate between two groups.

Comparison of FEV₁, CAT score and Exacerbation rate during the study period within interventional and non-interventional group (n = 22)

Variables	Interventional Group (n = 11)			Non-interventional Group (n = 11)			
	Before mean (SD)	After mean (SD)	p-value	Before mean (SD)	After mean (SD)	p-value	
FEV ₁ (%) predicted	54.6 ± 20.4	56.6 ± 19.8	0.026^a	58.0 ± 21.9	56.5 ± 20.7	0.143 ^a	
CAT Score	24.4 ± 5.8	19.6 ± 4.4	0.012^a	26.5 ± 6.1	23.3 ± 5.6	0.010^a	
Exacerbation; n(%)							
No	9 (81.8)			9 (81.8)			>0.950 ^b
Yes							0.513 ^b
Moderate	2 (18.2)			1 (9.1)			
Severe	0 (0)			1 (9.1)			

FEV₁: Forced expiratory volume in 1s

CAT: COPD Assessment Test

^aPaired T-test; p-value < 0.05 is significant

^b Pearson Chi-square Test; p-value < 0.05 is significant

*Moderate exacerbation: Treated with systemic corticosteroids and / or antibiotics (no hospital admission).

**Severe exacerbation: Required hospital admission for the treatment of exacerbation.

AP07-383

Comparison of the outcomes and medical cost from initiation of LAMA vs ICS/LABA in treatment-naïve COPD patients; findings from the CITRUS study

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Background and Aim

A conservative use of inhaled corticosteroid (ICS) is recommended in chronic obstructive pulmonary disease (COPD); however, it is widely prescribed in clinical practice. This study investigated the pneumonia incidence, the escalation time to triple therapy and the medical cost in treatment-naïve COPD patients initiating treatment with either a long-acting muscarinic receptor antagonist (LAMA) or ICS/LABA (ICS plus long-acting β 2-agonists).

Methods

We selected COPD patients aged ≥ 55 years initiating with LAMA or ICS/LABA from the National Health Insurance Service database (Jan 2002- Apr 2015). The index date was defined as the first prescription date of LAMA or ICS/LABA. The escalation time to triple therapy, pneumonia incidence and medical costs were compared after propensity score (PS) matching.

Results

2,444 PS-matched patients were enrolled in each group. For the time to escalation to triple therapy, LAMA group was lower than ICS/LABA group (450.44 ± 510.56 days vs 358.12 ± 418.70 days, $p = 0.0281$). The incidence of pneumonia per 1,000 patients per year (PYs) was lower in LAMA group compared to ICS/LABA (109.82 vs 167.10, p-value

Conclusion

This analysis showed that the initiation of LAMA therapy may reduce the rate of escalation to triple therapy, pneumonia incidence and medical cost than ICS/LABA.

AP07-384

A study to understand the portion and characteristics of patients with suboptimal peak inspiratory flow rate in dry powder inhaler users for COPD in Korea

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Background and Aim

The inhalers play a central role in treating COPD. However, one of the patients' most common errors of dry powder inhaler (DPI) is the suboptimal peak inspiratory flow rate (PIFR). This study aims to investigate the suboptimal PIFR (sPIFR) prevalence in the DPI users among Korean COPD patients and to analyze the factors related to sPIFR.

Methods

We conducted a cross-sectional study of patients who were diagnosed COPD at least one year before and used DPIs for over three months. We recruited 407 patients who measured PIFR using In-Check™ DIAL G16 and compared characteristics between patients with optimal PIFR (oPIFR) and those with sPIFR.

Results

The prevalence of sPIFR was 21.3% (87/407). The patients with sPIFR had older age, lower BMI, and higher symptom scores compared to those with oPIFR. In the multivariate analysis, significant factors associated with sPIFR were age (adjusted odds ratio [aOR] = 1.05 by 1 increase, 95% confidence interval [CI] = 1.02 - 1.09), gender (aOR = 0.28 by male, 95% CI = 0.11 - 0.73), BMI (aOR = 0.91 by 1 increase, 95% CI = 0.85 - 0.99), postbronchodilator FVC percent predicted (aOR = 0.97 by 1% increase, 95% CI = 0.95 - 0.99), and In-Check™ DIAL R2 inhalers (aOR = 3.70 compared to R1 inhalers, 95% CI = 2.03 - 7.03).

Conclusion

In South Korea, the prevalence of sPIFR was notable among DPI users. The factors associated with sPIFR were age, female gender, low BMI, low FVC, and R2 type inhalers.

Acknowledgments

This study was sponsored by Boehringer Ingelheim Korea Ltd

AP07-385

Advances in the treatment of respiratory failure by external diaphragmatic electrical stimulation

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Objective

A review of the progress in the treatment of respiratory failure caused by chronic obstructive pulmonary disease (COPD) by in vitro electrical stimulation of the diaphragm.

Methods

Transcutaneous electrical diaphragm stimulation (TEDS). TEDS is a noninvasive electrical stimulation of the diaphragm, which can also partially stimulate the intercostal muscles and diaphragm fibers. Through TEDS treatment, type II muscle fibers can be stimulated, which promotes muscle contraction, thereby increasing lung volume and lung ventilation. Diaphragmatic thickness and morphology were assessed using ultrasonography.

Results

Intermittent electrical stimulation of the phrenic nerve can reduce diaphragm atrophy, help patients with respiratory failure to reduce the off-line time, and significantly improve diaphragm dysfunction, pulmonary ventilation, exercise capacity and dyspnea in COPD patients.

Conclusion

Transcutaneous electrical stimulation of the phrenic nerve in vitro increase the thickness of the diaphragm, and its potential benefit may reduce ventilator-induced diaphragm dysfunction. Compared with traditional treatment and single diaphragm pacing treatment, the use of external diaphragm pacemaker acombined with other related treatments can significantly improve the dtherapeutic effect, significantly relieve the patient's diaphragm fatigue, improve ventilation function and clinical symptoms and signs, and enable the mechanical ventilation patients to be weaned earlier, reduce the hospitalization time of patients, the incidence of adverse reactons, the reintubation rate, and reduce the medical burden of patients. In some cases, diaphragmatic pacing may promote the recovery of neural circuits and diaphragm itself.

AP07-386

A COPD patient with persistent decompensated type II respiratory failure with acidosis not responding to Bi-level ventilation

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Introduction

Non-invasive ventilation is the standard treatment for decompensated type II respiratory failure in patients with COPD. When patients do not respond to this therapy, the physician also needs to be a good detective to unravel the mystery.

Case Report

A 66-year-old woman with severe COPD (Gold class 3D) and known chronic hypercapnia, was admitted with recurrent falls, morning headaches and fatigue. On examination she had an expiratory wheeze and asterixis. The ABG revealed decompensated type II respiratory failure with PH 7.28, pCO₂ of 67 mmHg, bicarbonate of 31 mmol/L and pO₂ of 62 mmHg. The patient was commenced on bi-level ventilation, in addition to standard treatment for COPD exacerbation.

Despite the use of non-invasive ventilation with appropriate titration of pressures, the patient remained acidotic. Further history revealed that the patient was started on acetazolamide 250 mg QID, after being diagnosed with idiopathic intracranial hypertension (IIH 10 days prior). Her baseline bicarbonate before this commencing acetazolamide was 38 mmol/L and her baseline Pco₂ was 59 mmHg. Acetazolamide was ceased and over the next few days the acidosis resolved spontaneously

Discussion

Acetazolamide works by inhibiting carbonic anhydrase enzyme. This has two effects -- reducing CSF production and stopping bicarbonate reabsorption in the PCT which hampers with metabolic compensation in COPD patients with hypercapnia. Caution is needed when starting acetazolamide in patients with severe COPD.

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8
PH	7.28	7.29	7.28	7.33	7.32	7.32	7.37	7.37
Pco ₂ (mmHg)	67	66	60	53	56	55	55	58
Po ₂ (mmHg)	62	73	65	65	55	56	55	63
Base excess (mmol/L)	4.3	4.4	1.6	2	3	1.9	5.6	7.2
Bicarbonate (mmol/L)	31	31	28	27	29	27	31	32

AP07-387

A rare case of combined pulmonary fibrosis and emphysema complicated with an aspergilloma

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Introduction

Coexistence of upper lobe emphysema and lower lobe fibrosis; is termed combined pulmonary fibrosis and emphysema (CPFE). Although smoking is the commonest cause; multiple other etiologies can result in CPFE.

Case report

A 68-year old ship yard worker with forty pack years of smoking, presented with worsening of a preexisting dyspnea on exertion for two months. Previously, dyspnea was well controlled with inhaled bronchodilators and corticosteroids. He denied constitutional symptoms or history of tuberculosis. Examination revealed a dyspnic male with barrel chest deformity. Breath sounds were reduced bilaterally with ronchi and fine crepitations. Complete blood count, septic and connective tissue disease screening were negative. Chest radiograph showed emphysematous lungs with basal reticulations. High resolution computed tomography of chest revealed bilateral apical bullae, upper lobe paraseptal emphysema, basal honeycombing and a mycetoma in right upper lobe. Spirometry showed a normal total lung capacity (TLC) with markedly reduced diffusion capacity for carbon monoxide (DLCO). Aspergillus specific immunoglobulin E (IgE) and total IgE were raised. Serum Aspergillus galactomannan antigen was negative. A diagnosis of CPFE following smoking and occupational asbestos exposure complicated with an aspergilloma was made. Smoking cessation counselling, triple inhalers, pulmonary rehabilitation and a course of itraconazole were commenced.

Discussion

A radiological appearance of upper lobe emphysema with lower lobe fibrosis and normal TLC with reduced DLCO, in the background of predisposing factors will clinch the diagnosis of CPFE. Smoking cessation and treatment of underlying etiology of CPFE are of paramount importance. Lung transplantation is the only mode of curative treatment in CPFE.



Figure 01. HRCT chest showing 1(a). bilateral upper apical bullae and paraseptal emphysema. 1(b). reticulations, interlobular septal thickening and cyst formation in bilateral lower zones. 1(c) mycetoma in anterior segment of right upper lobe (red arrow)

AP07-388

Tiotropium survey on practice patterns among clinicians in Sri Lanka: The TRUST survey

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Background and Aim

Bronchodilators remain the mainstay treatment for the management of chronic obstructive pulmonary disease (COPD). Tiotropium bromide was the first long-acting bronchodilator to be licenced for COPD maintenance therapy in Sri Lanka.

Methods

This cross-sectional, non-interventional, questionnaire-based survey evaluated the knowledge, attitude, and practice patterns of tiotropium among clinicians in Sri Lanka.

Results

Of 131 clinicians, 59% stated that their patients had been experiencing symptoms of COPD for >5 years before visiting them. Forty-one percent of clinicians used only their clinical judgement to diagnose COPD patients. One hundred eight (84%) clinicians routinely prescribe Tiotropium. Sustained 24-hour activity and acceptable tolerability were the most desired effects in patients receiving LAMA. Most clinicians (81%) prefer prescribing tiotropium in maintenance-naïve, symptomatic patients with a recent history of exacerbation or a significant exacerbation risk patient. 21% of patients are considered to experience exacerbation despite using tiotropium regularly. At the time of hospital discharge, 69% of clinicians preferred to give their patients a LAMA, with (58%) or without ICS/LABA (11%). Eighty-two percent of clinicians reported seeing improvement in symptoms in most of their patients within 30 days after initiation of tiotropium. Cost of therapy and poor inhalation technique impact adherence the most. Accurate with consistent dose delivery and an easy-to-use technique were the most preferred features of inhaler devices.

Conclusion

Tiotropium appears to meet the expectations of most doctors in Sri Lanka for efficacy and tolerability. Awareness and availability of spirometry might lead to accurate and early diagnosis of COPD in the country.

Disclosure statement: Vaibhav, Jaideep, and Snehal are the permanent employees of Cipla Ltd. Other authors have no conflict of interest in the study. No honorarium was given to any of the authors for conducting this study. The authors thank the doctors who participated in the survey.

AP07-389

Correlation of clinical COPD questionnaire(CCQ) with BODE index in stable patients of chronic obstructive pulmonary disease - a cross-sectional study

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Background

COPD is the fourth leading cause of death in the world. GOLD staging has been used for the stratification of the severity of COPD, while BODE (Body mass index, airflow Obstruction, Dyspnea, Exercise capacity) index is superior to FEV1 in predicting mortality. Clinical COPD Questionnaire (CCQ) has ten items categorized into three domains (symptoms, functional state and mental state), was developed to measure health status of COPD patients. Little is known about the relationship between CCQ scores and BODE index.

and Aim

Determination of correlation between CCQ and BODE index.

Methods

GOLD staging based on post-bronchodilator FEV1 and CCQ and BODE score were calculated in 40 COPD patients. Data were analysed using Spearman rank correlation test at 5% significance level.

Results

Out of 40 COPD patients, 34 were males. Of the study group 29 (72.5%) were smokers. 24 (60%) had BMI

Conclusion

CCQ-F score had significant correlation with BODE index and GOLD stages. Since significant correlation existed between CCQ-F and BODE score, it could be satisfactorily used to assess the severity of COPD.

AP07-390

Analysis of the relationship between quality of life, physical activity and prognostic index in individuals with COPD

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Background and Aim

COPD is an important cause of mortality worldwide, with high prevalence and morbidity. The BODEx index assesses the prognosis of the disease in a multidimensional way, taking into account acute exacerbations. Thus, we aimed to analyze the association of this prognostic index with the quality of life and the level of physical activity in this population.

Methods

Individuals with a diagnosis of COPD were submitted to physical activity level and quality of life assessments, and the calculation of the BODEx index considered the variables: body mass index, degree of airflow obstruction (FEV₁%), dyspnea assessment by the mMRC questionnaire and frequency of exacerbations in the last 30 days. The Kolmogorov-Smirnov normality test was used to determine the normality of the data. The data were expressed as mean and standard deviation. Pearson's correlation test was used for the correlation analysis. The level of significance was set at 5% ($p < 0.05$).

Results

The mean age of the 09 study participants was 66 years, classified as insufficiently active, and classified with moderate severity by the BODEx index (3.1 ± 1.7). We found a positive correlation of the BODEx index the total score of the SGRQ ($r = 0.868$), and a negative correlation between the BODEx index and FEV₁% ($r = -0.848$).

Conclusion

Therefore, we can conclude that the increase in mortality risk may be related to the level of physical inactivity and the degree of airflow obstruction of the individual with COPD, which will directly impact their quality of life.

Table 1: General characteristics of sample

	Mean \pm SD
Age (years)	66 \pm 6,4
Sex (male/female)	7/2
BMI (Kg/m ²)	23,6 \pm 3,8
FEV ₁ (% predicted)	56 \pm 23,4
IPAQ score	1,6 \pm 0,8
BODEx index	3,1 \pm 1,7
SGRQ score	51,7 \pm 20,1

BMI: body mass index; FEV₁: forced expiratory volume in the first second; IPAQ: International Physical Activity Questionnaire; SGRQ: Saint George Respiratory Questionnaire.

AP07-391

Smartphone enabled informatics platform for the self-management of COPD in India

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Background

COPD is one of the prominent causes of mortality, morbidity and disability among chronic respiratory diseases. Digital health interventions exist to provide various healthcare services to individual diagnosed with COPD. Training and support to the COPD patients on self-management of their COPD status, improves health related QoL and can reduce unplanned hospital visits and admissions.

Methods

A prospective non-randomized study will be conducted to implement the self-management informatics platform among 164 COPD patients (82 each in intervention and control group) in theselected hospital of India. A mixed methods will be conducted among identified COPD patients to assess the impact of COPD self-management informatics tool. Intervention: Identified COPD patients (GOLD-2 and 3) will be provided a smartphone application which includes the educational videos in local language on pulmonary rehabilitation, counselling services on physical activities, nutrition, smoking cessation, medications and spirometry. Control group: COPD patients assigned to control group will be treated with standard treatment regime for their COPD.

Result and data Analysis

Data will be analyzed using statistical software like SPSS 21 version. Independent or student t-test will be used to analyze the mean difference between intervention and control groups. Chi square test will be done to find out the association between categorical variables.

Conclusion

Smartphone enabled informatics platform may assist the COPD patients in the management of the exacerbations, reduced health care facility admissions, hospitalization days and health related quality of life.

The authors declared no conflict of interest.

AP07-392

Psychometric Analysis of the newly translated Malaysian version of COPD Self-Efficacy Scale by Rasch analysis

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Background

Chronic obstructive pulmonary disease (COPD) is the third leading cause of death worldwide and the ninth leading cause of disease burden in Malaysia. Many COPD patients lose confidence in their capability to prevent trouble breathing when partaking in certain tasks. This lack of confidence might manifest as low self-efficacy. For the assessment of self-efficacy, a validated tool is essential.

Aim

This study aims to translate and assess the psychometric properties of a Malay version of the COPD self-efficacy scale (CSES) among COPD patients.

Methods

Permission was obtained from respective authors to translate the English version of the COPD self-efficacy scale into the Malay language according to established standard international translation guidelines. In this study, 30 adult COPD patients were recruited from COPD Clinic under Pantai Hospital by convenience sampling method. The item and person reliability, infit/outfit Z-Standard (ZSTD), and infit/outfit Mean Square (MNSQ) were analysed for reliability analyses and construct validation.

Results

Rasch analysis confirmed that the Malay version of CSES with a five-point rating scale demonstrated good internal consistency (item reliability=0.93, person reliability=0.94). The output tables of item construct showed that values for infit and outfit MNSQ (0.6 to 1.5), infit and outfit ZSTD (± 2) were within the acceptable range for all the items except for two items: item number 16, and 30. The newly devised translated questionnaire satisfies the specification of the Rasch Model for reliability (n=30) and constructs validity (n=30).

Conclusion

The Malay version of CSES could reliably measure self-efficacy among Malaysian COPD patients. Two items need to be rephrased in order to validate the complete questionnaire construct by the Rasch model.

AP07-393

The characteristic of decision making withdrawal or withholding in patients with terminal chronic pulmonary disease in tertiary hospital after The Hospice, palliative Care, and Life-sustaining treatment decision-making Act.

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Background and Aim

After the Hospice, palliative Care, and Life-sustaining treatment decision-making Act was come into force in February 2018 in Korea, number of patients who died according to their own advance directive(AD) or physician orders for life-sustaining treatment(POLST) is increasing. However most of patients had terminal malignant disease. We reviewed the characteristics of disease patients with non-malignant chronic lung disease who withdraw or withhold life-sustaining treatment in tertiary care hospital.

Methods

Retrospective data were analyzed for the period from February 2018 to May 2022. We review 631 patients who had expired in pulmonary department in a tertiary care hospital. We collected medical records of these patients and analyzed Life-sustaining treatment decision-making of patients with non-malignant chronic lung disease.

Results

During, total 631 patients were included. the mean age was 73 years and 438(69%) were men. Among 631 patients, 118 patients had non-malignant chronic lung disease. The chronic lung disease were COPD(n=61), ILD(n=41), bronchial asthma(n=8), bronchiectasis(n=3), and others(n=1). Terminal stage of lung disease were 12. Only 2 patients had preexisting AD or POLST. Total 14 patients among 631 patients had expired according to The Hospice, palliative Care, and Life-sustaining treatment decision-making act. Among 14 patients, half of them had expired by underlying terminal chronic disease and the others had expired by acute disease. Most of patients with terminal chronic disease had malignancy, only one patients had idiopathic pulmonary fibrosis. The patient had used long term oxygen therapy for 2years. The patient had made POLST after admission for acute exacerbations, 1day before dying.

Conclusion

Only few Patients who had non-malignant chronic lung disease had preexisting their life-sustaining decision before who were judged 'the last days of life' for dying patient.

AP07-394

Utility of 6 minute walk test (6MWT) as a screening tool to assess the disease severity of stable chronic obstructive pulmonary disease (COPD) patients

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Background and Aim

COPD is a leading cause of disability and mortality worldwide. Spirometry is a gold standard pulmonary function test to classify the severity of COPD patients. But the result of spirometry depends on patient's effort and technician's quality. As 6MWT is a simple, low cost and reproducible test, this study aimed to evaluate the utility of 6MWT as a screening tool to assess the disease severity of stable COPD Patients.

Methods

This hospital based cross sectional study was conducted in the Department of Respiratory Medicine, Dhaka Medical College & Hospital for 24 months period. Total 100 diagnosed stable COPD patients were included in the study according to the selection criteria. The spirometry and 6MWT were performed according to ATS guideline in all patients. Cut off value of 6 minute walk distance (6MWD) was determined among severity categories of COPD patients.

Results

Significant positive correlation was found between 6MWD and FEV1 (% predicted) (Pearson's $r = 0.497$, p

Conclusion

6MWT can be used to categorize severity of COPD patients as an alternative tool of spirometry.

AP07-395

Correlation between parameters of cardiopulmonary exercise testing and symptoms of patients with chronic obstructive pulmonary disease

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Background and Aim

The appropriate assessment of symptoms, as well as the objective measurement of lung function and exercise capacity is important in the treatment of patients with chronic obstructive pulmonary disease (COPD). This study examines the correlation between cardiopulmonary exercise testing (CPET) parameters and the symptoms of patients as CPET has recently become widely used in the evaluation of COPD patients. However, there are insufficient studies on the correlation between the parameters of CPET and symptoms of patients.

Methods

We eventually included 51 COPD patients with maximal exercise during their CPET among the 383 patients who performed CPET at Asan Medical Center between January 2020 and May 2021. Cycle ergometer CPET was performed with an incremental protocol. Modified Medical Research Council Dyspnea Scale (mMRC) and COPD Assessment Test (CAT) was administered to assess the patients' symptoms.

Results

There was noteworthy correlation of mMRC to VO_2 max, L/min ($\rho = -0.498$, $p < 0.001$), O_2 pulse ($\rho = -0.411$, $p = 0.003$), and V_D/V_T peak ($\rho = 0.426$, $p = 0.002$). CAT was significantly correlated with VO_2 max, L/min ($r = -0.486$, $p < 0.001$), anaerobic threshold (AT) ($r = -0.409$, $p = 0.003$), and V_D/V_T peak ($r = 0.648$, $p < 0.001$).

Conclusion

VO_2 max and V_D/V_T peak had a strong correlation with mMRC and CAT between the CPET parameters.

AP07-396

Concurrent validity comparison between conventional pulmonary function test device to verify the clinical usefulness of the portable pulmonary function device 'The Spirokit' for COPD patients.

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Background and Aim

The aims of this study is to investigate the clinical usefulness of 'The Spirokit' by comparing the concurrent validity between the conventional pulmonary function test device and the portable pulmonary function test device 'The Spirokit' for COPD patients.

Methods

In eighty COPD patients (male: 53, female: 27), 'The Spirokit' and the conventional pulmonary function test device were measured, respectively, and the resulting values were compared and analyzed. For the concurrent validity comparison of 'The Spirokit', intra-class correlation (ICC [2,1]), coefficients of variation (CVME), and 95% limits of agreement (95% LOA), Cohen's Kappa coefficients were used was analyzed.

Results

'The Spirokit' showed a high agreement intra class coefficient (ICC [2, 1]): 0.929 to 0.989, 95% limits of agreements (95% LOA): -0.525 to 2.559, coefficients of variation (CVME): 0.05 to 0.08 with conventional pulmonary function tester. In addition, as a result of investigating the Cohen's kappa coefficients to find out the sensitivity, specificity, and accuracy of the device, Pa: 0.90, Pc: 0.52, K: 0.79, which showed high sensitivity, specificity, and accuracy, showed considerable agreement.

Conclusion

'The Spirokit', a portable pulmonary function test device, is an equipment with high validity and portability that can replace the conventional pulmonary function test device.

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AP07-397

Airflow Obstruction and Chronic Obstructive Pulmonary Disease in Pulmonary Tuberculosis

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Background and Aim

Pulmonary tuberculosis (TB) is a well-known risk factor for airflow obstruction and chronic obstructive pulmonary disease (COPD). The prognosis of TB without sequelae on chest X-ray (CXR) remains uncertain.

Methods

We used the data from Korea National Health and Nutrition Examination Survey (KNHANES) during 2008–2009 and the data from KNHANES-matched Health Insurance Review and Assessment Service cohort during 2007–2012. Airflow obstruction was assessed by pulmonary function testing results. Development of clinical COPD was defined using the diagnostic code and use of COPD medication during the 3-year follow-up period. We classified participants into three groups based on the self-reported TB history and presence of post-TB lesions on CXR.

Results

The prevalence of airflow obstruction was 9.3%, 13.4%, and 26.6% in control, CXR(-) post-TB, and CXR(+) post-TB group, respectively. COPD was more predominantly developed in CXR(-) post-TB (4.5%) and CXR(+) post-TB (6.5%) group than in control group (1.8%; $P=0.026$ and

Conclusion

History of TB, even without abnormal CXR findings, is an independent risk factor that can predict airflow obstruction and the development of clinical COPD requiring intervention. Patients with TB need to be educated that airway obstruction and COPD can easily develop, even if TB sequelae is not observed in CXR.

AP07-398

The role of impulse oscillometry in patients with COPD

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Background and Aim

Impulse oscillometry system (IOS) evaluates the properties and resistance of airway using low-frequency waves. This study confirmed the usefulness of IOS in the diagnosis of chronic obstructive pulmonary disease (COPD) and small airway disease (SAD).

Methods

A cross-sectional study was conducted with a total of 307 patients who performed both IOS and pulmonary function test at Seoul National University Boramae Medical Center from January 2020 to February 2022. COPD was diagnosed by post-bronchodilator FEV1/FVC

Results

There were 134 patients with COPD, 38 with SAD and 134 without both COPD and SAD. IOS parameters including resistance at 5 Hz (R5), heterogeneity of resistance (R5-R20), reactance at 5 Hz (X5), and resonant frequency (Fres) were collected. The area under the receiver operating characteristic curve (AUROC) of R5 (% predicted), R5-R20 (kPa/L/s), X5 (% predicted), Fres (% predicted), and both X5 (% predicted) ≥ 189.5 and Fres (% predicted) ≥ 160.5 was 0.703, 0.684, 0.691, 0.799, and 0.783 for COPD diagnosis, and 0.702, 0.678, 0.635, 0.705, and 0.728 for SAD diagnosis, respectively. The AUROC for distinguishing COPD [both X5 (% predicted) ≥ 274.5 and Fres (% predicted) ≥ 173.5] from SAD was 0.713 among patients with both X5 (% predicted) ≥ 189.5 and Fres (% predicted) ≥ 160.5 . This condition can differentiate COPD and SAD (OR 6.2, 95% CI 2.4-16.1).

Conclusion

Therefore, IOS may be useful in diagnosing COPD and SAD.

AP07-399

Factors associated with the discrepancy between exercise capacity and airflow limitation in patients with chronic obstructive pulmonary disease

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Background and Aim

This study aimed to investigate the factors associated with the discrepancy between airflow limitation and exercise capacity in patients with chronic obstructive pulmonary disease (COPD).

Methods

Data were obtained from the Korean COPD Subgroup Study cohort, which is a multicenter, prospective, consecutive cohort in Korea. Airflow limitation was assessed using the forced expiratory volume in 1 s (FEV1), and exercise capacity was measured using a 6-min walk test (6MWT). We divided the patients into four groups according to their FEV1 ($\geq 50\%$ or $< 50\%$) and 6MWT distance (≥ 350 m or < 350 m): group 1 (high FEV1 $\geq 50\%$ and high 6MWT ≥ 350 m); group 2 (high FEV1 $\geq 50\%$ and low 6MWT < 350 m); group 3 (low FEV1 $< 50\%$ and high 6MWT ≥ 350 m); and group 4 (low FEV1 $< 50\%$ and low 6MWT < 350 m).

Results

We included 2,440 patients (male:female=2253:187; mean age=68.6 \pm 7.9 years) who underwent 6MWT at baseline enrollment. Groups 2 and 3 were consisted of 518 (21.2%) and 568 (23.3%) patients, respectively. The FEV1 (%) was associated with the 6MWT distance $p < 0.001$; relation coefficient = 0.228). In multiple logistic regression analysis, the RV/TLC ratio was associated with the discrepancy between FEV1 and 6MWT ($P = 0.01$; odds ratio=1.020 [1.005-1.035]).

Conclusion

The discrepancy between airflow limitation and exercise capacity was common, and in patients with COPD, it was only associated with the degree of hyperinflation.

AP07-400

Association of Preserved Ratio Impaired Spirometry with Respiratory Health Outcomes in Adults: A Systematic Review and Meta-analysis

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Background

Preserved ratio impaired spirometry (PRISm) is defined by proportionate reductions in FEV₁ and FVC. However, no previous study has formally quantified the magnitude of the association between PRISm and poor respiratory health outcomes compared with normal spirometry.

Aim

To investigate the magnitude of the association between PRISm and respiratory health outcomes by doing a systematic review and meta-analysis of cohort studies.

Methods

We searched PubMed, Embase, and Web of Science databases for studies published up to May 31, 2022. We included prospective and retrospective cohort studies that measured the association between PRISm and mortality and incidence of airflow obstruction in adults. Pooled adjusted hazard ratios (HRs) and 95% confidence intervals (CIs) were calculated using the random-effects inverse-variance model with DerSimonian-Laird. We conducted stratified analysis by the definition of PRISm. Publication bias was evaluated using funnel plots, Begg's tests, and Egger's tests. PROSPERO registration number: CRD 42022307040.

Results

We identified 900 articles and included 12 articles in the meta-analyses. Compared with normal spirometry, PRISm was associated with increased all-cause mortality in all stratified analysis by the definition of PRISm. Funnel plots of HRs were visually symmetric, with Begg's rank correlation and Egger's linear regression showing no obvious publication bias. Meantime, PRISm was significantly associated with increased respiratory-related mortality (HR: 2.35, 95%CI: 1.69-3.25), cardiovascular disease-related mortality (HR: 1.73, 95%CI: 1.40-2.14), and incidence of COPD (relative risk: 2.06, 95%CI: 1.58-2.67).

Conclusion

PRISm is associated with increased all-cause mortality, respiratory-related mortality, cardiovascular disease-related mortality, and incidence of COPD.

AP07-401

Vitamin D3 supplementation on ventilatory functions and exercise tolerance in D3 deficient patients with COPD - A randomized controlled trial

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Background and Aim

Newer functional aspects of vitamin D3 has been revealed in tissue and organs other than bones which improves the ventilatory function and exercise tolerance in various comorbid patients, but its precise role in COPD patients has not delineated clearly yet.

Objective

To evaluate the effects of vitamin D3 supplementation on ventilatory function and exercise tolerance in this group.

Methods

A double blinded randomized controlled trial was carried out, on 40 D3 deficient [serum 25(OH)D4 pack years), stable patients (age>40 years) of COPD (post bronchodilator FEV1/FVC

Results

None of ventilatory variables were improved, but statistically significant improvement was observed in 6MWD (p

Conclusion

Vitamin D3 supplementation can improve exercise tolerance but not ventilatory variable in this group.

AP07-402

A language-specific (Chinese) pulmonary rehabilitation program and its impact on patient outcomes – a 2-year prospective cohort study in Sydney, Australia.

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Background and Aim

Pulmonary rehabilitation (PR) has been shown to improve patient outcomes including reducing dyspnoea, fatigue, and improving health-care related quality of life in patients with chronic lung disease. Non-English-speaking background (NESB) patients have difficulty accessing PR programs due to language and cultural barriers. Hurstville, Sydney has a significant NESB population with the majority being monolingual Chinese speakers. Our trial aimed to demonstrate the effectiveness of a Chinese language-specific PR program in this population.

Methods

A prospective cohort study was conducted over a two-year period. Participants enrolled in an 8-week PR program with biweekly sessions conducted by Chinese speaking physiotherapists. Baseline and post-rehabilitation measures included pulmonary function test (PFT), 6 minute-walk test (6MWT), St. George Respiratory Questionnaire (SGQR) and Short Form Survey (SF-36).

Results

76 patients were enrolled with a median age of 77 years (IQR 68-81) with 58% male and 42% female. Patients with different chronic lung disease were enrolled including chronic obstructive pulmonary disease (42%), asthma (15%), and interstitial lung disease (3%). 65% of participants had a smoking history with an average of 32 pack years. Baseline median FEV1 was 1.69L (IQR 1.17-2.06), and median 6MWT distance 301.1m (IQR 234.5-353.0). Post-rehabilitation PFT, 6MWT, SGQR, and SF-36 scores were compared and described. Analysis suggest improvement in 6MWT, SGQR, and SF-36 scores while PFT remained stable.

Conclusion

Pulmonary rehabilitation is instrumental in managing chronic pulmonary disease, and outcomes in NESB patients may be improved with language-specific PR programs. There was improvement in dyspnoea and quality of life measures post-rehabilitation with no change in lung function.

Disclosure: Study funding and grant received from AstraZeneca

AP07-403

Modified Dantien-Salee yoga training for COPD rehabilitation

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Background and Aim

Modified Dantien-Salee yoga (MDS), a combination of yoga and Tai Chi, may be considered as a complementary and alternative medicine for COPD patients who regularly taking part in this type of activity. Aim of this study was to determine the effects of MDS training on pulmonary function, functional fitness and quality of life (QoL) in COPD patients.

Methods

A match group design and quasi-experiment were used in this study. Subjects were divided into a MDS group (n=12, age 70.3±6.2 years, BMI 23.7±3.2, FEV1 1.4± 0.4 L, FEV1/FVC (%) 51.1±7.1) and control group (n=12, age 70.1±4.2 years, BMI 22.9±3.9, FEV1 1.4±0.5 L, FEV1/FVC (%) 57.4±11.1). MDS group attended a 70-min session, 3 times/week for 12 weeks, while control group received usual care. Pulmonary function testing via computerized spirometers, and functional fitness assessments, including chair stand, arm curl, grip strength, chair sit and reach, back scratch, 8ft up and go, 6mwt, and QoL (SGRQ) assessments, were all measured at baseline and at the end of training period.

Results

After 12 weeks, MDS group showed significantly improvement in functional fitness from baseline (p

AP07-404

Evaluation of compliance of pulmonary rehabilitation program in COPD patients

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Background and Aim

Pulmonary rehabilitation (PR) is regarded as a beneficial program in a decrease of symptoms and improvements of physical activity and health related quality of life for COPD patients.^{1,2} Nevertheless, the adherence of PR is low thus, we aimed to investigated reasons related to the barriers of PR.³

Methods

This study was a retrospective observational study of COPD patients referred to pulmonary rehabilitation program between January 2021 and December 2021. A questionnaire was used to search the reason of not visiting PR program by in-person or phone call. Non-adherence group is defined when the patients did not attend PR program despite of physician's recommendation.

Results

Of total 73 COPD patients referred to PR during the study period, mean age (SD) was 71.8 (8.6) years and 86% was male. Non-adherence group was older than adherence group (73.5 years vs 71.0 years) and had higher mean forced expiratory volume in 1 second % of predicted (% pred) (66.2% pred vs 57.7% pred) but there are no significant differences of sex, smoking status, COPD assessment test score and distance of six-minute walk test. The most frequent reason of non-adherence group was "Do not know what PR program is and the necessity of PR" (31.8%) followed by "Transportation difficulty due to long distance" (27.3%).

Conclusion

The most prominent barriers were lack of awareness of the benefits of PR program and transportation difficulties for a long distance to hospital. Hence, active assessment and intervention is needed to facilitate adherence to PR.

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AP07-405

Meta-analysis of the efficacy of telerepiratory rehabilitation in patients with chronic obstructive pulmonary disease

-Systematic review analysis of remote respiratory rehabilitation

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The aim of this review was to systematically compare telerehabilitation (PTR) therapy with conventional rehabilitation (PR) therapy for chronic obstructive pulmonary disease. We conducted a systematic search of PubMed, Embase, Web of Science and Cochrane Libraries, VIP, CNKI databases to identify studies published as of December 2021 involving comparisons of PTR and PR. A meta-analysis was performed to assess the outcomes of PTR versus PR. Eleven randomized controlled trials met the inclusion criteria. A total of 918 participants were assigned to PTR (477 cases) or PR (441 cases). Due to the high heterogeneity of different scales in evaluating the effect of pulmonary rehabilitation, subgroup analysis was performed to obtain CAT scores [SMD: -1.33, 95%CI: -1.54 to -1.12], mMRC [SMD: -0.54, 95% CI: -0.72 to -0.36] significantly improved, FEV1 [SMD: 1.07, 95%CI: 0.89 to 1.25], SGRQ score [SMD: 0.50, 95%CI: 0.05 to 0.56], 6MWT [SMD: 0.67, 95% CI: 0.52 to 0.82] and self-management scores [SMD: 2.02, 95% CI: 1.80 to 2.25], the improvement in the PTR group was significantly higher than that in the PR group. This meta-analysis showed that patients with chronic obstructive pulmonary disease who received telerehabilitation (PTR) had significantly improved or improved lung function, dyspnea scores, exercise tolerance scores, and self-management scores compared with conventional rehabilitation (PR).

Keywords

chronic obstructive pulmonary disease; telerehabilitation; meta-analysis

AP08-406

Clinical characteristics of NSCLC patients with chemotherapy at rsud dr. zainoel abidin banda aceh, Indonesia

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Background and Aim

Lung cancer is a highly invasive cancer and is one of the leading killers of both men and women. Recent research shows that from 2010 to 2017, there were 1.28 million new non-small-cell lung carcinoma (NSCLC) cases where the incidence was 40.9 per 100,000. Survival rates give an idea of the percentage of patients with the same type and stage of cancer who are still alive for a certain period of time after they are diagnosed with a particular disease.

Methods

This study was conducted to determine the survival analysis of non-small cell lung cancer patients receiving systemic chemotherapy at dr. Zainoel Abidin Banda Aceh hospital. This type of research is observational analytic research. With Crosssectional design. Data collected in the period March 2022 to April 2022.

Results

The study sample was more than 60 years old (70.2%), male (77.2%), had a history of smoking habits (68.4%), stage IVa found the most (57.9%), squamous cell carcinoma (59.6%), and dominantly using parenteral drugs (70.2%). A total of 80.7% patients were not survived. The results of the Kaplan-Meier analysis showed that there was a strong relation between age group ($p=0.019$), smoking habit ($p=0.019$), cancer stage ($p=0.007$), and cancer cell type ($p=0.044$) on the survival of cancer patients. while the gender group ($p=0.700$) did not show a relation with the survival period of cancer patients.

Conclusion

The result showed that age, smoking status, staging and cell type correlated to survival rate.

Keyword

lung cancer, survival time, chemotherapy, cancer staging

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AP08-407

Pulmonary Carcinosarcoma: A report Case from Vietnam

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Introduction

Pulmonary carcinosarcoma (PCS) is a rare lung tumor characterized by a biphasic histopathological pattern consisting of both malignant epithelial and sarcomatous elements.

Case report

A 57-year-old male presented to our hospital complaining of chest pain, dry cough, dyspnea. The computed tomography (CT) revealed that the pleural effusion was all of the left side and mediastinal lymph node. Thoracocentesis was performed and detected the malignant fluid. However, the histopathology study of the pleural biopsy was carcinosarcoma of the lung. Finally, the patient received 6 cycles of chemotherapy with pemetrexed - cisplatin- bevacizumab and then maintained by pemetrexed. The patient was well without evidence of recurrence at 10 months follow-up.

Discussion

Approximately 0,1-0,3% of all lung malignancies are PCS and divided into endobronchial (squamous type) and peripheral (Glandular type).

In this case report, the patient is stage IV and cannot perform surgery. The choice of regimen involves multidisciplinary consultation meetings and chemotherapy with pemetrexed – cisplatin – bevacizumab is our choice. Pleural effusion reduced by 50% and clinical symptoms improved significantly after 1 month of treatment. The patient was maintained until the end of 6 cycles, assessed for partial response, and then continued for another 6 cycles with pemetrexed.

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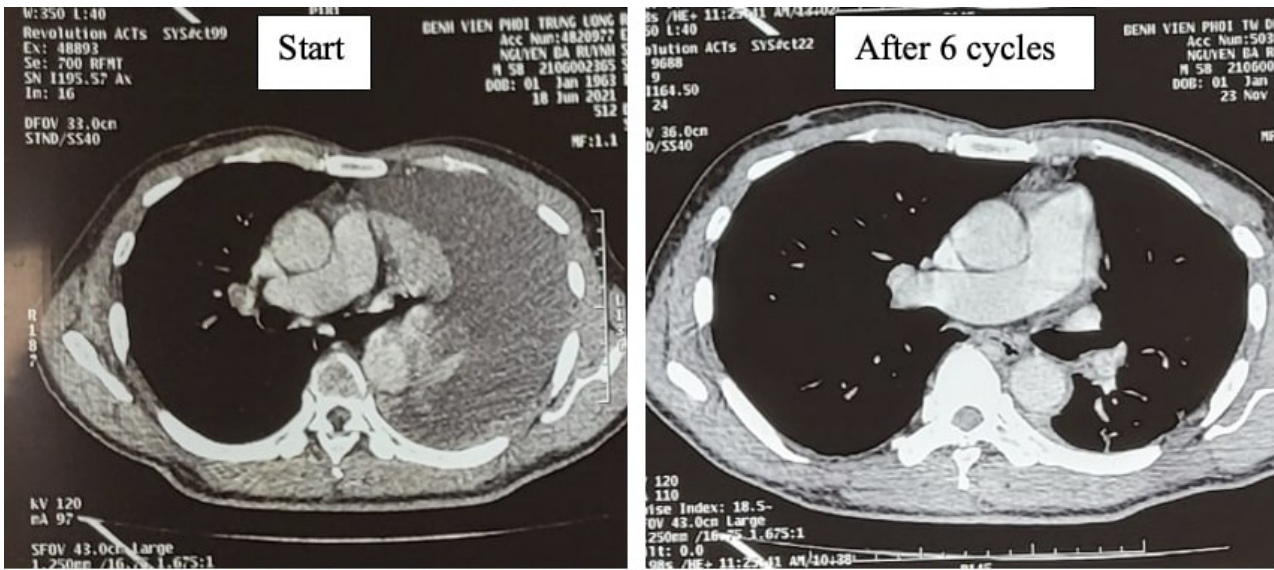


Fig1: Chest CT showed a left pleural effusion and after 6 cycles of chemotherapy

PULMONARY PARAGANGLIOMA: A CASE REPORT

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Introduction

Paraganglioma is a rare disease and type of noncancerous (benign) neuroendocrine tumor that affects 2 to 5 people per million per year. This disease mainly occurs at body parts with rich paraganglions, such as head, neck, mediastinum, adrenal gland, and posterior peritoneum, even bladder, duodenum, and thyroid as reported. It is in the form of primary and secondary (solitary and diffuse). Paragangliomas are slowly growing tumors, present as painless masses, and have a culture doubling time of approximately 42 years. Other benign lung tumors and general infections (tuberculosis, inflammatory pseudotumor, etc.) are difficult to differentiate by imaging. CT guided lung needle biopsy was performed.

Case presentation

B 57-year-old female. She has been raising herded livestock since was a child and last 10 years living in the village. This patient had chest pain 1 month ago and fever 2 days ago. Chest X-ray showed 7.2 * 10.0 cm change in the middle and lower part of the right lung, with a clear middle edge, a sharp edge, and shading. Therefore, a contrast-enhanced computed tomography scan was performed for differential diagnosis.

Conclusion

Pulmonary Paraganglioma is often misdiagnosed as a masses (lesion) disorders in the thoracic cavity. In particular, increased absorption of 18F-FDG on PET / CT and non-malignant lesions on chest CT should be checked. Therefore, more research, joint examination and consultation of specialized doctors are needed to solve the problem of differential diagnosis and early detection of rare diseases. The diagnosis, Primary Pulmonary Paraganglioma, is confirmed by pathological examination

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AP08-409

Non-small cell Lung Cancer in a Young Adult

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Introduction

Lung cancer is the leading cause of death worldwide with an age onset of approximately 60 years. It is rare in the young which accounts only for 1.4% of lung cancers occur in people under 35 years old.

Case report-Discussion

We report a case of a 31-year old male, 30-pack years of smoking history with the diagnosis of advance stage lung adenocarcinoma. Patient came in with the initial presentation of massive pleural effusion and underwent tube thoracostomy of the left hemithorax. Pleural fluid analysis revealed atypical cells and additional immunohistochemical staining showed positive for Napsin A and BerEp4 supporting primary lung adenocarcinoma. Tumor markers were positive for CK-7 and negative for CK-20. Mutational testing showed positive for EGFR and PD-L1 with a total proportion score 5-10% of tumor cells. Computed tomography (CT) of the chest showed multiple nodular opacities measuring 1-3 mm and pleural effusion were seen in both lungs. Whole body F-18 FDG PET CT scan revealed hypermetabolic hypodense left upper lesion likely represents the primary malignancy with metastases to the brain, mesorectal and bones. Patient was started on oral Osimertinib, an epidermal growth factor receptor (EGFR) inhibitor and underwent radiation therapy.

none

AP08-410

Research progress of antiangiogenic therapy and immunotherapy in malignant pleural effusion associated with non-small cell lung cancer

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Objective

To summarize the effectiveness of anti-angiogenesis therapy and immunotherapy on non-small cell lung cancer (NSCLC) related malignant pleural effusion (MPE) in recent years To explore the potential mechanism of the combination of the two treatment strategies in the treatment of NSCLC related MPE.

Methods

Pubmed database was used to search for recent studies on anti-angiogenic therapy and immunotherapy in NSCLC-related MPE. .

Results

MPE is considered to be the chest tumor cells interact with the body's blood vessels and the immune system of the vicious circle, anti-angiogenesis therapy and immune therapy has been widely valued NSCLC related MPE patients have benefited from the anti-angiogenesis drugs, including beacizumab bead single resistance degree and target complex neuraminidase inhibitors (TKI) (DE) for his neanderthals, etc MPE has an immunosuppressive microenvironment. Currently, effective immunotherapy strategies include cytokine based immunotherapy immune checkpoint inhibitors (ICIs) gene-mediated cytotoxic immunotherapy oncolytic virus therapy and immunocell therapy VEGF as the main targets of anti-angiogenesis drugs, is an important medium of tumor formation immunosuppressive microenvironment, and multiple targets VEGF inhibitors antiangiogenesis tyrosine kinase inhibitor (TKI) can significantly improve the tumor immunosuppression microenvironment, enhance the curative effect of immune therapy of patients with NSCLC, therefore, anti-angiogenesis therapy in combination with immune treatment for NSCLC There are potential synergistic mechanisms in MPE patients.

Conclusion

Compared with MPE patients who have benefited from anti-angiogenic drug therapy, immunotherapy urgently needs more clinical data, but has great potential, and anti-angiogenic drug therapy combined with immunotherapy may be a new treatment strategy for NSCLC-related MPE.

AP08-411

EXTRA-SKELETAL CHONDROSARCOMA OF THE PLEURA PRESENTING AS A UNILATERAL PLEURAL EFFUSION

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Introduction

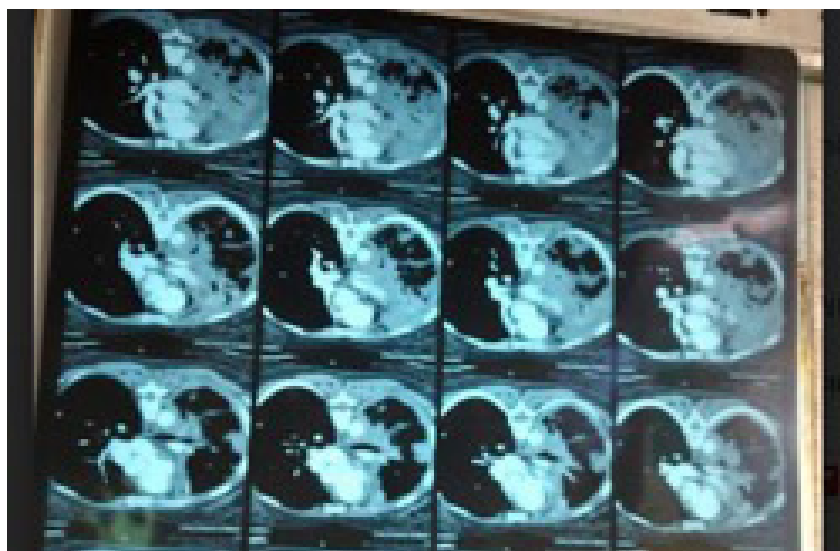
Mesenchymal chondrosarcoma(MC) is a rare malignant cartilaginous neoplasm arising within bone or soft tissue. Pleural extraskeletal MC which give rise to devastating consequences,have very rarely been reported .

Case Report

A 32-year-old female who had been investigated for a left sided mild pleural effusion (exudative, lymphocytic, ADA-17 u/l), 1 month ago. CECT/CTPA detected a left sided effusion with a pulmonary artery embolus. ANA and anti-cardiolipin antibodies had been negative. She had been discharged on warfarin, pending thrombophilia screening. She presented with persistent pleuritic type chest pain and worsening shortness of breath. Examination showed evidence of a mild left sided pleural effusion but was otherwise normal. Repeat pleural fluid analysis was similar (protein 5.2 g/dl,L 45% N 40% E 15%,ADA 17 U/L). Tuberculosis workup was negative. Pleural fluid cytology did not yield malignant cells. Hence, the effusion was assumed to be a spontaneously resolving effusion, secondary to the pulmonary embolism. She readmitted to the ward one month later with severe low back pain and moderate haemoptysis while on warfarin. The coagulation profile was normal. CTPA revealed a non-enhancing thrombus in the pulmonary artery bifurcation. CECT showed evidence of a malignant mass involving left lung, pleura and hemi diaphragm with multiple bone metastasis. Histology revealed features suggestive of an extra skeletal pleural mesenchymal chondrosarcoma.

Discussion

The case highlights the importance of stringent investigation and follow up of pleural effusions in order to arrive at an early diagnosis.



AP08-412

LUNG CANCER RISK FACTORS IN NEVER SMOKING WOMEN

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Background and Aim

Event though tobacco smoking cigarettes are a major risk factor for lung cancer, there are a quite lot proportion of women with lung cancer without any history of tobacco smoking. This study aims to investigate the risk factors for lung cancer in never smoking women who were treated at RSUP Dr. M Djamil Padang and RSUD Solok.

Methods

This is case-control study which interviewed using questionnaires to 22 never smoker women with lung cancer and 45 controls who were individually matched. We collected information on possible risk factors for lung cancer. Bivariate and multivariate logistic regression analysis was used to estimate the odds ratio (OR) with 95% confidence interval .

Results

This study found that exposure of tobacco smoking from parents and partner increase the risk for lung cancer in never smoker women (OR 14,47 (4,20-49,87. CI 95%; p=0.001 and OR 1,93 (1,00-8,58, CI 95%; p=0.047; respectively). Multivariate logistic regression analysis, found that exposure tobacco smoking from parents are independent risk factors for lung cancer in never smoking women (OR 13,38 (3,71-48,25. CI 95%; p=0.001)t

Conclusion

An independent risk factor for lung cancer in non-smoking women is smoking parents.

Keywords

lung cancer, never smoker, women, risk factor, tobacco

AP08-413

Chylothorax and Chylopericardium as Initial Presentation of Thymoma: A Case Report

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The rarity and simultaneous commonness of thymoma in a 27-year-old female presenting with chylothorax and chylopericardium is highlighted in this case report. Overall, incidence of thymoma is less than 1% of all neoplasms. In the Philippines, unfortunately, there is limited published literature on which to base a review of the epidemiology of this condition due to relatively small number of population-based studies.

A 27-year-old woman presented with progressive difficulty of breathing for a month. Salient features revealed decreased breath sounds bilateral, no lymphadenopathy nor masses, and had unremarkable past medical and family history. Chest radiograph revealed massive bilateral pleural effusion. Chest ultrasound showed a free-flowing pleural effusion amounting 3120 and 650 cc, on the right and left, respectively. Thoracentesis was done and 2500 cc of milky, odorless pleural fluid was drained. Biochemical analysis of the pleural fluid confirmed the diagnosis of chylothorax. The patient underwent bilateral pleural catheter drainage due to recurrence of effusion. Post-drainage, CT of the chest revealed an anterior mediastinal mass measuring 15.7x7.4x15.3 cm. Notably, there is presence of moderate pericardial effusion and still with minimal pleural effusion. A CT guided biopsy of the anterior mediastinal mass was done and histopathological report was Thymoma. She underwent radiotherapy. Post-radiation, there is cessation of chylous effusion. Therapy was continued as an out-patient basis.

AP08-414

Evaluation of the accuracy of mir-25 in the diagnosis of lung cancer

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Background

An increasing number of studies have demonstrated that the level of miR-25 is connected to the diagnosis of lung cancer.

Aim

A system analysis of associated studies is conducted by referring to the relationship between the level of miR-25 in patients of lung cancer.

Methods

Until January 20th, 2021, we used the Cochrane Library, PubMed, Web of Science and Embase to conduct a systematic and comprehensive search of relevant literature. The screening of articles was based on pre-determined inclusion and exclusion criteria using Stata 12.0 for evaluation of publication bias, Cochran's Q and I tests for quality evaluation, and employed Meta-Disc 1.4 software for data analysis.

Results

Seven articles with nine groups of fourfold tables were included in this study for a comprehensive analysis. The pooled sensitivity and specificity of mir-25 in the diagnosis of lung cancer were respectively 0.72 (95% CI: 0.68-0.75) and 0.80 (95% CI: 0.76-0.84). Additionally, the positive likelihood ratio and negative likelihood ratio were 3.27 (95% CI: 2.26-4.73) and 0.33 (95% CI: 0.23-0.48) respectively. Moreover, the pooled diagnostic odds ratio equals 11.99 (95% CI: 6.03-23.87). The area under the receiver operating characteristic curve equals 0.8501.

Conclusion

Our study confirms that miR-25 has great value in the diagnosis of lung cancer. Further, it is necessary for further research to determine whether miR-25 can be used as a marker for the identification of lung cancer.

AP08-415

Influence of Pleural Elastance on Pleurodesis Success in Malignant Pleural Effusion

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Background and Aim

The efficacy of medical pleurodesis is dependent on lung expandability. Data are still limited regarding the use of pleural elastance. This study aims to determine the predictability of pleural elastance on pleurodesis success in malignant pleural effusion.

Methods

Patients with non-loculated malignant pleural effusion without prior thoracic surgery were recruited. Mean pleural pressures were recorded and calculated as pleural elastance at four points; (1) Total elastance (E_{tot}); (2) Elastance after 600 ml of pleural fluid drained (E_{600}); (3) Elastance after 1000 ml of pleural fluid drained (E_{1000}); (4) Terminal elastance (E_{ter}) which was calculated at the last 400 ml of pleural fluid before termination. Patients with expanded lungs would be managed further with talc slurry. "Pleurodesis failure" defined as radiologic progression compared with post-pleurodesis radiographs or the need for any pleural intervention at one month after pleurodesis.

Results

62 patients were included. 54 (87.1%) had an expanded lung and underwent pleurodesis. 11 of 54 patients (20.4%) had pleurodesis failure at 1 month. The pleural elastance was not different between the pleurodesis success and failure group. However, all pleural elastance measured was significantly higher in the non-expandable lungs. $E_{1000} \geq 14.5$ cmH₂O had 71.4% sensitivity and 95.6% specificity to detect non-expandable lung.

Conclusion

This prospective study confirms the relationship between pleural elastance and lung expandability, but not with pleurodesis success with talc slurry. Incorporating pleural elastance into the assessment of patients for lung expandability may assist avoid an unnecessary procedure.

AP08-416

Malignant pleural mesothelioma (MPM) in a young woman with inflammatory polyarthritis presenting as first symptom.

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Introduction

Primary pleural tumours are extremely rare and mostly appear as malignant pleural mesothelioma which occur more often in men and peak between the ages of 50-70 years. It is frequently associated with exposure to asbestos.

Case Report

We report the case of a 23-year-old woman presented with symmetrical polyarthritis involving small and large joints with morning stiffness. Laboratory investigation showed leucocytosis with thrombocytosis, ESR 86mm/hr, CRP 112.8mg/L, ANA 1:80 (Speckled), ENA & ANCA negative, C3, C4 normal. X-ray of hands showed juxta-articular osteopenia with narrowed joint space in proximal interphalangeal joints. She was diagnosed as seronegative rheumatoid arthritis (Rheumatoid factor and anti-CCP negative). After 8 months of Methotrexate, her disease achieved remission both clinically and radiologically but she had weight loss, persistent elevated ESR and CRP, anemia (iron deficiency and vitamin B12 deficiency), fever and new onset of neck swelling. CT scan showed multiple enlarged lymph nodes at bilateral cervical region with thrombosis in right internal jugular, subclavian and brachiocephalic vein. Extrapulmonary lesion at right apical, pleural thickening at posterobasal segment of right lower lobe with calcified pleural based nodule. Pleural fluid cytology revealed reactive mesothelial cells with neoplastic cells infiltration. The findings are suggestive of malignant pleural mesothelioma. Chemotherapy was started (Pemetrexed and Cisplatin) and the lesions appear slightly smaller after 6 cycles of chemotherapy.

Discussion

Malignant pleural mesothelioma is rare and even rarer in young age, female population with absence of risk factor. The inflammatory polyarthritis presentation in this patient may suggest uncommon paraneoplastic feature of mesothelioma.

AP08-417

A case of left malignant pleural effusion achieved spontaneous pleurodesis with indwelling pleural catheter after failed talc pleurodesis

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Introduction

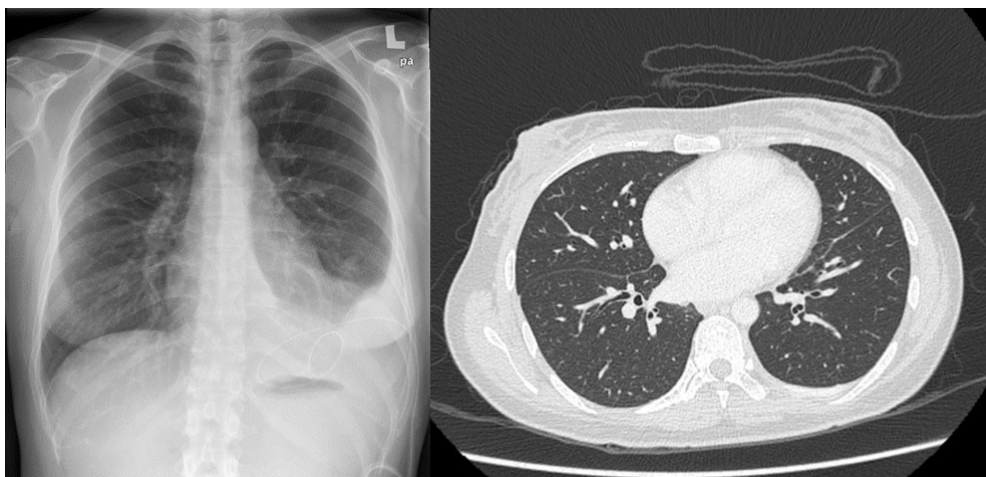
Indwelling pleural catheter (IPC) is an option for late-stage cancer to drain pleural effusion. Talc pleurodesis can be offered either through IPC or chest drainage to prevent recurrent. We reported a case of lung adenocarcinoma stage 4 with malignant pleural effusion (MPE) achieved spontaneous pleurodesis with IPC after failed talc pleurodesis.

Case report

A 34-year-old-woman diagnosed to have stage 4 lung adenocarcinoma based on pleural cytology and histopathological showed metastatic adenocarcinoma thyroid transcription factor (TTF-1) positive with ROS-1 positive after presented with chronic cough and worsening breathlessness for 3 weeks. Lung examination revealed reduced air entry at left lower zones. Chest radiograph showed left pleural effusion and contrast enhanced computed tomography (CECT) thorax confirmed moderate left pleural effusion with mass at left lower lobe. Left pleuroscopy showed generalized hyperaemic costal pleural with total drainage of 900 ml. She was started on crizotinib 250 mg twice per day. Talc pleurodesis with 10 gram of talc powder done but a month later she presented with recurrent pleural effusion. IPC was inserted and total of 600 ml straw colour fluid each day drained 3 times per week. She achieved spontaneous pleurodesis after 9 months on IPC and it was removed. Followed up showed stable disease with no recurrent effusion.

Discussion

IPC is used as an alternative treatment for recurrent MPE to palliate the symptoms of breathlessness and had advantages in achieving spontaneous pleurodesis.



AP08-418

Case of triple primary neoplasms involving colon, prostate and lung adenocarcinoma, in an 88-year-old male

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Introduction

As a result of improved screening and diagnostic procedures, malignancies are detected in early stages. Multiple primary neoplasms (MPNs) refer to the presence of two or more independent neoplasms found in the same or different organs of an individual. This can either be synchronous or metachronous depending on the time interval of diagnosis of malignancies. Most MPNs are double primary neoplasms and triple primary neoplasms are considered rare. Here we report a case of a triple primary neoplasm with metachronous colon adenocarcinoma, prostate adenocarcinoma and lung adenocarcinoma.

Case Report

An 88-year-old male, non-smoker with prolonged exposure to biomass fuel was diagnosed with colon adenocarcinoma 20 years ago and underwent colonic resection and chemotherapy. Surveillance was unremarkable until six years prior, he was diagnosed with his second primary, prostate adenocarcinoma and underwent transurethral prostate resection and brachytherapy. Few months prior, PET CT-scan showed stable few varisized nodules and masses in the right lung (Figure 1). Biopsy findings were consistent with adenocarcinoma.

Discussion

Diagnosis of MPNs can be tedious. Thorough surveillance is warranted to detect multiple malignancies. Increased awareness about MPNs and advancement in diagnostic tools/facilities and longer patient lifespan allowing longer follow-up led to improved disease detection. Development of MPNs can result from interplay of genetic, hormonal, iatrogenic, environmental, and immunologic factors. Treatment for MPN should be discussed in a Multidisciplinary Team (MDT) meeting. To date, available literature on management of patients with metachronous MPN is still limited. Further studies are warranted to identify an effective treatment approach for patients with MPNs.

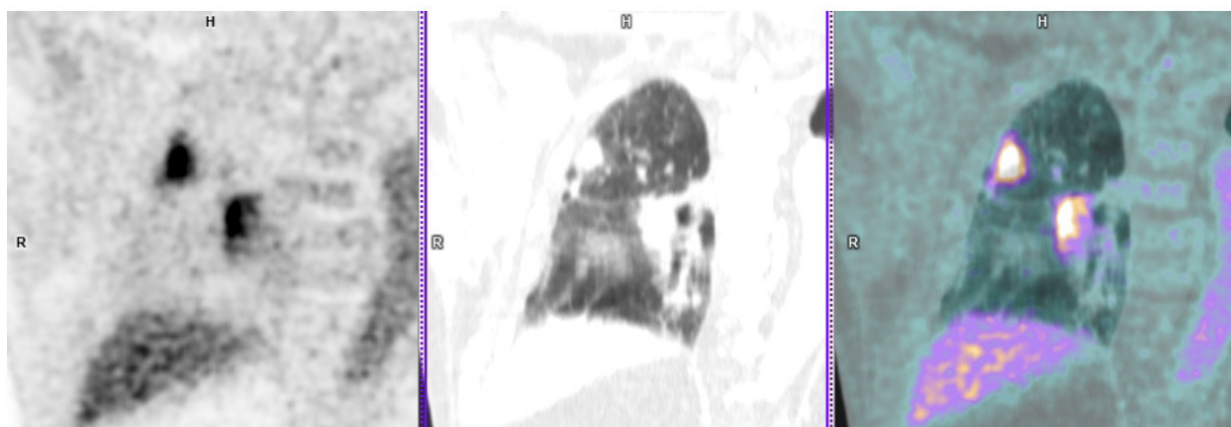


Figure 1. Multiple varisized nodules and masses on right lung as seen in PET CT-Scan

AP08-419

Characteristics of Non-Small Cell Lung Cancer (NSCLC) Patients with Recurrent Pleural Effusion in Sanglah General Hospital, Bali, Indonesia

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Background and Aim

Almost 40% of NSCLC patients develop pleural effusions.¹ After initial thoracentesis, they were recommended to undergo definitive pleural procedures.² Meanwhile, other clinicians prefer to perform a repetitive thoracentesis rather than performing the definitive procedure, which causes pleural loculations and affects the quality of life.^{2,3} It's important to know factors that followed recurrent pleural effusion in order to prevent repetitive thoracentesis. This study aimed to identify the characteristics of recurrent pleural effusion in NSCLC.

Methods

Retrospective study of medical records in 95 NSCLC patients who underwent initial thoracentesis.

Results

During this study, 95 patients (mean age 60 years old) were obtained 45 patients were male and 49 patients were women. Most tumors were located in the central of lung (52.6%). About 76.8% patients was massive pleural effusion. The right pleural effusion was in 61 patients. Positive cytology of pleural fluid was only 35%. About 68,4% patients were EGFR negative. The median of LDH levels in pleural fluid was 821 U/L (range: 127-28.620 U/L) and the time recurrence of their pleural effusion was 3 days after initial thoracentesis (range: 1-36 days).

Conclusion

The characteristics of recurrent pleural effusion in NSCLC patients at 60 years old, mostly adenocarcinoma, massive effusion on the right side, located in central of the lung, recurred in 3 days after initial thoracentesis, median LDH was 857.5 U/L, and EGFR negative.

Keywords

NSCLC, Recurrence, Pleural Effusion

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³Audra JS, MD, MBA, David E. Ost, MD, MPH, Sahara N. Saltijeral, MS. Risk Factors for and Time to Recurrence of Symptomatic Malignant Pleural Effusion in Patients with Metastatic Non-Small Cell Lung Cancer with EGFR or ALK Mutations. *Chest* posted 29 October 2020. <https://doi.org/10.1016/j.chest.2020.10.081>.CHEST3779

Table 1. Subjects' characteristics

Characteristics	n	%
Sex, n (%)		
Male	46	48.4
Female	49	51.6
Age, mean (SD)		
Age (years old)	60.4 (38-89)	
Comorbid Disease, n (%)		
With other disease	36	37.9
No other disease	59	62.1
Histology, n (%)		
Adenocarcinoma	86	90.5
<i>Squamous Cell Carcinoma</i>	9	9.5
Tumor location, n (%)		
Central	50	52.6
Peripheral	45	47.4
Cytology, n (%)		
Positive	35	36.8
Negative	60	63.2
EGFR, n (%)		
Positive	30	31.6
Negative	65	68.4
LDH, median (minimum–maximum)		
LDH (U/L)	821 (127-28.260)	
Efussion, n (%)		
Non massive	22	23.2
Massive	73	76.8
Efussion location, n (%)		
Right lung	61	64.2
Left lung	34	35.8
Free Progression Time Median (minimum–maximum)		
Days	3 (1-36)	

AP08-420

Leukoencephalopathy caused by epidermal growth factor tyrosine kinase inhibitor: A case report

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Introduction

Leukoencephalopathy is a pathological appearance of the brain white matter seen as periventricular hyperintensities on T2 MR imaging. Epidermal growth factor receptor (EGFR) tyrosine kinase inhibitors (TKI) are associated with mild neurological symptoms but relatively unknown for serious central neuropathy, especially leukoencephalopathy. Here, we report the first case of leukoencephalopathy caused by EGFR TKI.

Case report

A 57-year-old woman was referred because of catatonia. Chest CT showed right upper lobe mass. Histological examination showed an adenocarcinoma with EGFR 19 deletion. Multiple parenchymal and diffuse leptomenigeal metastasis were suspected on brain MRI. Erlotinib is administered. She had achieved a partial response and her symptom improved. After 2 years of treatment, she complained of dysarthria. Brain MRI revealed leukoencephalopathy without metastasis. Despite discontinuation of treatment, her symptom worsened. So, retreatment was applied. Although lung cancer was not progressed for another 2 years, leukoencephalopathy was progressed. Even after permanent discontinuation of treatment, her symptom persisted and she died because of infection.

Discussion

Leukoencephalopathy is subclinical and mostly transient but some rare patients have extensive signal change and rapid irreversible neurological deterioration. Although the etiology is not certain, blood-brain barrier (BBB) breakdown and endothelial dysfunction may be associated. Leukoencephalopathy is usually caused by chemotherapy or radiotherapy but rare by EGFR TKI due to low permeability of BBB. This is the only case of leukoencephalopathy due to 1st generation TKI. However, as the 3rd generation TKIs that penetrate BBB are widely used, it should be suspect neurological toxicity such as leukoencephalopathy when neurological symptoms appear.

No potential conflict of interest relevant to this article was reported.

AP08-421

Malignant mesothelioma presenting as a breast mass - A rare case report

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Introduction

Malignant mesothelioma (MM) is a rare tumour with poor prognosis. Here we describe a case report of MM presented as a breast lump.

Case report

A 75 year old lady with a background of Diabetes Mellitus and osteoarthritis of knee presented with left breast pain for 3 months. This was associated with lumpy feeling in the left breast and she also experienced loss at appetite and weight loss. She did not have cough, haemoptysis, breathlessness or chest pain. Examination revealed left breast inversion with a fixed lump in the left lower quadrant. There was no nipple discharge. Respiratory examination revealed reduced air entry in the left lower zone without added sounds. There were no chest wall changes.

She was initially investigated with a mammogram which revealed benign micro- calcification on the right side. USS of the left breast revealed an irregular lesion measuring 12.5x3.2cm with increased vascularity. Further evaluation with a contrast CT showed enhancing malignant soft tissue mass in the left anterior chest wall anterior to the rib cage entering to the thoracic cavity through the intercostal space invading the parietal pleura with small left sided pleural effusion. USS guided biopsy from the lesion was suggestive of epithelioid MM. She was treated with Carboplatin and Permetrexed based chemotherapy. She presented following the second cycle of chemotherapy and passed away due to neutropenic sepsis.

Discussion

MM presenting as a breast mass is a very rare presentation. This needs to be considered as a differential diagnosis in relevant clinical setting.



AP08-422

Unusual cause of Unilateral Pleural Effusion in A pregnant lady- A case report of Malignant Pleural Mesothelioma in Pregnancy

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Introduction

Malignant pleural mesothelioma(MPM) is rare incurable of cancer with a poor prognosis. We present a case of MPM affecting a young pregnant lady who presented to us with massive unilateral pleural effusion.To our knowledge this is first case in the world of MPM affecting a pregnant lady

Case Report

We present a case of 33 year old lady with fairly controlled Bronchial Asthma, currently in her 5th pregnancy at 28 week presented to the emergency with worsening respiratory distress. A chest X ray was done and revealed massive unilateral right pleural effusion. She was subsequently intubated and transferred to ICU where chest tube was inserted for pleural drainage. Blood results revealed anemia of 9.3g/dl and raised CRP of 83. Further history revealed that she had a similar presentation in 2016 and a CT thorax then revealed pleural based lesion with lung nodules. Latest CT revealed enlarged lesion at the posterior mid zone measuring 1.9x 4.0x 5.5cm (previously 1.0x2.8cm). USG guided biopsy revealed features suggestive of MPM, consistent with cells positive to cal retinine , CK5/6, WT-1 and CK-7. Multidisciplinary discussion with Obstetrics and oncology was made and decision to induce delivery at 32 week followed by platinum based chemotherapy postpartumly.

Discussion

Malignant mesothelioma in pregnancy is an extremely rare malignancy which needs multidisciplinary approach. Early recognition of symptoms and prompt tissue diagnosis is cornerstone in management of this complex case Platinum based chemotherapy is remains as best choice in pregnancy as it is generally considered safe.

AP08-423

Spindle cell thymic carcinoma presenting as anterior mediastinal mass and deep vein thrombosis in a 59-year-old male: A case report

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Introduction

Spindle cell thymic carcinoma is an extremely rare neoplasm with distinct clinicopathological characteristics. It has been reported to account for only 0.06% of all thymic neoplasms¹. Up to 30% percent of patients with thymomas are asymptomatic and found as incidental finding on radiologic imaging². In symptomatic patients, clinical signs and symptoms are related to anterior mediastinal mass effects. The prognosis is often poor with an aggressive course that can cause diagnostic dilemmas, misdiagnosis, and therapeutic challenge. Owing to the paucity of cases, optimal management of thymic carcinoma has yet to be defined.

Case report

59-year-old male who complained of chest pain radiating to left arm presented in our hospital with an 82x73x85mm anterior mediastinal mass. The tumor had infiltrated the lungs and completely occluded the left brachiocephalic vein until the deep veins of the forearm. Treatment plan included tumor debulking, post-operative radiotherapy and full anticoagulation. Histopathologic examination revealed poorly differentiated thymic carcinoma of the sarcomatoid type. The patient expired after 4 months due to tumor recurrence. Because of poor outcome, adjuvant therapy is recommended.

Discussion

The case presented a myriad of clinical manifestations with an anterior mediastinal mass effect, and unilateral upper extremity deep vein thrombosis leading to the final diagnosis of malignant thymoma. At present, a multimodality approach involving aggressive surgical resection, platinum-based combination chemotherapeutic interventions, and radiotherapy represent the preferred therapeutic approach for thymic carcinoma; while prolonged anticoagulation³ with the aim to alleviate symptoms, prevent progression of thrombosis and its recurrence in cancer-associated-thrombosis is the recommended approach.

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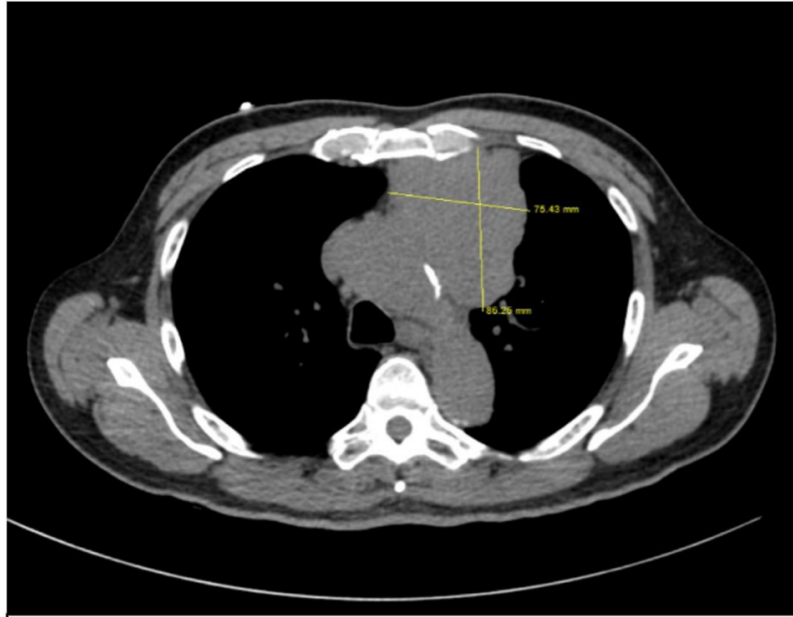


Figure 1: Non contrast image – axial view shows lobulated mass in left anterior mediastinum.

AP08-424

Pulmonary Lymphangiomyomatosis: A case report and clinical review

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Introduction

The present case report describes a rare case of sporadic pulmonary lymphangiomyomatosis and discusses the latest clinical approach to disease.

Case report

A 32-year old nulligravid Filipino female, presenting with dyspnea on exertion, was diagnosed to have a large unilateral pleural effusion. After image-guided drainage of pleural fluid, a contrast CT of the chest revealed apical tree-in-bud morphology and diffuse cystic lung lesions (Figure1). Pleural fluid was exudative with elevated adenosine deaminase (ADA). Further imaging of the abdomen revealed a unilateral renal angiomyolipoma (AML), satisfying the diagnostic criteria for sporadic lymphangiomyomatosis (LAM). She was treated for pulmonary and pleural tuberculosis, advised baseline lung function tests, and serial follow-up due to the progressive nature of disease.

Discussion

Differentials of cystic changes on CT scan is broad and review of radiologic features is central to achieving a correct diagnosis. LAM is a rare infiltrative lung disorder with overall good prognosis requiring serial follow up. No guidelines can take into account the entire individual clinical circumstance that guide clinical decision making. Every attempt should be made to establish the diagnosis of LAM with certainty before initiation of pharmacologic therapy with mTOR inhibitors. DLCO and FEV1 are the best current indicators of disease progression and survival.

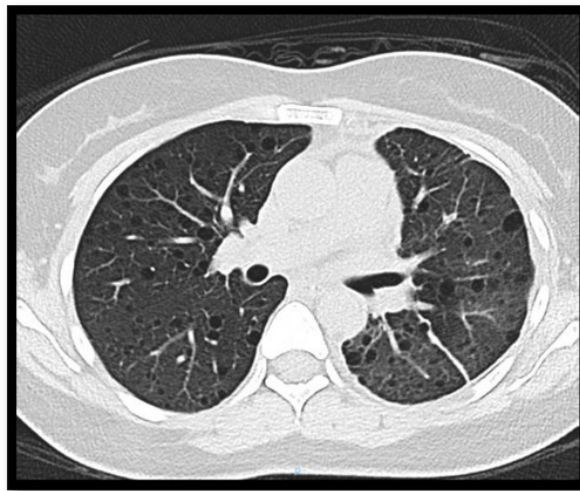


Figure 1 Contrast-enhanced CT scan of the chest, sagittal section: Diffuse thin-walled air cysts interspersed with normal lung parenchyma seen in both lungs.

AP08-425

A rare case of Lung Adenocarcinoma in a 19 year old female presenting as Miliary Tuberculosis

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Introduction

Lung cancer is exceedingly rare among young adults. According to the National Cancer Database, NSCLC that occurs in young adults are more likely to be non-smoker females, with adenocarcinoma histology, positive EGFR mutation, and presents at a more advanced stage of the disease¹.

Case Report

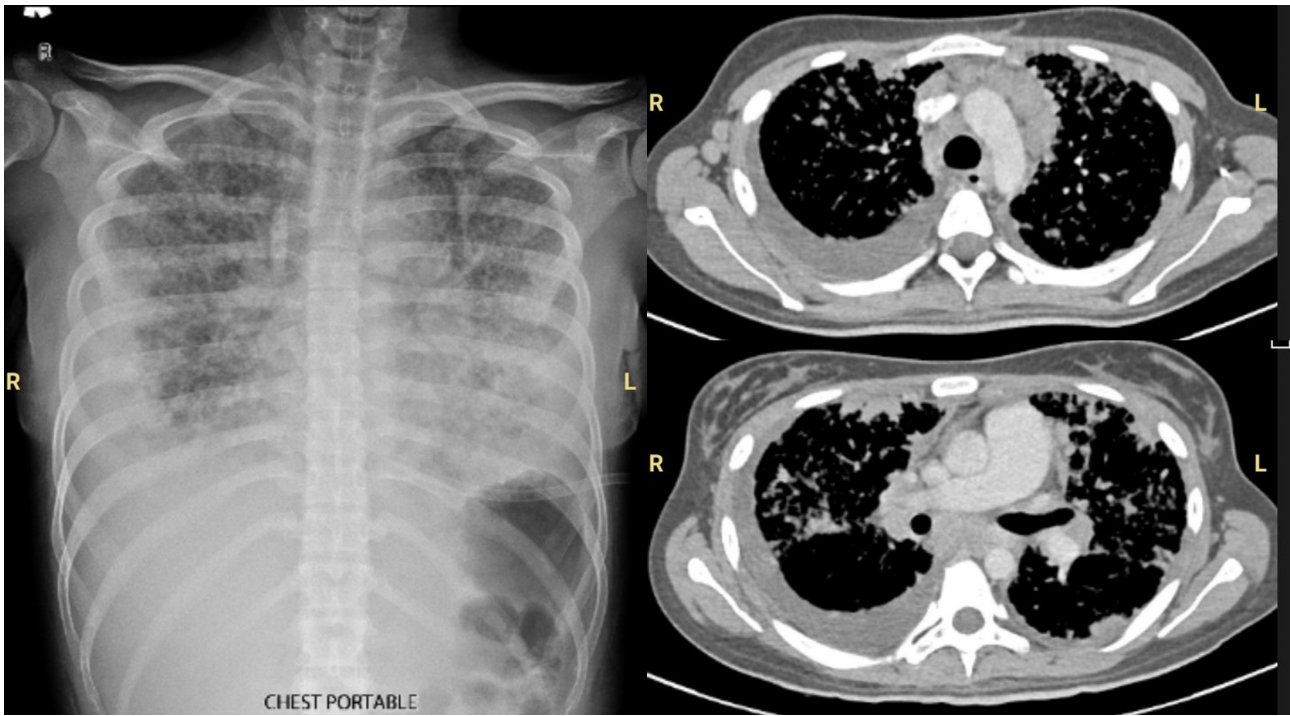
This is a case of 19 y/o, non-smoker, HIV- negative female who presented with 5 months constitutional symptoms of non-productive cough, dyspnea and fever with strong familial history of malignancy. Chest X-ray reported miliary tuberculosis and pleural effusion with extensive non-calcified bilateral pulmonary nodules on CT scan. Sputum MTB Gene Xpert was negative. Pleural fluid analysis showed a non-specific inflammatory pattern. There was progression of symptoms with remittent fever and tachycardia despite intake of Anti- Kochs for two months. Bronchoalveolar lavage revealed Adenocarcinoma TTF1 and ALK-positive and growth of *Burkholderia cepaciae*. The patient continued to deteriorate despite antibiotic treatment due to Acute Respiratory Failure, Pneumonia in the Immunocompromised Host and demised 5 days upon cancer diagnosis and prior initiation of chemotherapy.

Discussion

The typical presentation of pulmonary tuberculosis is easily recognizable but the disease, a well-known masquerader, can be a source of diagnostic confusion. In one study by Chin-Chung et.al, the incidence of TB diagnosis but later notified as lung cancer is 0.7%². A high index of suspicion in a patient who shows a progression of symptoms despite TB treatment should alert physicians so that an early pathology can be established hence initiating the appropriate treatment promptly³.

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AP08-426

Incidental finding of paraneoplastic hyper-eosinophilia secondary to lung adenocarcinoma in a COVID-19 patient.

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Introduction

Hyper-eosinophilia often associated with hematological malignancies, allergic or atopic diseases, parasitic infections, vasculitis or idiopathic eosinophilic syndrome. The manifestation of hyper-eosinophilia in bronchial carcinoma as paraneoplastic syndrome is extremely rare.

Case Report

We herein report the case of a 66-year-old chronic smoker who presented with abrupt onset of breathlessness associated with wheezing. He was later confirmed of COVID-19 with newly diagnosed COPD. Laboratory investigations showed leukocytes $53.18 \times 10^9/L$, Hb 141g/L, Hct 43%, MCV 84.5, MCHC 32.8, PLT 300, Neutrophil $38.2 \times 10^9/L$, Monocyte $3.04 \times 10^9/L$, Eosinophil $11.5 \times 10^9/L$. Renal profile and liver enzymes were within normal range. Serum IgE was 17ku/L (Normal 100ku/L). All other possible etiologies such as acute or chronic infectious diseases, collagen tissue diseases and vasculitis were excluded. CT scan revealed consolidative mass complex at superior segment of right lower lobe measuring 5.6cm x 4.9cm with multiple lung nodules of various sizes scattered in both lungs and bilateral apical pleural thickening. Lymph node biopsy confirmed adenocarcinoma likely primary from lung. Despite started on inhaler, high dose systemic steroid and treated for COVID pneumonia, he deteriorated further requiring invasive ventilation and subsequently succumbed to death.

Discussion

The hyper-eosinophilia in lung cancer might partially explained by production of IL-5, which act as activating factor for eosinophils. Smoking also contributes as it is significantly associated with elevated white blood cell count including eosinophils. In conclusion, blood eosinophils count may be used as prognostic biomarker and to observe response to immunotherapy by monitoring its level in NSCLC patients.

AP08-427

An unusual presentation of primary pulmonary angiosarcoma

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Introduction

Angiosarcoma is a rare and aggressive vascular tumour. Primary pulmonary angiosarcoma is very rare with only a few cases reported to date. This condition is also rarely reported and has an incidence of about 0.001% to 0.030%, often occurring in middle aged males.¹

Case Report

We present a case of primary pulmonary angiosarcoma in a 55-year-old male who initially presented to his general practitioner with left shoulder pain and finger clubbing. CXR demonstrated a left upper lobe lesion which prompted a CT chest which showed a central lung mass obstructing the left upper lobe bronchus with large lymph node masses. His main respiratory symptom was intermittent productive cough with yellow sputum but had no haemoptysis, dyspnoea, weight loss, or night sweats. He had no known exposures to radiation, polyvinyl chloride, thorium dioxide, arsenic, or significant UV exposure. He was further investigated with PET scan which demonstrated a centrally necrotic soft tissue mass in the left upper lobe. He had significant FDG avid nodes in his mediastinum and pulmonary hilum. CT guided biopsy showed a malignant vascular neoplasm angiosarcoma with immunohistochemical stains strongly positive for CD31 and ERG. Synaptophysin was very strongly positive.

Discussion

There is currently no standard treatment regime available for this rare malignancy, but previous cases have been managed with surgery, chemotherapy, and/or radiotherapy. The condition has an extremely poor prognosis, and as our patient had metastatic disease, he was been commenced on palliative chemotherapy with paclitaxel and potential radiotherapy in the future.

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AP08-428

Pulmonary sclerosing pneumocytoma in a middle-aged South-East Asian woman: An accidentally finding of a rare lung tumor

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Introduction

Pulmonary sclerosing pneumocytoma (PSP) is a rare benign neoplastic lung tumor often found incidentally on a chest X-ray or computed tomography (CT) scan performed for other reasons.

Case Illustration

We found a 57-year-old woman referred from a district hospital with a right lung tumor accidentally discovered when the patient was hospitalized before with dizziness and without complaints of respiratory problems. A chest CT scan showed a mass in the inferior lobe of the right lung that absorbs contrast. Plasma lung tumor markers were normal, and CT-Guiding transthoracic needle biopsy results did not contain malignant cells. The patient was decided for a thoracotomy for diagnosis. Histopathological and immunohistochemical examination of surgical tissue showed a PSP

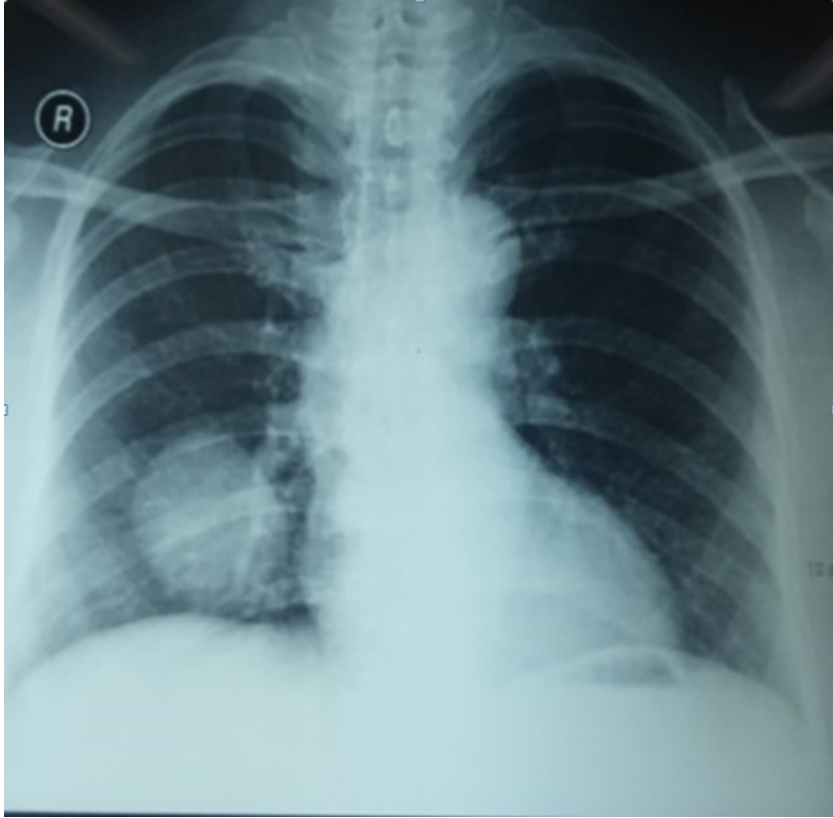
Discussion

PSP is a rare benign tumor. PSP has a predilection for middle-aged non-smoking East-Asian women. The pathogenesis of PSP has not been established. PSP is usually asymptomatic and is found incidentally on chest X-ray or CT. The origin of this tumor is from alveolar type 2 pneumocyte cells. These tumors usually absorb FDG or PET contrast, making false positives with other malignancies. Histopathological examination is usually combined with the immunohistochemical examination, which is the gold standard for diagnosing PSP. TTF-1 positivity on epithelial surface cells and CK positivity on stromal round cells indicated the presence of PSP. The modality of treatment for PSP is surgical resection, which is not only indicated for therapy but also as a diagnosis of PSP

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Disclosures

There is no conflict of interest for all authors.



AP08-429

A 35 year old woman with intralobar sequestration and positive mutation EGFR (epidermal growth factor receptor) lung adenocarcinoma sinistra: a case report

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Introduction

Lung sequestration, also known as accessory lung, is a cystic or solid mass of non-functioning primitive segmental lung tissue that is not related to the tracheobronchial tree and has an aberrant arterial system. Anatomically, lung sequestration is classified into ILS (intralobar sequestration) and ELS (extralobar sequestration) based on the presence or absence of pleural covering abnormal lung tissue¹. In some literature there are only 13 cases of carcinoma in lung sequestration².

Case Report

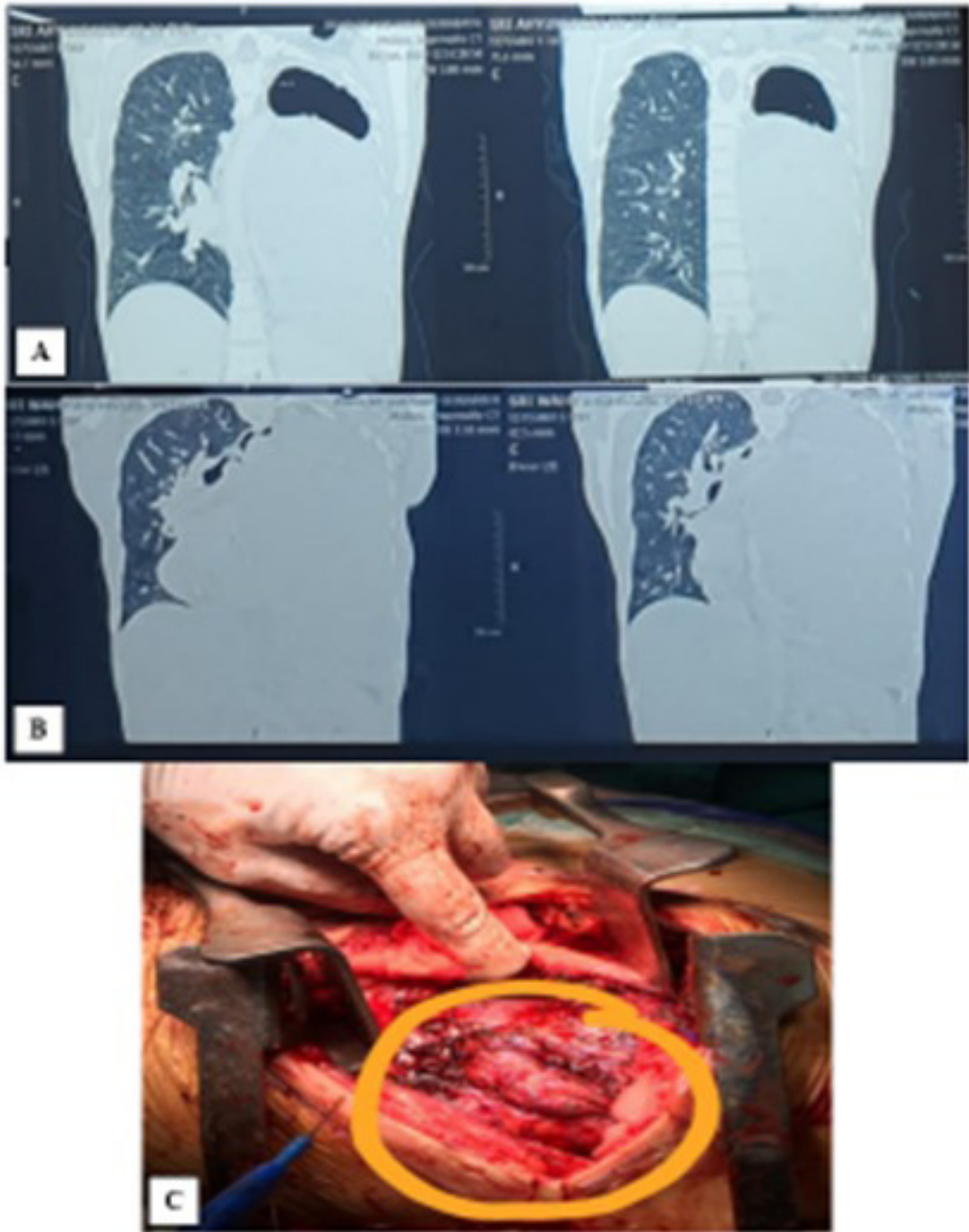
A 35-year-old housewife had a chronic cough in 2007 with a chest radiograph showing homogeneous opacity of the left lung, a pleural puncture was performed but no fluid was found. Then the patient was decided to be given ATD (anti-tuberculosis drug). In 2017 and 2019 patients complained of similar complaints with similar chest radiograph.

Discussion

In this case, the patient had symptoms of recurrent chronic cough from 2007 to 2019 with a similar chest radiograph showing homogeneous opacity in the left thorax which should be suspected as lung sequestration. From chest CT scan with contrast support intralobar sequestration in the left lower lobe with abnormal blood flow (Figure 1). The result of anatomical pathology from the open biopsy tissue is adenocarcinoma with EGFR mutation in exon 19. A patient with a recurrent chronic cough and chest radiograph showing a similar image (homogeneous opacity neither increasing nor decreasing) may suggest a lung sequestration. Malignancy is one of the rare complications of lung sequestration³.

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AP08-430

Case report : mediastinal germ cell tumor in a young man

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Background and Aim

Mediastinal Germ Cell Tumors (MGCTs) are one of the anterior mediastinal mass which can be divided into three variants; teratoma, seminomatous tumor and non seminomatous tumor. MGCTs are rare with a 10-15% incidence of all the kind of mediastinal tumor. MGCTs are often found in men (80%), mainly in 20-29 of age.

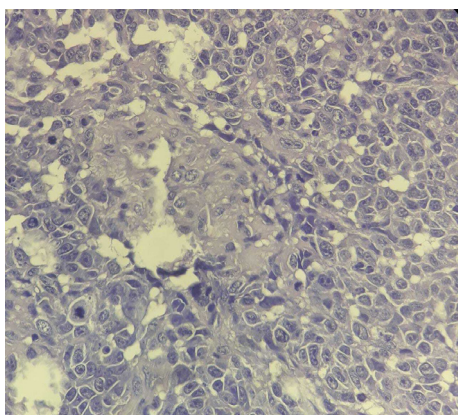
Case

A 27 year-old man was admitted to the hospital with a chief complaint of shortness of breath that has lasted for about 2 weeks. The patient's also stated that there's a chest pain since approximately 2 months ago. Radiological examination of the chest radiograph showed a homogeneous radiopaque appearance on the left hemithorax. The result of thoracic ultrasound showed an impression of the left lung consolidation. Thoracic CT Scan showed an anterior to middle mediastinal mass that presses against the left pulmonary artery. Histopathological examination of the bronchoscopy forceps biopsy sample showed a non-neoplastic lesion. Furthermore, the patient underwent a thoracotomy open lung biopsy and the histopathological result showed Germ Cell Tumor. The result of the AFP Tumor Marker test is 2984 µg/mL. β-HCG 49,80 mIU/mL. The patient was treated with chemotherapy regimens of Bleomicin and Cisplatin.

Discussion

Mediastinal Germ Cell Tumors (MGCTs) have a high mortality rate. The 1 year-survival rate of the MGCTs patients is determined by the patient's appearance, tumor location, complication and therapy. The treatment of non seminomatous MGCTs is systemic chemotherapy, followed by surgical resection of residual tumor.

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AP08-431

Endobronchial melanoma metastatic a female 55 years old

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Introduction

Malignant melanoma is a malignant skin tumor that originates from melanocytes. Metastatic melanoma endobronchial is rare case

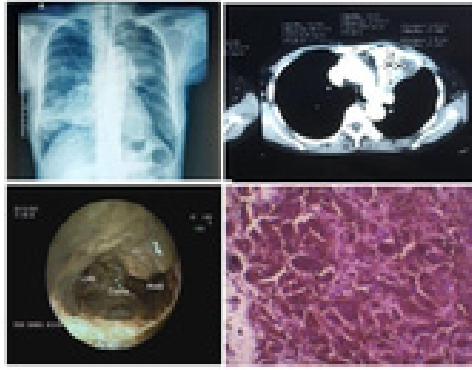
Case

A 55-year-old woman with complaint of shortness of breath, patient no comorbid. She had a history of amputation of the right big toe 3 years ago due to malignant melanoma. CT Scan Thoracic heterogeneous mass with atelectasis in the superior lobe of the left lung. There were multiple nodules in right and left lung. Bronchoscopy revealed a fungating, dark grayish, irregularly surfaced endobronchial mass at the left and the right main bronchus. Histopathological biopsy found malignant metastatic melanoma.

Discussion

Malignant melanoma is an aggressive cancer with a high metastatic potential. The spread through the lymphatic system and blood vessels, can metastasize to lymph nodes, lungs, liver, brain and bones.³ Melanoma is a type of tumor that cannot be regarded as cured even after long disease-free periods, very delayed recurrences and usually at sites the bronchus. Classification staging of cutaneous melanoma metastasis with stage I and II disease encompassing primary localized disease, stage III represents regional metastatic disease and stage IV referring to melanoma with distant metastasis.¹ An endobronchial invasion is rarely seen, the estimated incidence of metastases may vary from 2%-28%, only 4.5% were reported due to malignant melanoma. The prognosis with a median overall survival of six months confirming the poor survival.² Endobronchial resection can be offered as a palliative treatment option, resection is not curative in the setting of metastatic disease. Immunotherapy is the mainstay of treatment.

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AP08-432

Non keratinizing squamous cell lung carcinoma mimics small cell carcinoma in the lung : a case report

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Introduction

Squamous cell carcinoma (SCC) is a type of non-small cell lung carcinoma (NSCLC). SCC represents 25-30% of all NSCLC-type lung cancers. On cytopathological examination of SCLC, the appearance often resembles Squamous cell Carcinoma (SCC). SCC is classification into three subtypes: keratinizing, non-keratinizing and basaloid variants. The non-keratinizing SCC is a poorly differentiated tumor and is a rare variant similar to SCLC.

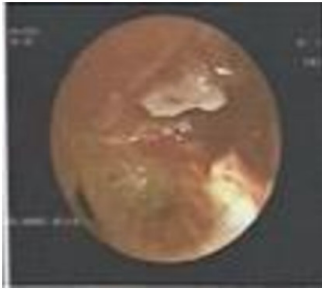
Case

A 63-year-old man, admitted to hospital after complaining of right chest pain since 6 months. Cough since 1 month before, smoked 3 packs a day for 34 years and had COPD for 5 years. Physical examination of the right lung looks abnormal compared to the left lung. Chest CT scan showed a rounded, well defined lesion with a soft tissue density in the posterior segment of the right pulmonary superior lobe with dimension 6.24x8,38x8,74 cm. Cytopathological of TTNA samples found small cell lung carcinoma, with differential diagnosis of squamous cell carcinoma . Histopathological of biopsi forcep shows the appearance of non-keratinizing squamous cell carcinoma. The patient was treated with chemotherapy of carboplatin and etoposide.

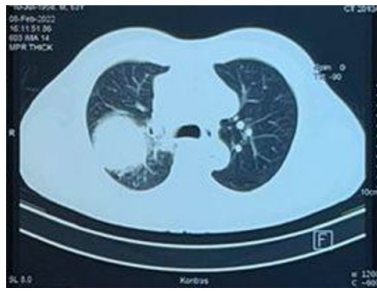
Discussion

This case was successfully diagnosed by histopathological with hematoxylin and eosin staining without immunohistochemical. Histopathological examination revealed malignant stratified squamous epithelial cells without keratin mass development, indicating a non-keratinizing squamous cell carcinoma lesion. There is a discrepancy between the results of cytology and histopathology, indicating that the gold standard for the pathological for this disease is histopathology. Currently, the patient is in the 2nd cycle of chemotherapy and is improving.

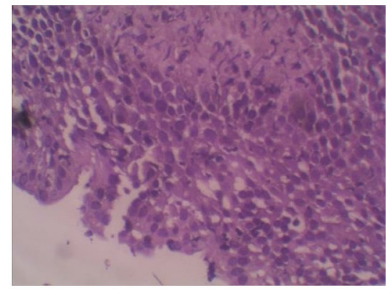
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Bronchoscopy



Ct Scan Thorax



Histopatology non
keratinizing squamos
cell carcinoma

AP08-433

Rare case of synchronous adenocarcinoma of lung and colon

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Introduction

Synchronous two malignancies of similar histology arising from two separate organs is very rare and uncommon, posing both diagnostic and therapeutic challenges.

Case report

We presented a 75-year-old lady with history of per rectal bleeding and rectal biopsy showed colon adenocarcinoma (positive for CDX2, and negative for CK7 and TTF-1). Subsequent CT scan showed enhancing lesion in the sigmoid colon associated with surrounding fat streakiness and hypodense lesion in the spleen. Furthermore, there was enhancing lesion seen at right lower lobe with multiple enhancing mediastinal and supraclavicular lymphadenopathies. Mediastinal lymph node biopsy showed primary lung adenocarcinoma. Tumour cells are positive for Ck7, TTF-1 and Napsin-A, and negative for CK20, CDX2, Ck5/6, p40 and MUC2. EGFR mutation was positive for exon 18, G719X. PET/CT scan showed hypermetabolic enhancing lesion at sigmoid colon with adjacent enhancing mesenteric nodes and a hypodense splenic lesion. In addition, hypermetabolic enhancing mass as also seen in lower lobe of right lung with multiple enlarged hypermetabolic mediastinal and bilateral supraclavicular nodes. He was diagnosed with stage 3b lung adenocarcinoma and stage T4a colon adenocarcinoma with regional lymph nodes. She was planned for sigmoidectomy and chemotherapy with palliative intention after multidisciplinary team discussion.

Discussion

This case highlights the need for extensive immunohistochemistry studies and PET/CT scan in diagnosing and staging synchronous tumour. The definite treatment should be guided by a multidisciplinary team consensus.

AP08-434

Primary lung adenocarcinoma presenting as diffuse multiple cavitory nodules in a 37 year old female never smoker

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Introduction

Diffuse multiple cavitory pulmonary nodules have a broad range of differential diagnoses including both infectious and non-infectious causes. The presence of a cavity and its distribution within the lungs, together with pertinent history and clinical findings, help focus the diagnostic evaluation. Primary lung malignancy rarely manifests as diffuse multiple cavitory nodules and is not often seen in the young.

Case Report

This is a case of a 37-year-old female never smoker who presented with one month of nonproductive cough and exertional dyspnea without weight loss nor fever. Chest radiography showed diffuse bilateral nodular infiltrates. Computed tomography (CT) scan of the chest showed multiple cavitory nodules diffusely scattered in both lungs with tree in bud nodular opacities. Acid fast staining of sputum to rule out tuberculosis was negative. A trial of antibiotic therapy failed to show improvement of symptoms. Bronchoscopy with transbronchial lung biopsy, bronchial lavage, brushing and washing was done which revealed lung adenocarcinoma, positive for EGFR mutation. Metastatic workup, including bone scan, brain magnetic resonance imaging (MRI), and ultrasound of the whole abdomen were negative. Patient was started on Osimertinib with improvement of symptoms.

Discussion

Although rare, lung adenocarcinoma may present as diffuse multiple cavitory nodules. A comprehensive workup is required for its diagnosis in an unlikely patient – a young female never smoker.

AP08-435

Bilateral atypical carcinoids as a component of Multiple Endocrine Neoplasia type 1 – A rare association

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Introduction

Carcinoids have a varied presentation and can be a part of multiple endocrine neoplasia type 1. This could be familial or solitary.

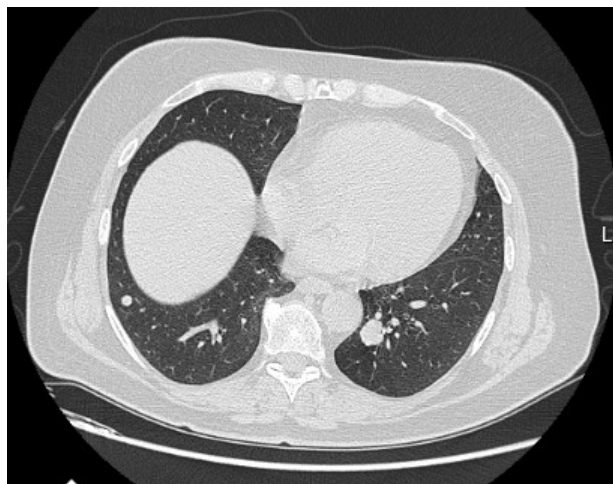
Case report

A 67-year-old lady was referred to the respiratory clinic following accidental detection of two nodules in bilateral lungs who was evaluated for anaemia. She did not have cough, haemoptysis, weight loss or chest pain. Further evaluation revealed 14-12mm soft tissue density lobulated nodule in left lower lobe and a smaller rounded nodule in right lower lobe with minor background emphysema. Both were PET inavid. Nodule follow up detected to have increased size of the left nodule and it was removed by left lower lobectomy which was followed by resection of right nodule by wedge resection and both were histologically confirmed to be atypical carcinoids. There was no recurrence or subsequent development of new nodes on follow up.

She was detected to have hypercalcemia and further evaluation revealed right sided parathyroid adenoma. This was initially managed medically and subjected for resection. She did not have history suggestive of pituitary involvement or gastrointestinal involvement. Gut hormone evaluation including gastrin was negative. Based on bilateral atypical pulmonary carcinoids and pituitary involvement Multiple endocrine neoplasia type 1 diagnosed. Patient did not have a family history of MEN or skin involvement.

Discussion

Carcinoids can be solitary or component of MEN 1. Higher degree of suspicion and evaluation is needed in relevant setting to prevent dreaded complications. Multiple carcinoids are commonly associated with MEN than solitary nodule.



AP08-436

Solitary Fibroadenoma of the lung in a background of a phylloid tumour of the breast – A case report

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Introduction

Pulmonary adenofibroma is a rare benign biphasic tumour of the lung composed of epithelial and stromal components. Here we describe a case of adenofibroma of the lung in a background of a breast cancer.

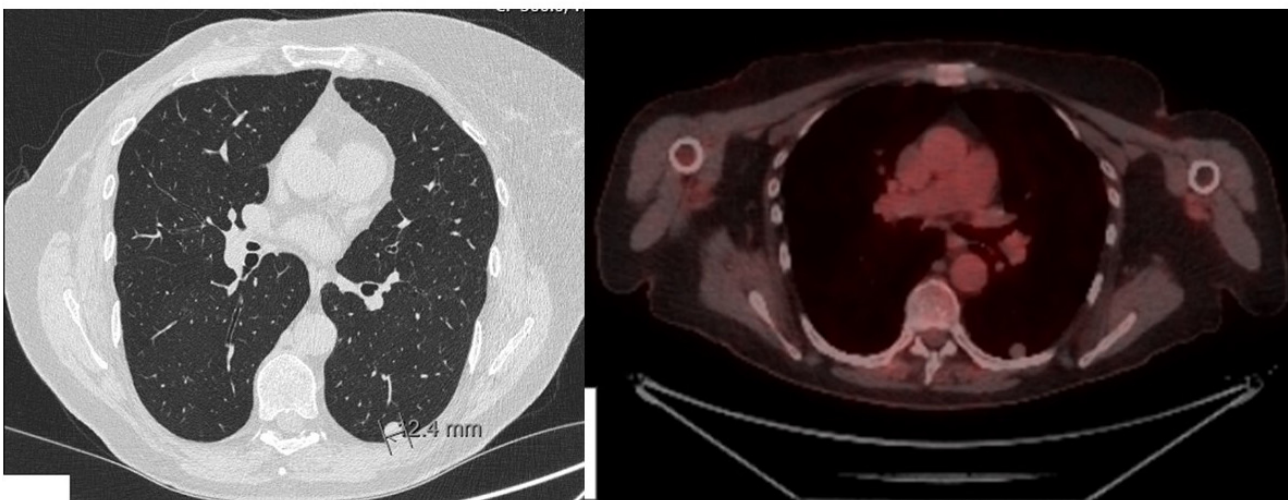
Case report

A 75-year-old previously healthy lady presented with enlarging right breast mass. Histologically it was confirmed to be a large phylloid tumour and further evaluation with PET scan has revealed a 1cm pulmonary nodule in the left lower lobe with significantly low FDG activity than that of the background mediastinum and referred to the respiratory team. There was no enlarged or metabolically active mediastinal, hilar or axillary lymph nodes. She did not have chronic cough, breathlessness or haemoptysis. Examination was unremarkable apart from surgical scar at the mastectomy site. It was initially followed up with serial scan as per nodule follow up pathway and as it was increasing in size it was decided to remove it by wedge resection after discussing in the cancer MDT.

Surgery was unremarkable and histology of the resected mass was suggestive of adenofibroma. She was under surveillance for the past 4 years and there was no recurrence of the lesion.

Discussion

Pulmonary adenofibroma was reported infrequently and inconsistently and has high risk of misdiagnosis as solitary fibrous tumour due to their morphological similarity. Pulmonary adenofibroma radiologically presented as a solitary, well-circumscribed solid nodule on the peripheral lung, consistent with the features of benign tumours. Fibroadenoma of the lung is histologically heterogenous characterized by epithelial and stromal components.



AP08-437

High grade intrapulmonary sarcoma in background of melanoma of the skin – A dilemma in diagnosis

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Introduction

High grade intrapulmonary sarcomas are rare cancers involving the lung parenchyma. We describe a challenging case of above cancer in a patient who had a melanoma excised in the past.

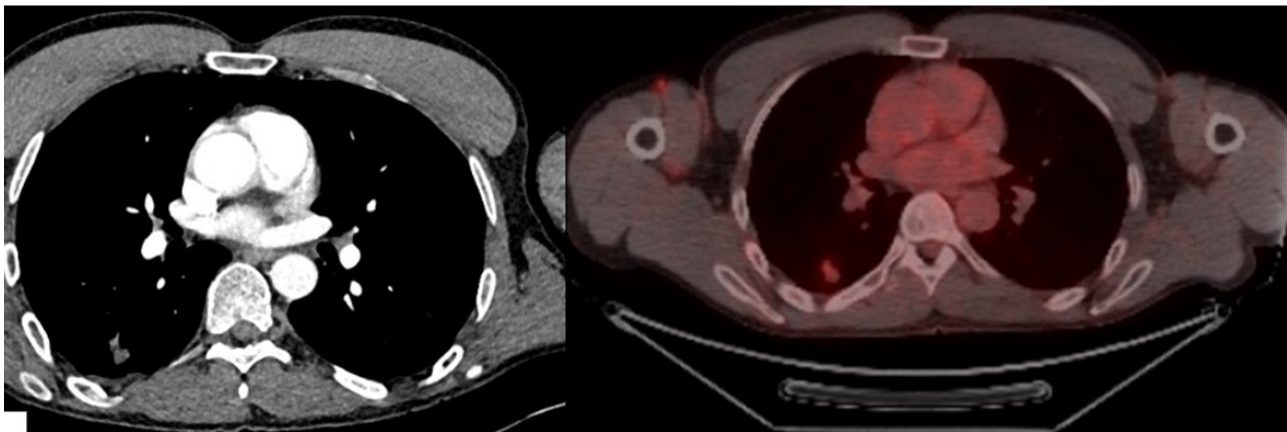
Case report

A 39-year-old who was diagnosed with right sided neck melanoma (T4aN0M0) was referred due to detection of right lower lone nodule. Patient was asymptomatic from respiratory point of view and CT has shown a 10 mm nodule in the right lower lobe with a spiculated margin. PET-CT was suggestive of right lower lobe mixed density pulmonary nodule demonstrating low grade FDG uptake only. This case was discussed in Cancer multi-disciplinary team discussion, and it was felt to be inflammatory and decided to follow up with CT scan. During follow up it was noted that the lesion has slightly increased in size and based on increasing size and spiculated margins it was decided to be malignant in nature and he was subjected for wedge excision of the lesion.

Histology was suggestive of Primary high grade intimal pulmonary sarcoma. He was under the oncology and CT surveillance was performed as the lesion was completely excised with free margins.

Discussion

High grade intrapulmonary sarcomas are rare pulmonary tumours. Presence of a high-grade primary cancer elsewhere in the body does not entertain a metastatic diagnosis in lung lesions all the time. Multi-disciplinary team discussion is advised in difficult scenarios which will aid in the diagnosis.



AP08-438

Early surgery for massive thymoma in a recently recovered COVID-19 patient.

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Introduction

Since the outbreak of the pandemic, chest computed tomography (CT) has been utilised to diagnose and monitor symptomatic patients with COVID-19. The growing utility of CT imaging has led to a rise in the frequency of incidental findings which necessitate further investigations and interventions. In this case, major thoracic surgery in a recently recovered COVID-19 patient.

Case summary

Here we discussed a case of 35-year-old gentleman who had severe COVID-19 infection with organizing pneumonia and segmental pulmonary embolism with incidental finding of massive anterior mediastinal mass on CT scan. Subsequent CT guided biopsy of the mass revealed features of thymoma. He was planned for surgery at 5-week post COVID-19 infection. Pre-operative assessment findings were; FVC 54% predicted, FEV1 56.2% predicted, gas transfer 67.1% predicted, residual ground glass changes and resolved pulmonary embolism on repeat CT scan, and normal left ventricle ejection fraction. The tumour was completely resected via medial sternotomy with no complication. Intra-operative findings and pathological staging confirmed stage I thymoma. Outpatient clinic review at 6th week post-surgery showed a full recovery.

Conclusion

Thymic tumours are rare incidentaloma among COVID-19 patient however it requires definite surgical intervention. Timing and pre-op assessment of post COVID-19 patients planning for a major thoracic surgery should be individualized and in some patients, they may benefit from early intervention.

AP08-439

A case of recurring pulmonary tumor thrombotic microangiopathy (PTTM) due to lung adenocarcinoma treated effectively with urgent chemotherapies

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Introduction

PTTM is a fatal disease process that results in pulmonary hypertension caused by microscopic tumor emboli of small arteries in the lungs, and there is no established treatment [1]. The clinical presentation is usually non-specific with progressive dyspnea and refractory cough. It is difficult to diagnose PTTM and most cases are diagnosed postmortem.

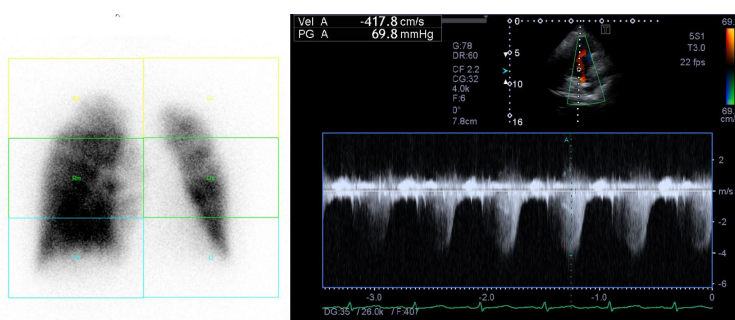
Case report

A 51-year-old male presented to our hospital with worsening dyspnea. Two years ago he was diagnosed with advanced lung adenocarcinoma and received chemotherapy with cisplatin and pemetrexed plus pembrolizumab followed by ramucirumab plus docetaxel. Although he required oxygen therapy, his chest CT images showed no evidence of pneumonia or pulmonary embolism. His echocardiographic findings showed pulmonary hypertension and right-sided heart failure. Since PTTM was highly suspected and catecholamine was needed to treat right-sided heart failure associated with pulmonary hypertension, we performed chemotherapy immediately with carboplatin and S-1 on the second hospital day. On the 7th hospital day, his condition began to improve. Oxygenation and pulmonary hypertension gradually improved by day 13. Despite 2 months of consecutive chemotherapy, PTTM relapsed. We performed prompt fourth-line chemotherapy with gemcitabine and vinorelbine and could treat him effectively again.

Discussion

PTTM is a rare condition in patients with lung cancer and is often a life-threatening because of its rapid impact on cardiopulmonary circulation. When PTTM is clinically suspected, urgent chemotherapy should be considered to save those patients.

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AP08-440

A Case of Undifferentiated Pleomorphic Sarcoma of the Forearm with Lung Metastasis

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Introduction

The undifferentiated pleomorphic sarcoma (UPS) is a rare but aggressive malignant tumor that is usually a diagnosis of exclusion. The goal of this paper is to present the clinical course, diagnostics, and therapeutic options that should be considered to improve patient outcomes.

Case Report

We discuss the case of a 74 year-old male with a painless, gradually enlarging right forearm mass. Wide excision was performed with histopathology showing high grade sarcoma, favor UPS. External beam radiation therapy was done. Chest computed tomography (CT) scan showed nodular components in the right lung. Patient underwent systemic chemotherapy with gemcitabine. Three months later, repeat chest CT scan showed interval appearance of bilateral lower lobe nodules. CT scan guided aspiration biopsy yielded positive for malignancy with cytologic features compatible with high grade sarcoma. Chemotherapy was continued for four cycles. Another three months later, surveillance chest CT scan showed progression of the previously seen pulmonary nodules, now measuring 7.2 x 7.6 x 6.7 cm on the right and 11.5 x 9.2 x 9.1 cm on the left. There was pleural fluid collection in both hemithoraces. Patient underwent chest tube thoracostomy and was scheduled for outpatient eribulin chemotherapy. The patient eventually expired despite adequate follow-up and compliance to treatment.

Discussion

The insidious nature of UPS demands definitive histologic confirmation and prompt metastatic work-up. Both local recurrence and distant metastases often develop within 12–24 months of diagnosis. Once diagnosis is established, patients should be referred to the appropriate subspecialty for surgery, radiation, and systemic chemotherapy.

AP08-441

Non hodgkin lymphoma with pancoast syndrome : a rare case report

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Introduction

Pancoast syndrome is a constellation of symptoms in the presence of shoulders and arms pain along distribution of plexus brachialis and horner's syndrome. The common cause is superior sulcus tumor but there are other etiologies that rarely explained, one of which is non hodgkin lymphoma.

Case Illustration

A 18-year-old female was admitted to emergency ward with right shoulder pain and arm for 2 months and worsening 3 days before admission. She also complaint weight loss, weakness in right arm. We found the presence of a tenderness a right supraclavicular and shoulder lumps, reduction of muscle strength in the right arm, and horner's sign. A chest CT showed mass lung with size >7cm, and enlarged both axillary lymph nodes. We initially diagnosed as superior sulcus tumor with the differential diagnosis superior mediastinal tumor. Laboratory results showed an increased in LDH. Despite severe pain, radiotherapy was pending to suspicious of lymphoma, diagnostic modalities were done with TTNA, bronchoscopy, TBNA, and open biopsy. The histopathology results from biopsy were non-hodgkin lymphoma.

Discussion

Pancoast syndrome is rare and located in pulmonary apex. Non hodgkin lymphoma is rarely reported as being etiology. Pancoast syndrome is due to involvement of the lower trunk of brachial plexus and often cause erosion of chest wall destruction. Severe pain became a challenge in diagnosis. However aggressive diagnosis is important before starting treatment. Immunohistochemistry is the next step in this case.

Keyword

non hodgkin lymphoma, pancoast syndrome, sulcus superior tumor

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AP08-442

Retroperitoneal alveolar soft part sarcoma with lung, liver, brain and thyroid metastases: A case report

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Introduction

Alveolar soft part sarcoma is a very rare subtype of sarcoma that affects children and young adults.¹ It is a slow-growing tumor, with metastasis occurring decades after the initial diagnosis. The lungs, bone and brain are the most common sites of metastasis.^{2,3} Alveolar Soft Part Sarcoma metastasizing to the thyroid gland has not yet been previously reported.

Case Report

A 36-year-old female was diagnosed with retroperitoneal Alveolar Soft Part Sarcoma 15 years ago. She underwent excision and resection of the tumor followed by radiation therapy. After 2 years patient developed lung metastasis and underwent chemotherapy. After 6 years patient had brain metastasis. She underwent craniotomy and tumor excision followed by radiotherapy. Four years later, patient noted an enlarging neck mass. A neck CT scan revealed a mass in the left thyroid gland. A biopsy done showed colloid nodules. Due to the enlarging neck mass, patient had total thyroidectomy. Histopathology report revealed metastatic alveolar soft part sarcoma. (Figure 1) Radiotherapy was done.

Discussion

This case illustrates the natural course of progression of Alveolar Soft Part Sarcoma. From a retroperitoneal mass, it progressed to a metastatic disease encompassing 15 years after the initial diagnosis despite surgical resection, chemotherapy, and radiation therapy. Metastasis to the thyroid gland has not been reported such as her case, and although prognosis of disseminated metastatic disease is relatively poor, the patient is alive 15 years after the initial diagnosis.

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DECLARATION OF COMPETING INTEREST

The author(s) declares no potential conflicts of interest with respect to the authorship, and/or publication of this case report.

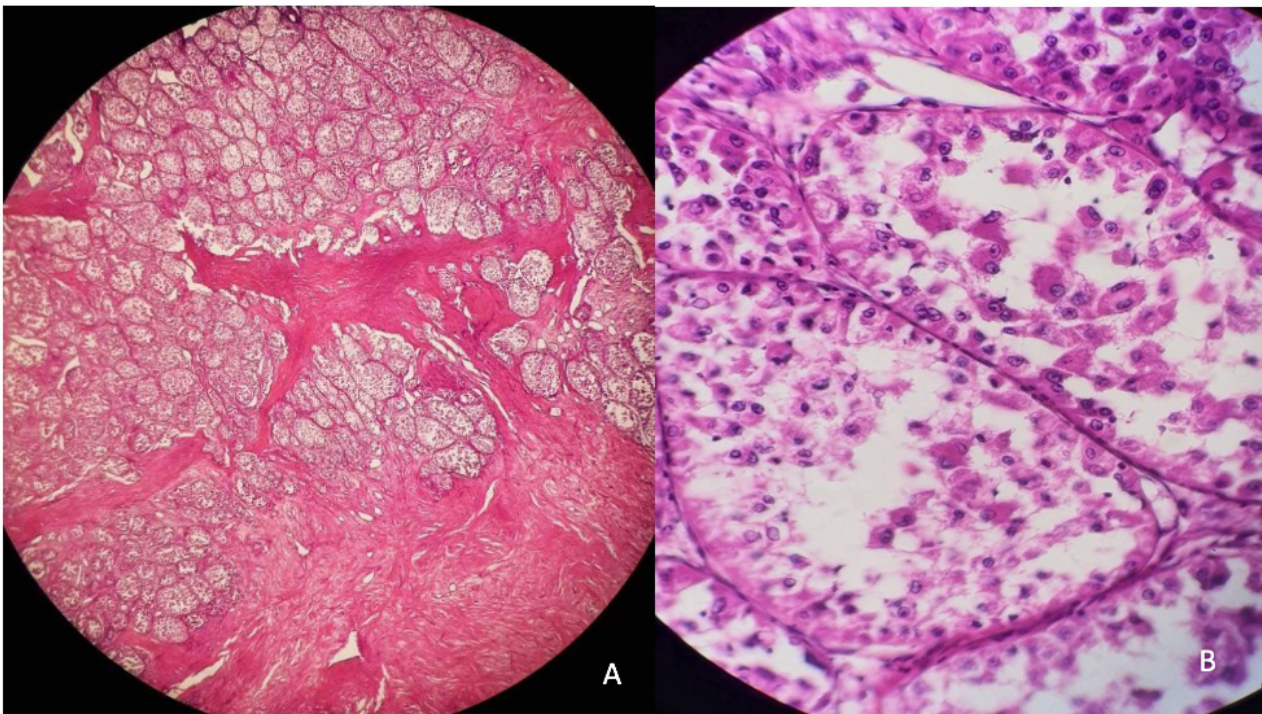


Figure 1 Light microscopy of the thyroid tissue showed (A and B) nests of cells separated by fibrous septa with clear cytoplasm with prominent nucleolus

AP08-443

Schwannoma of the Posterior Mediastinum – A Case Report

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Introduction

Mediastinal tumors represent a diverse group of benign and malignant diseases, most of which are asymptomatic or having nonspecific manifestations, and pose challenges in accessibility for tissue sampling.

Case report

We report a case of an incidental schwannoma in a middle-aged man who was treated successfully by complete surgical resection of the mass. Patient is a 43-year-old man, non-smoker, who came with an incidental finding of convex density in the right superior mediastinal region on routine chest radiograph. Computed tomography (CT) of the chest with contrast done one year prior showed a non-enhancing soft tissue density, measuring 1.9 by 2.7cm in the posterior mediastinal area. Repeat chest CT scan with contrast done a year after, showed an increase in the size of the non-enhancing soft tissue density, now measuring 3.6 x 2.2 x 3.8 cm. The mass was completely resected via video-assisted thoracoscopic Surgery (VATS). Histopathologic examination showed schwannoma. Post-operative course was unremarkable.

Discussion

Neurogenic tumors represent the most common cause of posterior mediastinal lesions, accounting for approximately 20% of all adult tumors. Schwannomas are the most common type of neurogenic tumor observed in thorax which originated from the peripheral nerve sheath of Schwann cells. These tumors are often asymptomatic and may present as incidental findings.

AP08-444

Double the trouble: Double primary malignancy involving Lung Adenocarcinoma recurrence and Hepatocellular Carcinoma

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Introduction

Multiple primary malignancies require a more exceptional treatment and surveillance. A metachronous presentation of malignancy in a 62-year old male who was successfully treated from Lung adenocarcinoma was again diagnosed with primary hepatocellular carcinoma (HCC) 4 years later. Furthermore, a year following the treatment for HCC, the contralateral lung was found to have a lung adenocarcinoma anew requiring a more sophisticated management.

Case report

Presented as chronic cough, a resected pulmonary nodule was consistent with moderately differentiated adenocarcinoma with no lymphovascular invasion. It was EGFR, TTF-1 and CK7 positive with good response to chemoradiation and immunotherapy. 9 years later, a pleural fluid cytology of the right pleural effusion exhibit positive for adenocarcinoma. It was MOC 31, TTF-1, Napsin A, CK7 and CK20 positive. Moreover, interspersed in the course of his disease was the development of Hepatocellular Carcinoma a year prior to the recurrence. The immunohistochemical staining of the hepatic mass was positive for HepPar1 and negative to Napsin A, CK7, CK20 and TTF-1.

Discussion

Individuals with lung cancer are at higher risk to develop a second malignancy compared to general population. The value of surveillance cannot be overemphasized. The sequence of cancer development is a unique feature of this case. Superimposed to the rarity of the case is the challenge of developing a treatment strategy that will adequately address both primary malignancy with less toxicity, less drug interaction and more favorable outcome.

AP08-445

Dengue haemorrhagic fever unmasking a primary mediastinal yolk sac tumour

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Introduction

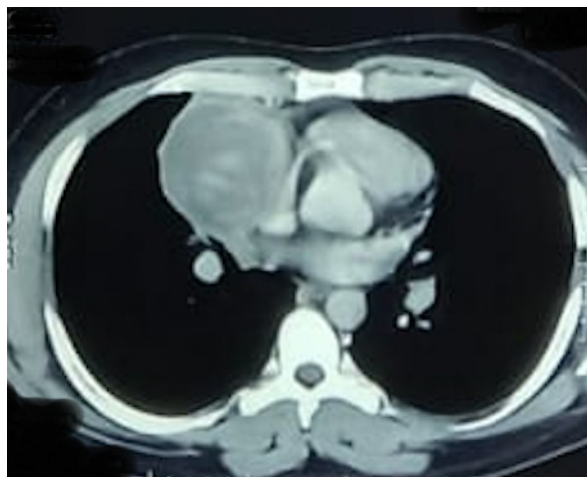
Dengue infection can cause low platelet counts and increase bleeding tendency. Bleeding into a tumour during the haemorrhagic phase is rare. We present a patient who had a rapidly enlarging mediastinal germ cell tumour following dengue haemorrhagic fever.

Case report

A 35-year-old previously well gentleman presented with an intractable cough and dyspnoea following recovery from dengue haemorrhagic fever 1 week back. His lowest platelet count was 10,000/microliter during the leaking phase. X-ray showed a possible incidental mediastinal mass (Figure) and computed tomography (CT) was planned. Meanwhile, his symptoms rapidly worsened. Examination revealed superior vena cava obstruction. A repeat chest X-ray showed a rapid enlargement of the mass which the urgent CT (Figure) of the chest confirmed and a tumour thrombus in the superior vena cava was also noted. In addition, Positron emission tomography revealed fluorodeoxyglucose avidity of the mass in a few mediastinal lymph nodes without further metastasis. Urgent image-guided biopsy revealed altered blood and tissue and histology was suggestive of a yolk sac tumour. Alpha-fetoprotein (AFP) was 7904ng/l with normal beta-HCG and lactate dehydrogenase. He was commenced on chemotherapy with ifosfamide, etoposide and cisplatin with enoxaparin. After 4 cycles his AFP normalized and the tumour size and metabolic activity significantly reduced.

Discussion

Primary mediastinal yolk sac tumours are rare and highly malignant carrying a poor prognosis. Altered blood in the tumour and rapid enlargement may be due to bleeding into the tumour following dengue or rapid enlargement causing tumour necrosis and bleeding.



AP08-446

Clinical analysis of three cases of lung adenocarcinoma without tumor progression after discontinuation of chemotherapy

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Background and Aim

In the present study, we examined three cases of non-small cell lung cancer (NSCLC) with no tumor progression after induction chemotherapy for advanced disease, despite the fact that chemotherapy was interrupted for certain reasons.

Methods

We retrospectively reviewed medical records and images and discussed the clinical details. Further literature review was added.

Results

Age and sex were 72 years old female, 75 years old female, and 79 years old male, respectively. All three patients had adenocarcinoma. 2 were stage IV, with brain metastasis as the initial presentation and had undergone brain surgery followed by gamma knife. 1 was stage IIIB with combined radiation therapy. Chemotherapy was different for all three patients, two with platinum and two with immune checkpoint inhibitor. The duration of progression-free interval after treatment interruption was 6.0, 2.5, and 2.5 years, respectively. After treatment interruption, PS remained good, ranging from 0 to 1, and there were no additional metastases to other organs except the brain. After treatment interruption, anemia disappeared, nutritional status remained good, and tumor markers were normal.

Conclusion

The prognostic factors for patients with advanced lung cancer who stop chemotherapy during the course of treatment are complex and include: 1) no large primary tumor at the time of detection, 2) successful response to chemotherapy even during the course of treatment, 3) no additional systemic metastases, 4) no active mediastinal lymph nodes, and 5) good general health with no blood cell loss and good nutritional status.

AP08-447

VA-ECMO assisted tumor resection of Pulmonary Adenocarcinoma : A Case Report

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Introduction

Thoracic tumors may be difficult to perform with the use of conventional ventilation. An alternative to ventilation which can provide both oxygenation and hemodynamic stability is with the use of Venous Arterial (VA) Extracorporeal Membrane Oxygenation (ECMO). It provides support for the patient's heart and lungs by allowing most of a patient's blood to move through the circuit without going through the patient's heart. This type of ECMO takes blood out of a large vein and returns it into a large artery, allowing oxygen-rich blood to circulate through the body even if the heart is too weak to pump it.

Case Report

This case presents a 57 year old female who has a known case of solitary fibrous tumor on the left lung. Chest CT scan showed heterogeneously enhancing Left pleural based multilobulated mass with areas of necrosis and foci of calcifications, measuring 17.5 x 11.6 x 25.6 cm. Pulmonary function test was done which revealed restrictive ventilatory disease, pre-op PPO FEV1 of 29.98% and pre-op DLCO of 29.51%. Patient underwent Full Clamshell Thoracotomy, Excision of Tumor, VA ECMO, FNAB of Thyroid under GETA. On the fourth post-operative day, the patient was extubated and maintained on CPAP for ventilatory support. Pulmonary rehabilitation was initiated and CPAP was eventually discontinued on the fifth postoperative day. Tissue sample revealed lung adenocarcinoma.

Discussion

VA ECMO is an additional adjunct for thoracic surgical procedure in malignancies can be advantageous for those patients with poor pulmonary functional status who will undergo lung resection. This also allows stable cardiorespiratory function during the whole operative procedure.

AP08-448

Successful treatment of malignant pleural mesothelioma with nivolumab plus ipilimumab: A Case Report

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Introduction

In South Korea, approved systemic treatments for advanced malignant pleural mesothelioma (MPM) have been limited to palliative chemotherapy that has moderate survival benefits with poor outcomes. Recently, combination immunotherapy with nivolumab plus ipilimumab showed promising activity in advanced MPM.

Case report

We report the case of a 69-year-old man with MPM who showed a favorable response to nivolumab plus ipilimumab. As a first-line treatment for MPM, he received palliative chemotherapy combining pemetrexed and cisplatin. However, the tumor progressed after 4th cycle of chemotherapy. Nivolumab plus ipilimumab was administered as second-line treatment, and the patient showed a partial response after 1st course of immunotherapy, resulting in a favorable prolonged response for 10 months.

Discussion

The results of a future prospective study are expected to identify prognostic markers for the immunotherapy of MPM.

AP08-449

Adenocarcinoma of the Lung is Strongly Associated with Heavy Smoker

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Background

Non-small cell carcinoma (NSCLC) is the most common type of lung cancer. Indonesia is the country with the highest prevalence of smokers in Southeast Asia. Tobacco smoke contains around 4000 chemicals, and about 50 chemicals are carcinogens. Smoking is a major risk factor for NSCLC, the strongest relationship between smoking and the incidence of Squamous cell carcinoma, and the weakest relationship with adenocarcinoma.

Purpose

The purpose of the study to describe the degree of smoking based on brinkman index with histology type of advanced stage Non-Small Cell Lung Cancer.

Methods

Retrospective, Cross sectional study, advanced stage NSCLC, Outpatient and Inpatient in Dr. Wahidin Sudirohusodo central general hospital, Makassar, South Sulawesi, period 1 January 2017 to 31 December 2019 (n=100). The instrument used for collecting data was questionnaire containing the risk factors of lung cancer. The categorization of smoking degrees used the Brinkman Index (BI) measurement.

Results

The distribution of subjects based on gender was mostly male (64%), age group 45 years (84%), most education level graduated from elementary school (31%), most occupations were farmers (27%). Active smokers 60%, heavy BI 51.6%, moderate BI 31.6%, light BI 16.4%. 40% of the subjects were non-smokers, 50% of whom were passive smokers. The most common types of cigarettes are filter cigarettes (75%). The most common type of cytology/histopathology was adenocarcinoma (49%). Heavy BI based on cytology/histologic type of adenocarcinoma was significant ($p = 0.02$).

Conclusion

Heavy BI was statistically significant with lung adenocarcinoma.

Keywords

Smoking, Brinkman Index, Lung Adenocarcinoma



AP08-450

An unusual presentation of a rare pulmonary carcinosarcoma

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Introduction

Pulmonary carcinosarcomas are rare and highly malignant neoplasms accounting for

Case report

A 46 year old non-smoking woman presented with three weeks history of progressive bilateral lower limb weakness. She remarkably had no respiratory symptoms. Physical examination revealed Glasgow Coma Scale of 15/15, flaccid paralysis of bilateral lower limbs, areflexia and loss of anal tone. Chest x-ray showed bilateral cannonball opacities while computed tomography revealed a right upper lobe mass with metastases to both lung fields. MRI showed hemorrhagic metastases in the brain and cervical spinal cord. Bronchoscopy demonstrated endobronchial masses with abnormal mucosa and contact bleeding over the right upper and middle lobes. The biopsies revealed nests of malignant squamous cells juxtaposed with chondrosarcoma. A diagnosis of pulmonary carcinosarcoma was established with clinical stage IVb. The patient was referred to the oncology department for palliative radiotherapy to the spine.

Discussion

The WHO classification defines carcinosarcomas as malignant tumors with biphasic histology consisting of non-small cell lung carcinoma and sarcoma-containing heterologous elements. They usually present as an advanced disease with aggressive metastases. There is no definitive treatment of carcinosarcomas other than surgical resection in localized disease. The role of chemotherapy and radiotherapy remains controversial. Prognosis is unfavourable with median survival time of 9-12 months after surgical resection.

AP08-451

Intermittent Strategic of Erlotinib Treatment; Balancing efficacy and Side Effect in Brain Metastasis Epidermal Growth Factor Receptor Mutation NSCLC – a Case Report

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Background

NSCLC with brain metastasis often has a poor prognosis, with the median survival ranging between 4 and 6 months. The prevalence of brain metastasis at presentation is 15%-20% and up to 40% eventually develop during its disease course. Erlotinib, a specific EGFR-TKI, has been shown to improve PFS compared with chemotherapy when given as first-line treatment for Asian patients with NSCLC with activating EGFR mutations. Erlotinib's main drug-related toxicity was rash, mostly mild to moderate. We present case of patients who successfully received intermittent administration of erlotinib.

Case Report

A 53 year old woman with diagnosis Adenocarcinoma EGFR exon 19 insertion T2aN0M1b Stage IVA. From the results of MRI Brain is multiple mass on both hemisfer cerebry and cerebellum sugestif metastasis. The result of MSCT Scan thorax is right pulmonary nodul. The result of histopathology is Non Small Cell Carcinoma impression on a adenocarcinoma. Skin rash and scalp seborrheic dermatitis appeared after giving erlotinib for 11 months. After intermittent erlotinib therapy there was clinical improvement.

Discussion

From this case, patient received oral administration of 150 mg/day erlotinib. After 6 months of erlotinib administration, the metastases to the brain had improved but dermatitis appeared on the extremities and head. When toxicities become intolerable, the dose of erlotinib is generally reduced from 150 maximum tolerated dose to 100 mg/day, dose reductions are occasionally needed to 150 mg/3 day.

AP08-452

Second time's the charm - Reaching a rare diagnosis!

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Introduction

With the increasing use of imaging, the incidental pick up of pulmonary nodules in asymptomatic patients is becoming more common. As these nodules tend to be small, invasive testing may be difficult and unyielding and thus multiple attempts at biopsy might be required.

Case Report

We report a 43-year-old female non-smoker who presents with an incidental finding of a left upper zone lung nodule on chest radiography. Computed tomography (CT) imaging showed a well-circumscribed solid nodule in the left upper lobe (Figure 1). She underwent bronchoscopy and transbronchial lung biopsy of the nodule with radial endobronchial ultrasound localisation. Histology was negative for malignancy and cultures were negative for infection. A positron emission tomography (PET) scan two months later showed persistence of the nodule with moderate flurodeoxyglucose (FDG) avidity. She subsequently underwent a CT-guided lung biopsy and the histology showed features consistent with sclerosing pneumocytoma. Treatment options including surgery were discussed with the patient and she opted for conservative follow up with interval imaging.

Discussion

Pulmonary sclerosing pneumocytoma is a rare, mostly benign type of tumour characterised as "Two cell types, four patterns"¹. The cell types include cuboidal and round cells while the four patterns include a variety of papillary, solid, sclerosing and haemorrhagic architectures¹. It is more common in Middle-aged Asian females and tends to present with incidental peripherally located nodules. These lesions tend to be FDG avid, adding to the difficulty in distinguishing them from more aggressive cancers. Once diagnosed, treatment involves either surgical resection or close monitoring with interval imaging.

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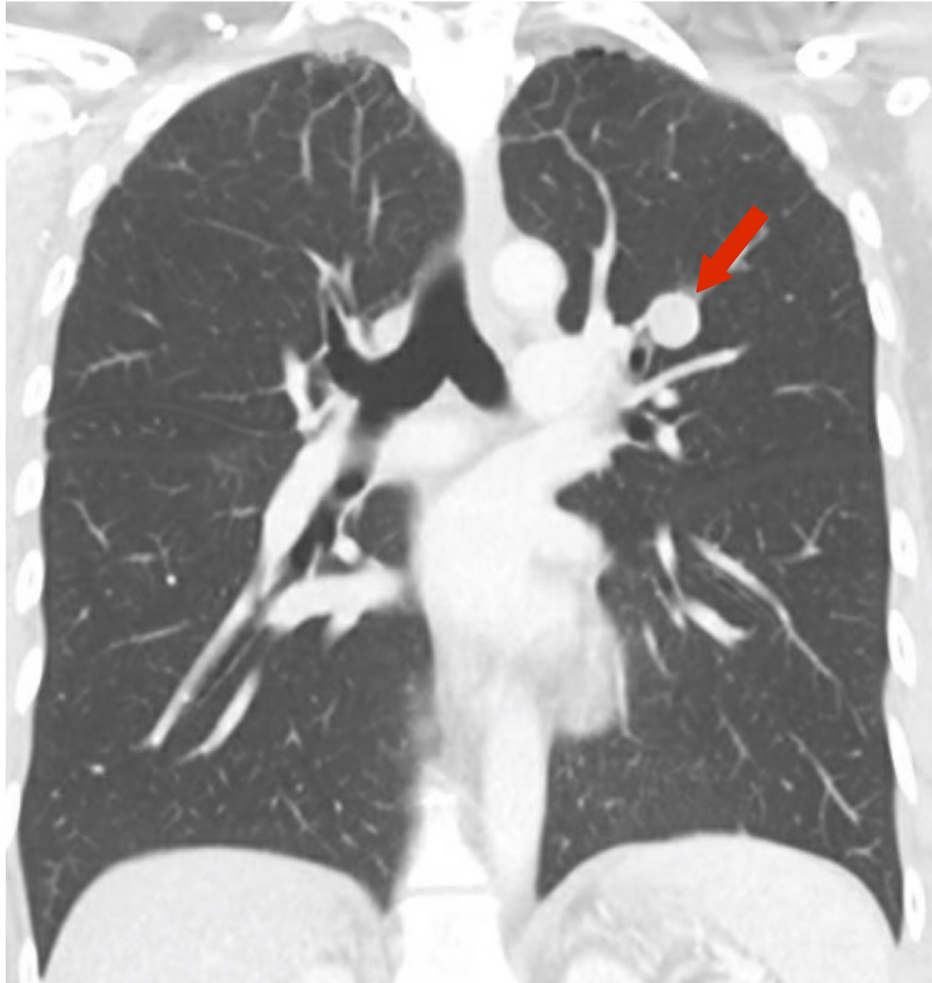


Figure 1. Computed tomography showing a well-circumscribed solid nodule in the left upper lobe (Arrow).

AP08-453

Pulmonary low grade mucoepidermoid carcinoma in 26 years old male: A rare case

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Introduction

Mucoepidermoid carcinoma (MEC) is a rare type of salivary gland tumor with an incidence rate of less than 1% of all lung cancer cases. Based on World Health Organization (WHO) classification, these tumours are divided into low grade and high grade.

Case report

A 26 years old male complaint right chest pain and chronic cough. There is no family history of malignancy. History of smoking 5.6 pack-years. Chest x-ray showed right lung mass with pleural effusion. Chest computed tomography scan with contrast showed heterogeneous mass (43-68 HU), heterogeneous enhanced post contrast (75-107 HU) with pneumonic reaction size 5.48 x 6.8 x 6.05 cm in right lower lobe and narrowed bronchus. Bronchoscopy evaluation revealed active bleeding, hyperemic-irregular of intraluminal mass that completely obstructed the antero-basal orifice in the right lower lobe of the lung. Forceps biopsy showed hamartoma lesion but from surgery evaluation with right lower lobectomy, the histopathology finding concluded a low grade mucoepidermoid carcinoma. No further adjuvant treatment was recommended, and follow-up imaging was planned for surveillance.

Discussion

Mucoepidermoid carcinoma is lung malignancies that only occur about 0.1-0.2% of all primary lung tumours. Because clinical and radiological manifestations are non-specific, diagnosis depends on histopathological examination of the biopsy or surgery. Flexible bronchoscopy is the main diagnostic tool and a pink polypoid mass may be found. Surgical resection has become the standard of care for patients with pulmonary MEC. Patients with low-grade MEC generally have a good prognosis with survival rates near 95%.

Keywords

mucoepidermoid carcinoma, lung tumour

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AP08-454

Lazarus effect of capmatinib in MET exon 14 skipping mutation-positive lung adenocarcinoma with extensive central nervous system metastasis

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Introduction

Although several novel tyrosine kinase inhibitors for MET exon 14 skipping mutation including tepotinib and capmatinib have demonstrated favorable systemic efficacy in recent clinical trials, their efficacy against central nervous system (CNS) metastasis is still unclear. We, herein, report a case of lung adenocarcinoma harboring MET exon 14 skipping mutation and extensive brain and leptomeningeal (LM) metastasis which showed dramatic response to capmatinib.

Case report

A 65-year-old woman was diagnosed with metastatic lung adenocarcinoma. Routine molecular study showed no genetic alterations including epidermal growth factor receptor mutation and anaplastic lymphoma kinase translocation, thus we started pemetrexed and platinum as a frontline treatment. However the disease progressed after 5 months of the treatment. Despite of subsequent treatment using paclitaxel and atezolizumab, the disease rapidly progressed showing numerous brain parenchymal and LM metastasis and resulting in stuporous mentality of the patient. Next-generation sequencing was performed and MET exon 14 skipping mutation was detected. We started capmatinib and she showed the dramatic clinical improvement in mentality within 2 weeks of treatment, and the follow-up brain imaging also revealed near complete response.

Discussion

Our case highlights the possible efficacy of capmatinib for the patients with poor performance due to extensive CNS metastasis, and the importance of active utilization of molecular profiling to find out rare but druggable genetic alterations.

AP08-455

a Long Term Follow-Up of Papillary Thyroid Carcinoma Arising in Mature Cystic Mediastinal Teratoma

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Introduction

We reviewed the patient's database and analysed a 4-year follow-up case of papillary thyroid carcinoma arising in mature cystic mediastinal teratoma by considering chest CT scan and thyroid CT scan, bronchoscopy, pulmonary function, tumour marker (AFP and B-HCG) and thyroid hormones.

Case report

In 08/2018, a 36-year-old female presented to our academic hospital in Riau province of Indonesia with complaints intermittent episodes of right chest pain, shortness of breath and cough. Chest CT scan revealed a rounded-well defined enhancement inhomogen solid mass containing fat and calcification in mediastinal anterior. Lobectomy of the right upper and middle lobe with total excision of the tumor was performed. Histopathology examination revealed papillary thyroid carcinoma arising in mature cystic teratoma. The patient underwent extensive evaluation of the thyroid gland with CT scan which revealed no evidence of a mass. The patient was remained asymptomatic and no further need for chemotherapy. The patient has been in long term follow-up at our hospital, we observed tumour markers level (AFP and B-HCG), chest and thyroid CT-Scan, bronchoscopy and also pulmonary function test and no sign of disease relapse or further treatment related to complication.

Discussion

Mature teratomas, which represent approximately 60% to 70% of mediastinal germ cell tumors, are usually well-differentiated and benign. Complete surgical removal of the primary tumour is an essential component of treatment for the majority of patients with teratoma. We report this case of a patient because such a long time follow up of papillary thyroid carcinoma arising in mature cystic mediastinal teratoma is uncommon and needs to be reported. Multidisciplinary management has been crucial in this case because of the presence of concomitant diseases and consequently, differential diagnosis challenges.

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AP08-456

Type 2 diabetes mellitus and the risk of lung cancer in patients with chronic obstructive pulmonary disease: A nationwide cohort study in South Korea

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Background and Aim

COPD is associated with an increased risk of lung cancer. Meanwhile, the association of type 2 diabetic mellitus (T2DM) with lung cancer risk has been reported to be inconclusive. The aim of this study was to assess whether T2DM is associated with a risk of lung cancer in COPD patients

Methods

This is a population-based, retrospective cohort study using the data from National Sample Cohort-National Health Insurance Service from 2002 to 2019. The eligible population aged 35–90 years with newly diagnosed with COPD. Cases were defined as individuals (N=420) diagnosed with lung cancer after COPD diagnosis, and matched with controls (N= 2,100) by propensity score at 1:5 ratios. The Cox regression model was used to obtain adjusted hazard ratio(aHR) for lung cancer adjusted for confounding factors.

Results

We enrolled 2,520 patients with COPD (1,372 without T2DM, 1,148 with T2DM). T2DM was associated with an increased risk of lung cancer compared to non-diabetic in COPD patients (aHR 1.27, 95% CI 1.05-1.55). The cumulative incidence estimated by Kaplan-Meier analysis revealed a significant higher proportion in diabetic COPD patients. A subgroup analysis of diabetic COPD patients showed a higher risk of lung cancer in those ≥ 70 years of age (aHR 1.55, 95% CI 1.01-2.40) and smoking ≥ 30 pack-years (aHR 1.40, 95% CI 1.07-1.83).

Conclusion

We found an increased risk of lung cancer in diabetic COPD patients compared to non-diabetic COPD patients. It is desirable to observe possibility of lung cancer carefully during follow-up of COPD patients with T2DM

AP08-457

Neurofibrosarcoma in a patient with type 1 neurofibromatosis – A not so uncommon association

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Introduction

Neurofibromatosis type 1 (NFT1) is an autosomal dominant multisystem disorder characterized by typical neurocutaneous manifestations. NF1 gene mutation causing reduced neurofibromin leads to increased growth and cell proliferation which predisposes patients to develop tumours like optic glioma, neurofibrosarcomas, and plexiform neurofibromas.¹

Case report

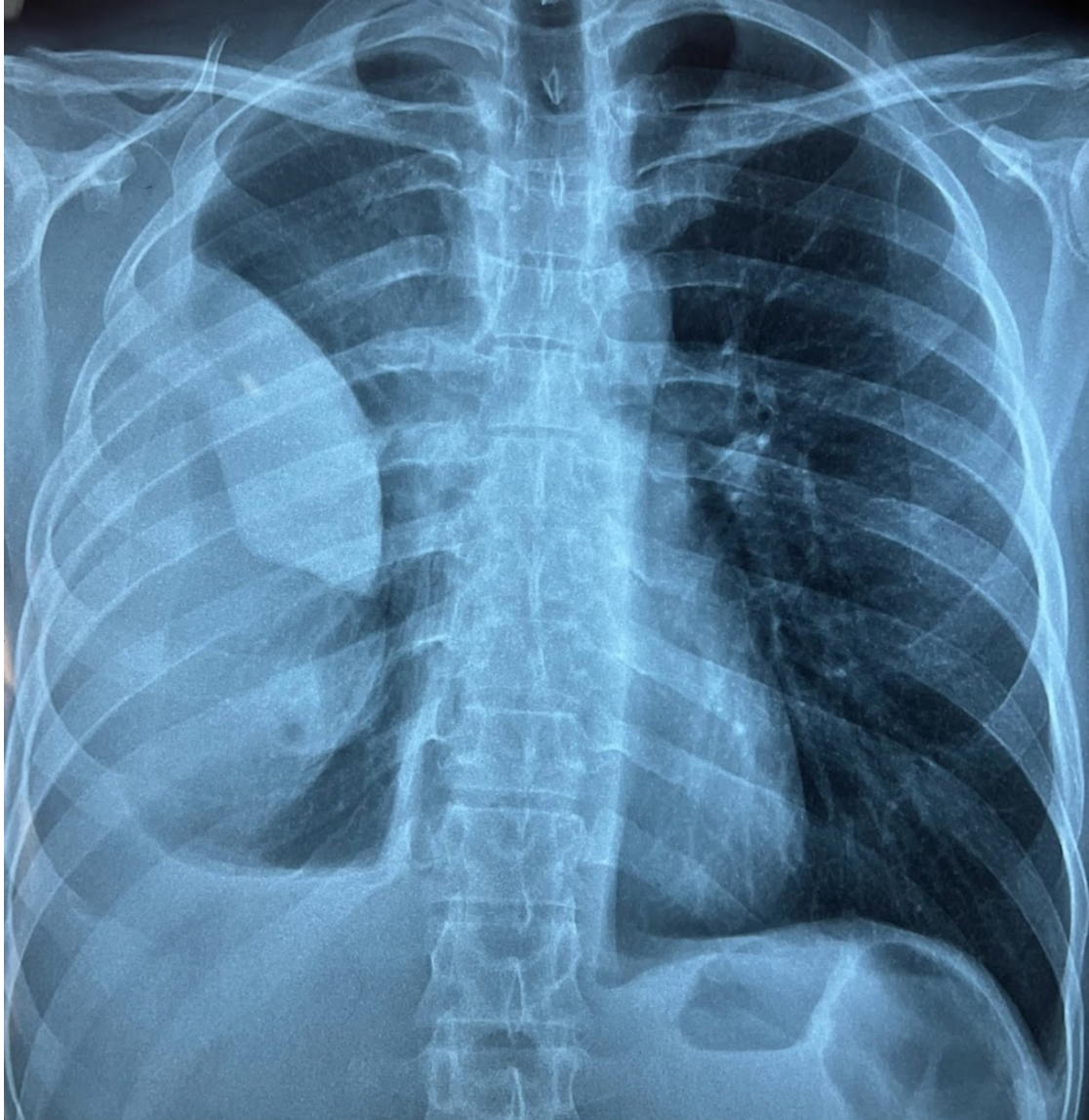
A 31-year-old gentleman who was previously well presented to us with a 3 days history of right-sided chest pain and dyspnoea. He denied any history of fever, chronic cough, seizures, or significant family history of malignancy or epilepsy. Examination revealed features of NFT1 including café-au-lait macules, multiple neurofibromas, and axillary freckles. Thoracic examination revealed a right-sided pleural effusion. His baseline full blood count, inflammatory markers, and renal and liver functions were normal. Ultrasound chest showed a right-sided effusion with a pleural-based mass. Pleural fluid aspiration was exudative and lymphocytic with normal cytology and adenosine deaminase. Contrast-enhanced computed tomography showed a moderate pleural effusion with two large pleural-based soft tissue masses in the right hemithorax. Ultrasound-guided tru-cut biopsy showed a possible spindle cell tumour and video-assisted thoracoscopic surgery was done for debulking. Histology showed proliferation of plum cells and spindle cells with nuclear atypia and high mitotic activity with immunohistochemistry being positive for Ki-67 suggesting a possible neurofibrosarcoma (malignant peripheral nerve sheath tumour). The patient was referred to the oncology team for adjuvant radiotherapy.

Discussion

NFT1 is associated with a 10% lifetime risk of developing a neurofibrosarcoma. Neurofibrosarcoma carries a poorer prognosis and treatment includes surgery and adjuvant radiotherapy.

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AP08-458

Mucoepidermoid carcinoma of the thumb with distant metastases to the lung, sacroiliac joint, distal phalanx of the foot and nasal vestibule: A case report

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Introduction

Mucoepidermoid carcinoma is the most common neoplasm that arises from the salivary glands and affects children and young adults.¹ The parotid gland is the most common site of occurrence and there have been reports of extra-salivary sites such as the lacrimal gland, esophagus, lung, bronchi, trachea, breast, thymus, thyroid, pancreas and the female genital tract. The involvement of the skin as the primary site of mucoepidermoid carcinoma is a rare occurrence and therefore it is important to rule out its involvement as a metastasis from other sites.^{2,3}

Case Report

A 77-year-old male complained of a nonhealing wound in his left thumb (Figure 1). A biopsy revealed mucoepidermoid carcinoma. PET-CT demonstrated hypermetabolic activity in the lung, sacroiliac bone and nasal vestibule. Biopsy of the lung mass and nasal vestibule exhibited same histomorphology as that of the thumb. Immunohistochemical staining ruled out a primary lung carcinoma and melanoma. Histopathology of the excised thumb and immunohistochemical staining confirmed the diagnosis of mucoepidermoid carcinoma. Even after radiotherapy followed by chemotherapy, new lesions were detected in the 5th phalanx of his right foot, adrenal gland and abdominal wall.

Conclusion

Primary cutaneous mucoepidermoid carcinoma is a rare occurrence. The location of metastatic lesions particularly in the nasal vestibule, sacroiliac joint and distal phalanx of the foot are also rare. Aggressive treatment as well as close monitoring are recommended since the prognosis is poor.

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Primary Pleural Liposarcoma: A case report

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Introduction

Liposarcoma is a soft tissue malignancy and is common in adults. It usually arises in the extremities and retroperitoneum.^[1] Primary intrathoracic liposarcoma is extremely rare and represents 2.7% of all liposarcomas.^[2] Only a few isolated cases have been reported, according to a case report done in 2019, only 31 cases of intrathoracic pleural liposarcoma have been previously reported in the English literature.^[3] Given the rarity of this disease, the exact clinicopathological features remain to be fully elucidated. Herein, we present a case of a recently encountered primary pleural liposarcoma.

Case

A 83-year-old Filipino woman with multiple comorbidities was hospitalized for progressive exertional dyspnea and orthopnea. Imaging (Figure 1) revealed a 22-cm pleural based tumor completely occupying the left hemithorax. CT-guided biopsy specimens showed fatty tissue and fibromyxoid stroma with a primary consideration of a benign pleural hamartoma. Due to a high index of suspicion for a malignant etiology the patient underwent open thoracotomy, intraoperatively assisted with VA-ECMO. The operation lasted for approximately 6 hours and recovery was uneventful. The surgically removed specimens exhibited atypical spindle cells with enlarged hyperchromic nuclei, clinching the diagnosis of a primary pleural liposarcoma (Figure 2).

Discussion

The most important factor in the diagnosis of these uncommon malignant tumors is a good clinical eye coupled with the proper diagnostic tools. This case highlights the challenge physicians faces when presented with a multimorbid patient proceeding with a high risk surgery for definitive treatment. Complete surgical resection is still the treatment of choice for pleural liposarcoma while the addition of chemotherapy or radiotherapy remains questionable. Based on review of related literature, myxoid is the most common histologic subtype of pleural liposarcoma accounting for 50%, pleural liposarcomas are more common in males with a mean age of diagnosis at 48-years-old and an average size of 15.9cm. Keywords: Intrathoracic, pleura, pleural-based mass, liposarcoma, well-differentiated liposarcoma

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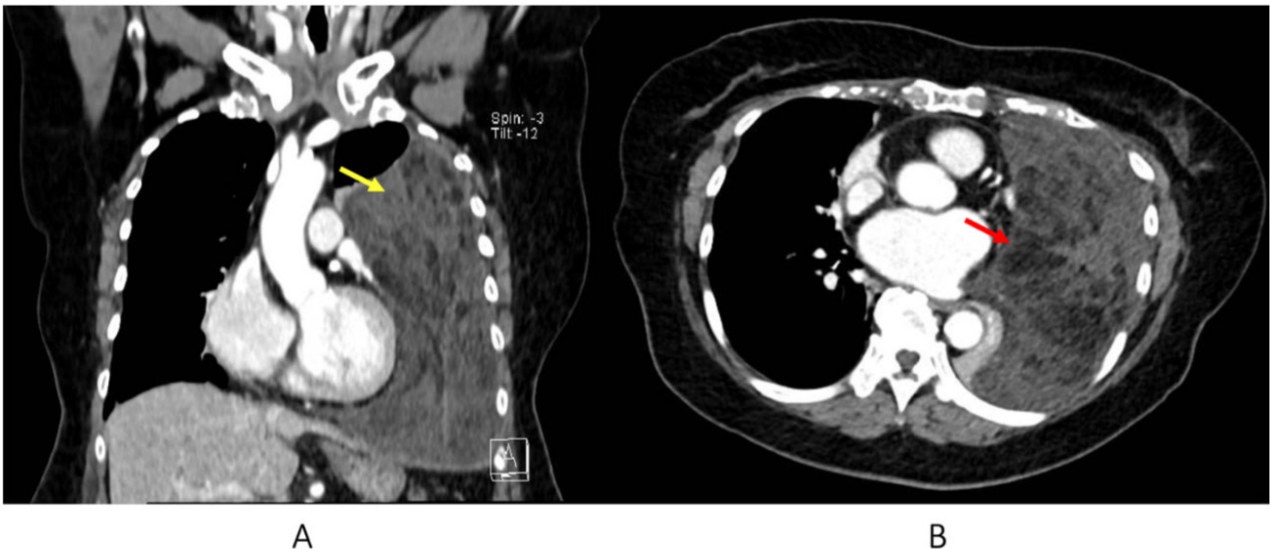


Figure 1. Contrast-enhanced CT scan of the chest. A) Coronal section, showing a large, left pleural-based mass lesion (yellow arrow) almost completely occupying the left hemithorax compressing the left lower pulmonary lobe. B) Transverse section, showing a heterogenous mass lesion with soft tissue and fatty components (red arrow).

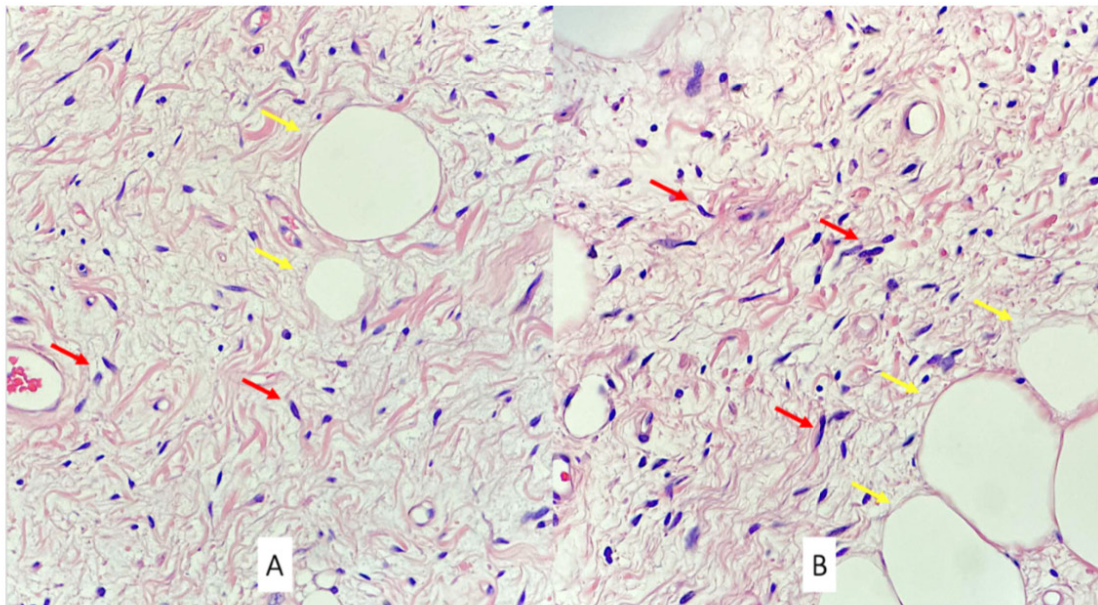


Figure 2. Microscopic features of the pleural liposarcoma. A) Showing varisized adipocytes (yellow arrow). B) Showing spindle cells in the stroma with enlarged, hyperchromatic nuclei (red arrow) (hematoxylin and eosin [H&E] staining, magnification x 20)

AP08-460

Adenocarcinoma of the Lung is Strongly Associated with Heavy Smoker

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Background

Non-small cell carcinoma (NSCLC) is the most common type of lung cancer. Indonesia is the country with the highest prevalence of smokers in Southeast Asia. Tobacco smoke contains around 4000 chemicals, and about 50 chemicals are carcinogens. Smoking is a major risk factor for NSCLC, the strongest relationship between smoking and the incidence of Squamous cell carcinoma, and the weakest relationship with adenocarcinoma.

Aim

The purpose of the study to describe the degree of smoking based on brinkman index with histology type of advanced stage Non-Small Cell Lung Cancer.

Methods

Retrospective, Cross sectional study, advanced stage NSCLC, Outpatient and Inpatient in Dr. Wahidin Sudirohusodo central general hospital, Makassar, South Sulawesi, period 1 January 2017 to 31 December 2019 (n=100). The instrument used for collecting data was questionnaire containing the risk factors of lung cancer. The categorization of smoking degrees used the Brinkman Index (BI) measurement.

Results

The distribution of subjects based on gender was mostly male (64%), age group 45 years (84%), most education level graduated from elementary school (31%), most occupations were farmers (27%). Active smokers 60%, heavy BI 51.6%, moderate BI 31.6%, light BI 16.4%. 40% of the subjects were non-smokers, 50% of whom were passive smokers. The most common types of cigarettes are filter cigarettes (75%). The most common type of cytology/histopathology was adenocarcinoma (49%). Heavy BI based on cytology/histologic type of adenocarcinoma was significant ($p = 0.02$).

Conclusion

Heavy BI was statistically significant with lung adenocarcinoma.

AP08-461

Relationship between idiopathic pulmonary fibrosis and lung cancer

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Background

IPF will be leading to many sequelae, including lung cancer. Especially in patients with IPF who have favorable factors such as: older, male, smoking a lot, having emphysema, having a rapid decrease in FVC. We conduct research with the following objectives:

- Determination of the proportion of patients with lung cancer occurring after idiopathic pulmonary fibrosis.
- Determine the clinical, pathological and treatment factors for this group of patients with these two co-morbidities.

Methods

Retrospective, cross-sectional descriptive statistics. Analysis with SPSS 20.0 software, two-sided analysis with T-Test, test value with $P < 0.05$.

Results

- The rate of lung cancer over idiopathic pulmonary fibrosis is quite high: 46%
- Majority of men: 68% and smokers: 73%
- Predominantly located in the right lung & lower lobe.
- The predominant histological type: adenocarcinoma (50%) is different from other surveys in the world.
- Biological alternations: mainly mutations in EGFR, KRAS, ALK, ROS1... are similar to manifestations in NSCLC without idiopathic pulmonary fibrosis. This is also different from other records in the world.
- Treatment: there are many difficulties, anti-fibrotic drugs are not yet popular and expensive, and there is not much experience.

Conclusion

IPF is an important factor promoting the development of lung cancer. High rate of lung cancer on the background of IPF is 46%. The majority occurred in men and were smokers. The predominant histological type is adenocarcinoma. EGFR mutations still make up the majority. Currently, there are still many difficulties in treatments and monitoring patients.

No disclosure

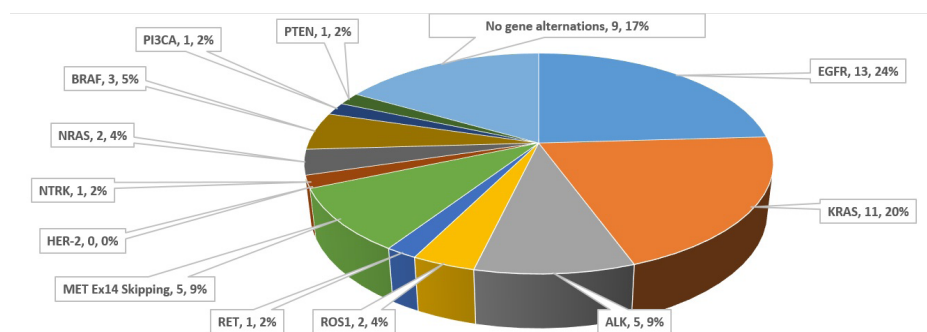


Chart: Distribution of gene variants in lung cancer on idiopathic pulmonary fibrosis

AP08-462

Clinical prognosis of lung cancer in patients with moderate chronic kidney disease

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Background and Aim

The clinical outcomes of patients with lung cancer coexisting chronic kidney disease (CKD) reported have been conflicting. In addition, there is insufficient evidence for treatment and prognosis of lung cancer according to renal function in patients with CKD. We evaluate clinical course and prognostic factors of lung cancer according to the renal function of moderate CKD patients.

Methods

A retrospective, multicenter study of lung cancer patients with moderate CKD was performed. Moderate CKD was defined as an estimated glomerular filtration rate (eGFR) < 60 mL/min/1.73 m². CKD was classified as stage 3, stage 4, and stage 5. The cumulative mortality was calculated by the Kaplan-Meier method, and the risk factors were explored by the Cox proportional hazards model.

Results

Among the lung cancer patients with moderate CKD (n = 181), the incidence of mortality was 83%. Median overall survival (OS) was 10.2 (3.3–28.3) months for all CKD patients, 11.1 (4.2–31.3) months for stage 3 CKD patients, 6.0 (1.8–16.3) months for stage 4 CKD patients, and 4.7 (2.1–40.1) months for stage 5 CKD patients (p = 0.060). Cox regression analysis revealed that age ≥75 years (adjusted hazard ratio [HR] 1.658; 95% confidence interval [CI] 1.148–2.394) and stage IV NSCLC (adjusted HR 3.198; 95% CI 2.136–4.788) were associated with increased mortality risk, whereas adenocarcinoma (adjusted HR 0.513; 95% CI 0.325–0.810) and stage 3 CKD (adjusted HR 0.566; 95% CI 0.383–0.837) were associated with decreased mortality risk.

Conclusion

Mortality risk of patients with lung cancer was lower in stage 3 CKD compared stage 4 or 5 CKD.

AP08-463

A case of resection of a lung adenocarcinoma with an observable course of cyst formation due to tumorigenesis

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Introduction

It is well known that lung cancer can cause cyst formation via the check valve mechanism (although pathological proof is difficult to obtain), it is rare to observe the process of cyst formation by lung cancer.

Case

A 65-year-old man. He came to our hospital because of an abnormal chest shadow in bilateral lower lobes. At follow-up CT in 2020, bronchiectatic changes suddenly appeared in the S² of the right upper lobe. Subsequently, the area became cystic. The cyst continued to enlarge. In November 2021, CT clearly showed a nodular shadow in the bronchial lumen responsible for the cyst. The nodule did not disappear with anti-inflammatory therapy and continued to grow. The area was surgically resected in May 2022 because it was determined to be the development of lung cancer and resulting cystic change. Subsequent histopathological search of the resected lung revealed papillary adenocarcinoma of the lung, which was determined to be of peripheral bronchial lumen origin.

Discussion

In this report, we describe a case in which we were able to observe the formation of cysts based on the check valve mechanism in lung cancer, although pathological proof was not obtained. There are no histologically proven reports of this disease. This is a rare report of a lung cancer case in which the growth process of a cyst secondary to a check valve caused by a tumor in the lumen of a peripheral bronchus was observed over time, and we report this case with some discussion of the literature.

AP08-464

Lung Adenocarcinoma related smoking : higher prevalence in NSCLC

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Background and Aim

Non-small cell carcinoma (NSCLC) is the most common type of lung cancer.¹ Smoking is a major risk factor for NSCLC. Based on data from The ASEAN Tobacco Control Atlas (SEACTA) in 2014, Indonesia is the country with the highest prevalence of smokers in Southeast Asia.² Tobacco smoke contains around 4000 chemicals, and about 50 chemicals are carcinogens.³

Purpose

The purpose of the study to describe the degree of smoking based on Brinkman index with histology type of advanced stage Non-Small Cell Lung Cancer.

Methods

Retrospective, Cross sectional study, advanced stage NSCLC, Outpatient and Inpatient in Dr. Wahidin Sudirohusodo central general hospital, Makassar, South Sulawesi, period 1 January 2017 to 31 December 2019 (n=100). The instrument used for collecting data was questionnaire containing the risk factors of lung cancer. The categorization of smoking degrees used the Brinkman Index (BI) measurement.

Results

The distribution of subjects based on gender was mostly male (64%), age group 45 years (84%), most education level graduated from elementary school (31%), most occupations were farmers (27%). Active smokers 60%, heavy BI 51.6%, moderate BI 31.6%, light BI 16.4%. 40% of the subjects were non-smokers, 50% of whom were passive smokers. The most common types of cigarettes are filter cigarettes (75%). The most common type of cytology/histopathology was adenocarcinoma (49%). Heavy BI based on cytology/histologic type of adenocarcinoma was significant (p = 0.02).

Conclusion

Severe BI was statistically significant with lung adenocarcinoma.

Keywords

Smoking, Brinkman Index, Lung Adenocarcinoma

AP08-465

Digital Aging and Mental Health Deteriorations: How Can We Mitigate the Risk among The Older People with Lung Cancer Disease in Indonesia?

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Background and Aims

Indonesia is entering an aging society with an older people population reaching 26.82 million people or 9.92% of the total population in 2020 and it is predicted that around one-fifth of Indonesia's population in 2045 will be older people. Cancer is one of the highest comorbid factors in increasing the risk of death by 13.5 times and increasing to 16.8 times in the elderly due to COVID-19. This condition increases the aging market in Indonesia but low digital literacy will affect the lower quality of life and increase the "sandwich generation" rapidly.

Methods

Using data from the 2014 Indonesia Family Life Survey (IFLS), this study aims to analyze mental health problems and mobile phone ownership in older adults (60+) with lung cancer disease.

Results

The analysis shows that the proportion of older people with lung cancer disease reaches 2,57% and 58,82% are women. 26,47% of them experienced mental health problems. The percentage of elderly with lung cancer disease experiencing mental health problems will decrease by 6,78% when they have a cellphone. Nearly half of older people's educational attainment is in elementary school (46.05%) and 73% of Indonesian elderly with lung cancer disease are still working. In general, the elderly with higher digital literacy prefer to seek treatment at a formal health facility than traditional practitioners such as shamans. They tend to seek outpatient care treatment at a community health center or Puskesmas (44,11%) and specialists (29,41%).

Conclusions:

Strategies are needed to mitigate mental health problems in the elderly by utilizing the existing community-based integrated service system such as Puskesmas or Posyandu Lansia to encourage the "aging and place or community" campaign. Mainstreaming the issue of digital aging can help various information and services needed by the elderly to be healthier, independent, and with dignity.

Keywords: Mental health, Covid-19, Older people, Digital aging

AP08-466

Calcifying Fibrous Tumor of the Pleura without Gross Calcification

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Introduction

Calcifying fibrous tumor (CFT) is a rare benign fibrous lesion characterized by its specific histological findings. It is composed of abundant hyalinized collagenous fibrotic tissue with a lymphoplasmacytic infiltrate and dystrophic calcifications. Herein, we report a case that enhancing pleural thickening was pathologically confirmed as CFT of the pleura without apparent calcification on radiologic image assessment.

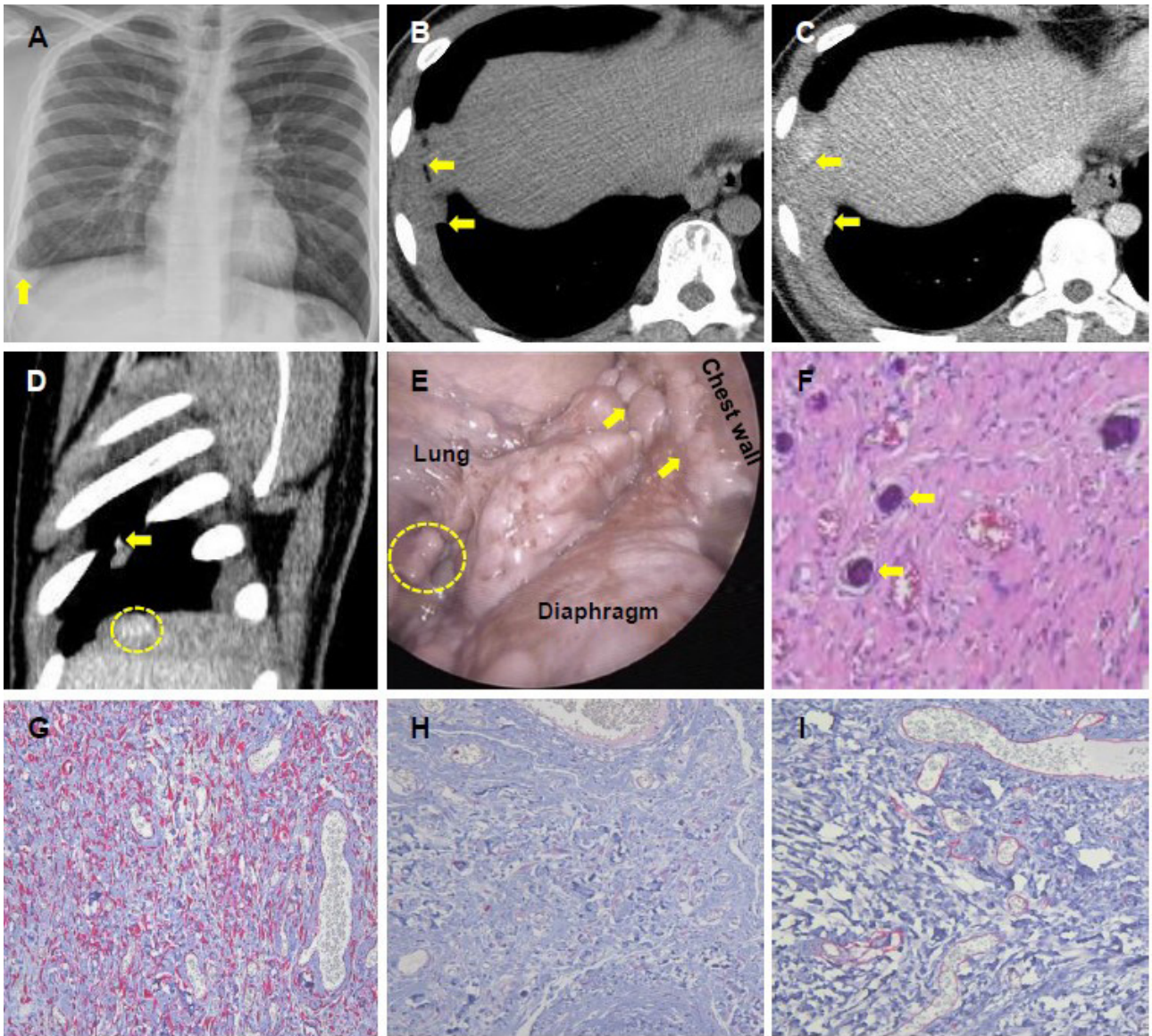
Case Report

A 19-year-old man was referred to our pulmonology clinic for pleural thickening of right side on chest X-ray, which was incidentally found on the Army's enlistment examination. He had smoked 1-2 cigarettes per day for 1 year. He had no symptoms and no exposure to asbestos. Chest computed tomography (CT) revealed diffuse thickening of right pleural space with heterogeneous enhancement. Video-assisted thoracoscopic surgery revealed multiple soft mass lesions with irregular shapes at the entire right pleural space extending to diaphragmatic area and visceral pleura. Pathologic examination of the specimen showed psammomatous calcification on H&E staining. Immunohistochemical staining showed positivity of spindle-shaped cells only for vimentin and negativity both for S-100 and CD-34 that are comparable with CFT. A follow-up chest computed tomography at 1 year later showed no local recurrence.

Discussion

To our best knowledge about CFT of the pleura, calcification was demonstrated on radiologic image assessment in almost all reported cases¹⁻³. Interestingly, this case, however, showed no apparent sign of calcification. Based on our experience, physicians need to suspect the possibility of CFT of the pleura with pleural thickening and features of malignancy irrespective of gross calcification on chest X-ray and/or CT.

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AP08-467

Outcome of surgery in patients with operable locally advanced non-small cell lung cancer, the retrospective study

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Background

Surgery is the primary treatment of early-stage (IA-IIIB) non-small cell lung cancer (NSCLC), but not for locally advanced (IIIA or more) because recent studies showed low survival rates. Almost patients have larger tumor size and advance mediastinal lymph node stage, which makes surgery difficult resulting in incomplete resection (R1). This research is interested in survival outcome (overall and progress-free) and risk factors for mortality of complete resection (R0) in patients with locally advanced NSCLC.

Methods

We retrospectively studied patients with NSCLC who underwent surgery in King Chulalongkorn Memorial Hospital from 2005 to 2020 for survival outcome and risk factors for mortality

Results

There were 334 cases which were male 38%, female 62% and average age 66.00±8.28 years. Most pathological finding were adenocarcinoma (93.4%). Locally advanced stages were 23.95%. Complete resection (R0) were found in 77 patients (96.25%). The overall survival of patient who underwent surgery prior to chemotherapy were not different from after chemotherapy (90.8 % and 77.8%, respectively, $p = 0.24$) with survival rate at 1, 3, 5 and over 5 years were 98.3%, 94.2%, 87.8% and 83.8%, respectively. Risk factors for mortality calculated by the univariate cox proportional analysis include tumor size greater than 5 cm (HR 4.78, 95%CI 1.28-7.78, $p = 0.02$) and present of lympho-vascular invasion (LVI) (HR 4.01 95%CI 1.19-13.6, $p = 0.02$). Progress-free survival for stage IIIA and IIIB was 46.5 months (95% CI 38.11-54.89) and 41.5 month (95% CI 25.25-57.64) respectively without statistically significant ($p = 0.33$).

Conclusion

Considering surgery in patients with locally advance NSCLC may improve survival and progress-free survival especially when complete resection (R0).

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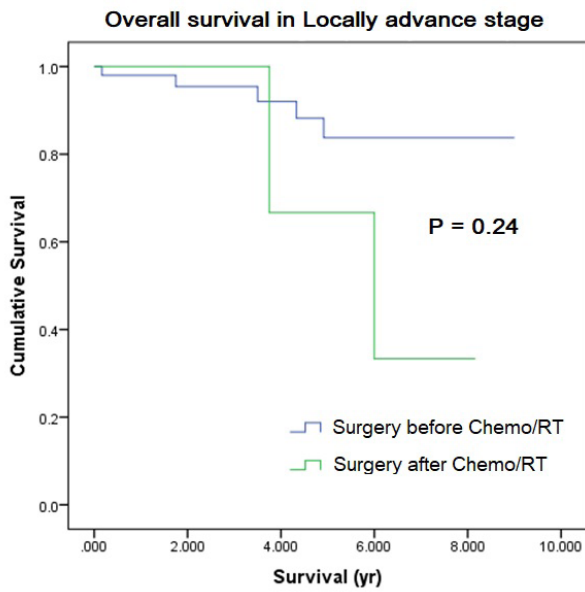
CardiothoracSurg2009;36:433-439.

Acknowledgement

None

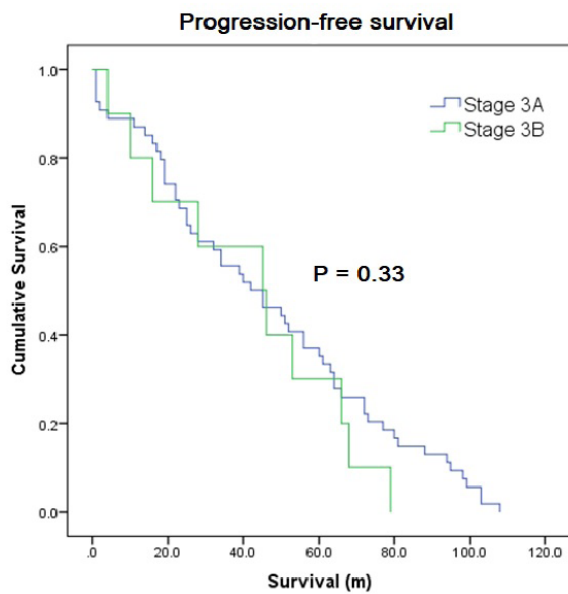
Disclosure

None



Cumulative Survival	Number of surviving patients (%)	
	Surgery before Chemo/RT	Surgery after Chemo/RT
Overall*	90.8	77.8
1 years	98.3	100
3 years	94.2	100
5 years	87.8	75
> 5 years	83.8	37.5

*p = 0.24



Stage	n	Progress-free survival		
		Time (months)	95% CI	
			Max.	Min.
3A	54	46.5	38.11	54.89
3B	10	41.5	25.35	57.64

AP08-468

Rapid disease progression in MET-amplified and RNA-binding protein 10/epidermal growth factor receptor co-mutated lung adenocarcinoma

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Introduction

Although it is well known that MET amplification is associated with resistance to several targeted therapy, rapid progression associated with this resistance mechanism in epidermal growth factor receptor (EGFR)-mutant patients has never been reported. We, herein, report a fatal case of lung adenocarcinoma which rapidly progressed after EGFR-tyrosine kinase inhibitor (TKI) failure and the emergence of MET-amplification.

Case report

A 60-year-old man was diagnosed with metastatic lung adenocarcinoma with EGFR exon L858R and RNA-binding protein 10 (RBM 10) co-mutations. He received afatinib as a frontline treatment and showed near complete response except for the right lung mass which increased gradually after 14 months of treatment. We performed segmentectomy for the lesion maintaining the drug even after the resection, however several lung nodules and pleural effusion were newly developed shortly after. As EGFR testing showed only the original mutation, we switched our regimen to pemetrexed and carboplatin. However, the disease rapidly progressed showing a huge mass at right lung and massive pleural effusion, which finally led him to death within 7 weeks of treatment. Post mortem next-generation sequencing using surgical and re-biopsy tissues revealed MET amplification in addition to baseline mutations.

Discussion

To the best of our knowledge, this is the first case reporting dramatic progression due to MET amplification during EGFR-TKI. Our report highlights the importance of active utilization of molecular profiling for the emergence of resistance during TKI use, and raises the need of future investigations on the mechanism of MET-associated accelerated progression.

AP08-469

Immune checkpoint inhibitor therapy in a patient with small cell lung cancer and anti-transcriptional intermediary factor 1-γ antibody-positive dermatomyositis: A case report

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Introduction

Autoimmune diseases (ADs) are closely related to cancers; 30% of dermatomyositis (DM) cases are associated with malignancy. In lung cancer patients accompanied by DM, the most frequent cancer type is small-cell lung cancer (SCLC). Anti-TIF1γ antibody (anti-p155/140 autoantibody) is a promising marker for the assessment of cancer risk in DM patients. The recent use of immune checkpoint inhibitors (ICIs) for extensive-stage SCLC has improved patient outcomes. However, clinical trials of ICI excluded most patients with ADs due to the increased risk of toxicity. Nevertheless, recent evidences suggest that ICI may be appropriate for AD patients.

Case report

A 76-year-old man diagnosed with extensive-stage SCLC and anti-TIF1γ Ab-positive DM. He developed limb weakness and typical skin manifestations of DM, such as Gottron's papules. Positron emission tomography-computed tomography showed diffuse uptake in all muscles. The results of a nerve conduction study and electromyography were consistent with acute myopathy. Electron microscopy showed tubuloreticular inclusions in endothelial cells. He was treated with corticosteroids for DM and chemotherapy with atezolizumab for SCLC. Despite concerns regarding the use of ICI because of DM, atezolizumab was administered under close observation. After treatment, tumor size decreased and his symptoms improved significantly. We believe that the good response of SCLC to chemotherapy including ICI, had a positive effect on the improvement of DM.

Discussion

This is the first report of the use of atezolizumab in extensive-stage SCLC with DM. Clinicians should consider ICIs for SCLC patients with DM, and carefully monitor the patient's symptoms during treatment.

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AP08-470

Impact of overexpression of common target genes on long-term outcomes in non-small cell lung cancer patients with negative surgical margins

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Background and Aims

Currently, several targeted therapies were approved for treatment of non-small cell lung cancer (NSCLC). However, impact of overexpression of target genes on long-term outcomes in NSCLC patients with negative surgical margins is unknown.

Methods

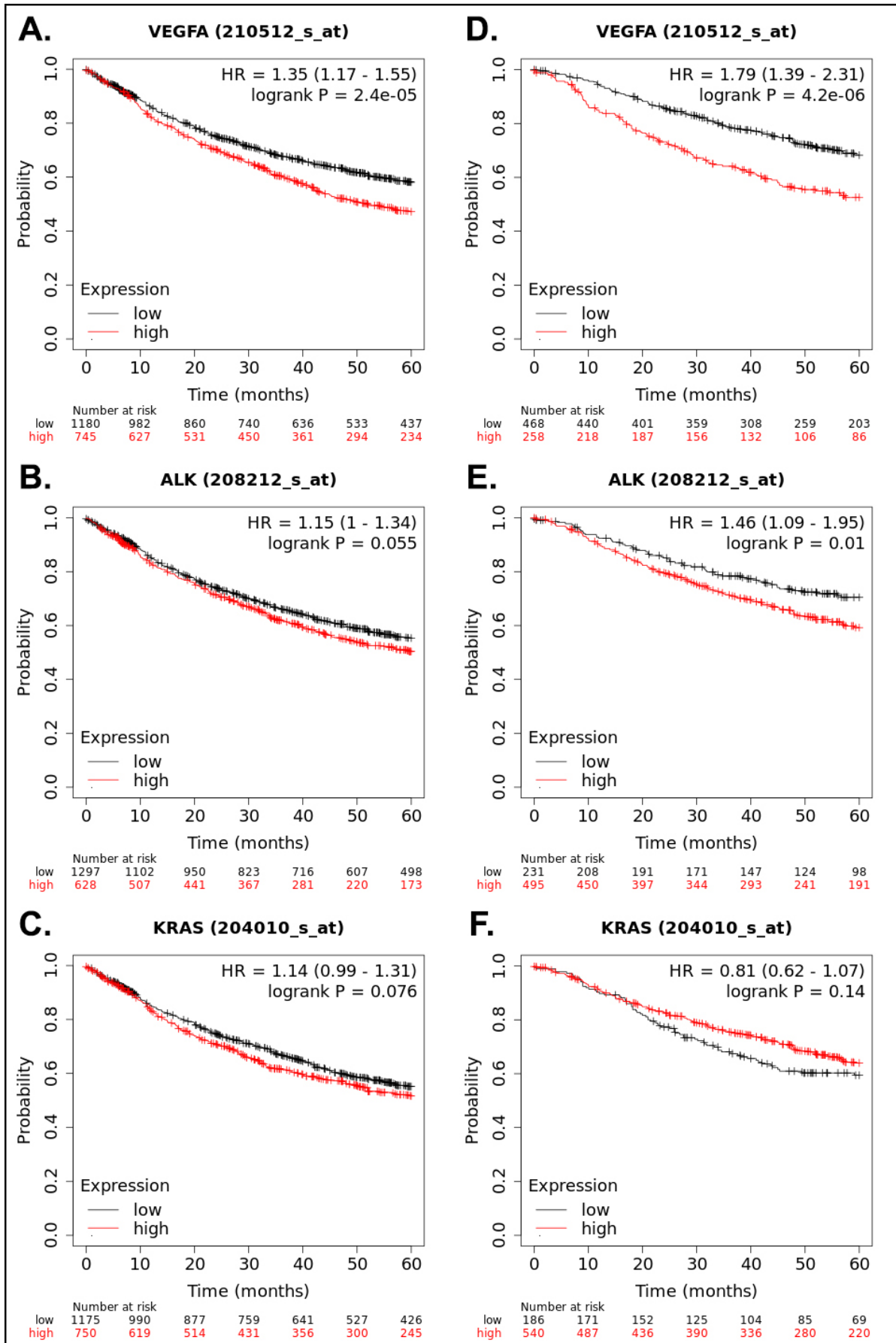
We used a web-based gene survival analyzer Kaplan Meier Plotter (KMplotter) to investigate the association between overexpression of the target genes and long-term outcomes in NSCLC patients with negative surgical margins. Overall survival rate was calculated for the study cohorts which stratified by best selected expression level of target genes including VEGF (gene probe set 210512_s_at), ALK (gene probe set 208212_s_at) and KRAS (gene probe set 204010_s_at).

Results

Gene expression data were found for 1925 NSCLC patients and the tumour was resected with negative surgical margins for 726 of them. When the tumour surgically resected with negative margins, upper quartile overall survival was significantly prolonged for all gene types: from 18 months to 22 months for VEGF (Figure 1A and 1D), from 20 months to 30 months for ALK (Figure 1B and 1E) and from 19 months to 37 months for KRAS (Figure 1C and 1F). Overexpression of VEGF (HR=1.79, 95% CI 1.39-2.1, $p<0.001$) (Figure 1D) and ALK (HR=1.46, 95% CI 1.09-1.95, $p=0.01$) (Figure 1E), except KRAS (HR=0.81, 95% CI 0.62-1.07, $p=0.14$) (Figure 1F), were significantly associated with increased risk of death after tumor resection with negative margins.

Conclusions

In patients with NSCLC, overexpression of VEGF and ALK genes are significantly associated with lower overall survival even after tumour resection with negative surgical margins.



AP08-471

Role of Isocitrate Dehydrogenase 1 (IDH 1) as a Plasma Biomarker for the Differentiation Between Adenocarcinoma and Squamous Cell Carcinoma of Lung

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Background

Lung cancer is one of the leading cause of cancer related deaths in the world. For early diagnosis of non-small cell lung cancer, effective biomarker is needed. This study is aimed to examine the plasma level of IDH1 to evaluate its effectiveness in differentiation of adenocarcinoma from squamous cell carcinoma.

Method

The plasma levels of IDH1 were assayed by ELISA. Blood samples were obtained from histopathologically confirmed 93 patients of newly diagnosed adenocarcinoma and squamous cell carcinoma.. Receiver operating curve were applied to evaluate the diagnostic efficacy of IDH1.

Results

The median plasma IDH1 absorbent levels of patients with adenocarcinoma was 0.595 ± 0.955 ($p = 0.00205$) and concentration levels were 18.03 ± 28.93 ($p = 0.0024$). The median plasma IDH1 absorbent levels of patients with squamous cell carcinoma was 0.250 ± 0.491 ($p = 0.00317$) and concentration levels were 7.94 ± 14.742 ($p = 0.0024$). The median level of plasma IDH1 in the patients with adenocarcinoma was higher than that in the patients with squamous cell carcinoma (p value = 0.00256). The association of IDH1 absorbent and concentration with adenocarcinoma and squamous cell carcinoma is statistically significant (p value = 0.0030).

The diagnostic use of IDH1 cutoff value of ≥ 0.257 (absorbent) and ≥ 7.80 (concentration) [Area Under Curve (AUC): 0.9980 ; 95% CI, 0.991-1.000 ; with sensitivity, 97.9% and specificity, 100% in adenocarcinoma] .

Conclusion

IDH1 may be used as a plasma biomarker for the differentiation of lung adenocarcinoma, with relatively high sensitivity and specificity.

AP08-472

The patients' characteristics and the clinical outcomes in advanced non-small cell lung cancer patients with HER2 mutation

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Background and Aim

The Human epidermal growth factor receptor 2 (HER2)-targeted therapies have been developed for advanced non-small cell lung cancer (NSCLC) patients in recent years. However, conventional treatments were still crucial for these patients. Thus, we conducted this study to investigate the patient characteristics and clinical outcomes of HER2-mutant NSCLC patients in real-world practice.

Methods

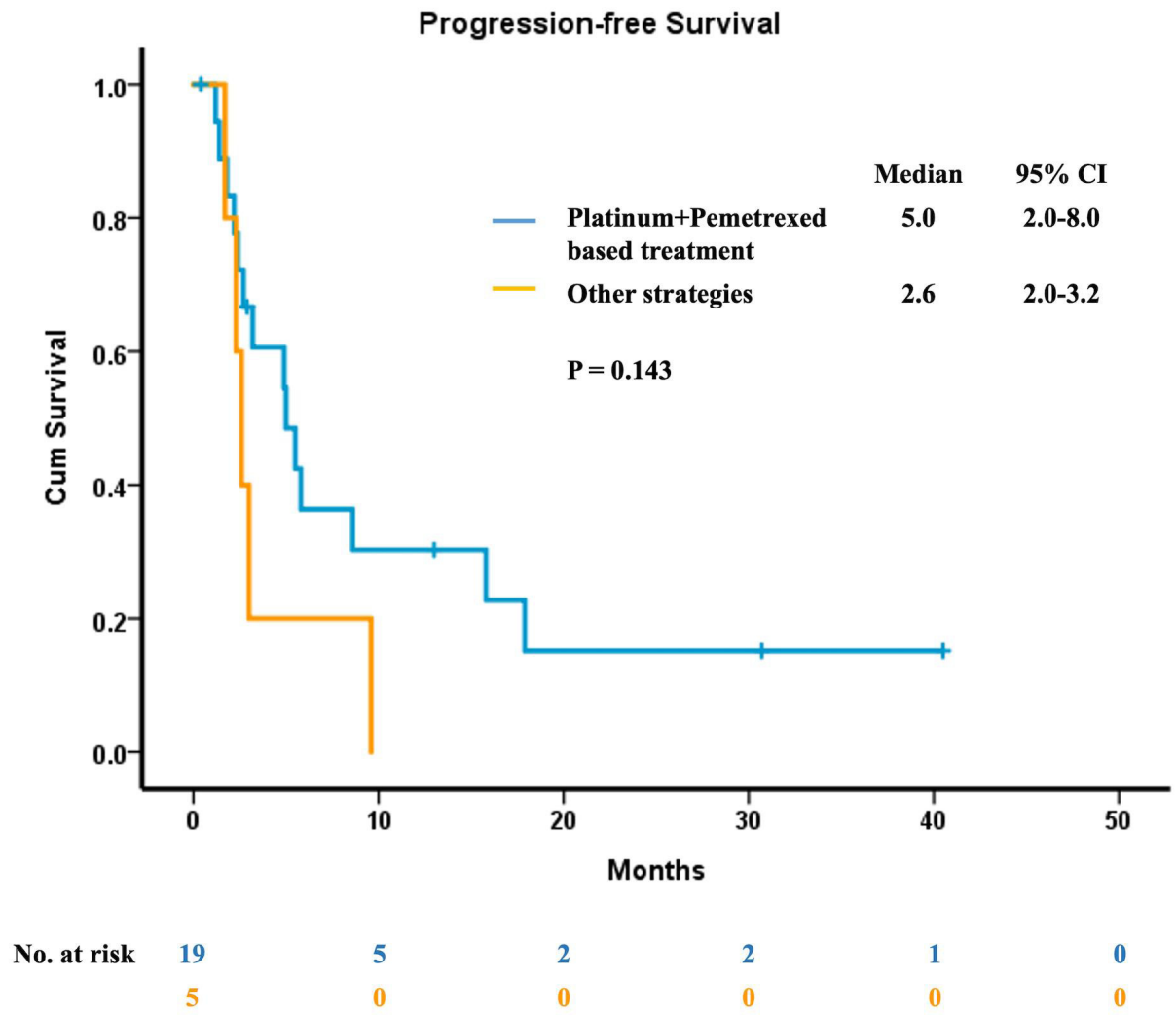
From November 2017 to February 2022, we retrospectively included advanced NSCLC patients harboring HER2 mutation in Taichung Veterans General Hospital, Taiwan.

Results

A total of 24 patients were enrolled in this study. The median age was 66 years, with 11 males (45.8%) and 17 (70.8%) having no smoking history. At baseline, brain metastasis was noted in 11 (45.8%) patients, while 11 (45.8%) patients had bone metastasis at baseline. Eighteen patients had the reports of Programmed Death-ligand 1 (PD-L1). Nine (50.0%) patients had a negative result, while 9 (50.0%) had PD-L1 \geq 1%. Eleven (45.8%) patients received platinum + pemetrexed as first-line treatment, and 8 (33.3%) patients underwent platinum + pemetrexed with bevacizumab or pembrolizumab. The median progression-free survival (PFS) was 4.9 months, and the median overall survival was 26.9 months. Regarding different treatment strategies, the PFS was 5.0 months in patients with platinum plus pemetrexed-based therapies, and the PFS was 2.6 months in patients receiving other treatment strategies (Figure 1).

Conclusion

Our research demonstrated the patients' characteristics and clinical outcomes in advanced NSCLC patients with HER2 mutation. Additionally, platinum plus pemetrexed based treatment provided clinical benefits for these patients.



AP08-473

Is Nivolumab plus Ipilimumab with chemotherapy better than other options among patients with advanced non-small cell lung cancer?

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Background and Aim

Combination therapy with Nivolumab, Ipilimumab, and cytotoxic agents is approved in several countries including Japan for first-line treatment of patients with advanced NSCLC without driver oncogene mutation. However, its treatment efficacy and safety in the real world are unknown.

Methods

This multi-center, retrospective, observational study was conducted in five hospitals in Yokohama city, Japan. NSCLC patients who were treated with Nivolumab, Ipilimumab, and cytotoxic agents (NIC), or Pembrolizumab and cytotoxic agents (PC), or Pembrolizumab monotherapy (P), were enrolled. Progression-free survival (PFS), overall response rate (ORR), and disease control rate (DCR) were compared between each treatment for efficacy. Treatment-related adverse events based on Common Terminology Criteria for Adverse Events version 4.0 (CTCAE) were also summarized and compared.

Results

In total, 123 patients were enrolled in this study. The number of patients who were treated with NIC, PC, and P were 19, 51, and 53, respectively. The median PFS (95% CI) of those treated with NIC, PC, and P were 277 days (99-NA), 282 days (205-NA), and 243 days (182-460), respectively. ORR of PC (66.7%) was higher than those of NIC (38.9%) and P (49.1%). In the comparison of DCR, combination therapies were slightly better than monotherapy (88.9% in NIC, 86.3% in PC, 73.6% in P). Adverse events (AE) of Grade 3 or higher occurred in 14/19 (73.7%), 20/51 (39.2%), 5/53 (9.4%) among patients who were treated with NIC, PC, P, respectively. Discontinuations of the treatment due to AE were most frequently observed in NIC group.

Conclusion

The combination therapy with NIC might be more toxic with minimal additional treatment benefits.

AP08-474

Bedaquiline Correlation to QT Intervals Prolongation in Drug-Resistant Tuberculosis (DR-TB) patients at Arifin Achmad General Hospital, Riau Province

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Background and Aim

Drug-Resistant Tuberculosis (DR-TB) require adequate treatment. Bedaquiline is priority medicine on treatment regimen of DR-TB. Bedaquiline has one of the adverse events is QT intervals prolongation, can increase risk of torsade de pointes (TdP) which can lead to death. DR-TB patient screening before start the treatment and monitoring QT interval during treatment should be done. This study aimed to determine the Bedaquiline correlation to QT intervals prolongation in DR-TB patients at Arifin Achmad General Hospital, Riau Province.

Methods

This study is a retrospective study using an observational study design by view medical records of DR-TB patients underwent treatment from January 2019 – March 2022.

Results

This study involved 46 DR-TB patients with regimen of Bedaquiline. Baseline QT interval compared to after receiving one month of therapy showed QT interval prolongation (457.1 ± 18.2 ms and 443.8 ± 10.2 ms; $p= 0.587$).

Conclusion

QT interval prolongation occurred in DR-TB patients who received treatment using Bedaquiline regimen. QT interval prolongation was seen significantly between baseline QT interval compared to after receiving therapy for one month and baseline QT interval compared to after receiving therapy for six months.

Keywords

DR-TB, Bedaquiline, QT interval, TdP

Bedaquiline Correlation to QT Intervals Prolongation in DR-TB patients at Arifin Achmad General Hospital, Riau Province

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ABSTRACT

Background: Drug-Resistant Tuberculosis (DR-TB) require adequate treatment. Bedaquiline is priority medicine on treatment regimen of DR-TB. Bedaquiline has one of the adverse events is QT intervals prolongation, can increase risk of torsade de pointes (TdP) which can lead to death. DR-TB patient screening before start the treatment and monitoring QT interval during treatment should be done. This study aimed to determine the Bedaquiline correlation to QT intervals prolongation in DR-TB patients at Arifin Achmad General Hospital, Riau Province.

Methods: This study is a retrospective study using an observational study design by view medical records of DR-TB patients underwent treatment from January 2019 – March 2022.

Results: This study involved 46 DR-TB patients with regimen of Bedaquiline. Baseline QT interval compared to after receiving one month of therapy showed QT interval prolongation (457.1 ± 18.2 ms and 443.8 ± 10.2 ms; $p < 0.001$). Comparison of QT intervals before therapy and six months after therapy showed prolongation QT intervals (443.8 ± 10.2 ms and 458.4 ± 23.7 ms; $p < 0.001$). QT intervals after one month of therapy compared to after six months of therapy showed insignificant slight prolongation of QT intervals (457.1 ± 18.2 ms and 458.4 ± 23.7 ms; $p = 0.587$).

Conclusions: QT interval prolongation occurred in DR-TB patients who received treatment using Bedaquiline regimen. QT interval prolongation was seen significantly between baseline QT interval compared to after receiving therapy for one month and baseline QT interval compared to after receiving therapy for six months.

Keywords: DR-TB, Bedaquiline, QT interval, TdP

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AP08-475

Analysis and Evaluation of Ejection Fraction Value of Non-Small Cell Lung Cancer (NSCLC) Patients Receiving Chemotherapy with Paclitaxel and Carboplatin in Arifin Achmad Hospital, Riau Province

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Background and Aim

NSCLC accounts for 80%-85% of lung malignancies. Cardiotoxicity is a significant chemotherapy adverse effect. Pre-treatment screening and monitoring of heart function using the ejection fraction. This study aims to determine the incidence of cardiotoxicity from chemotherapy with paclitaxel and carboplatin regimens for NSCLC in AA Hospital, Riau Province.

Methods

This study is a retrospective cohort analytic study using an observational study design by looking at the medical records of NSCLC patients treated from October 2021 – March 2022 which aims to see changes in the value of ejection fraction in NSCLC patients receiving chemotherapy with paclitaxel and carboplatin regimens.

Results

This study involved 25 respondents who underwent chemotherapy, then underwent an EF examination. The patient's EF rate before chemotherapy was $72.0 \pm 6.6\%$, after the third chemotherapy was $67.5 \pm 11.2\%$, and after the sixth chemotherapy was 64.6 ± 11.2 . EF levels in patients with SCC before (SSC: 71.7 ± 7.2 vs 72.3 ± 6.0 , $p = 0.364$), after the third cycle (SSC: 65.2 ± 6.3 vs. 63.2 ± 6.3 , $p = 0.774$) and after the sixth cycle (SSC: 65.2 ± 4.1 vs. 60.1 ± 5.6 , $p = 0.333$) were greater than patients with adenocarcinoma. There was a difference between EF levels before and after the third chemotherapy ($p < 0.001$), as well as after the third and sixth chemotherapy ($p = 0.002$).

Conclusion

There was a difference between EF levels before and after the third chemotherapy, as well as after the third chemotherapy and after the sixth chemotherapy.

AP08-476

Efficacy and safety of carboplatin+ paclitaxel chemotherapy compared to carboplatin + vinorelbine for NSCLC

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Background

Platinum based chemotherapy is the mainstay of first line therapy for advanced non- small cell cancer (NSCLC). Stated thus, performing an evaluation to assess the efficacy and side effects of anti-cancer regiments is important. This study aims to explain the characteristics of chemotherapy response of NSCLC patients who received treatment in Makassar^{1, 2}

Purpose

The objective of this study was to compare the relative efficacy and safety of carboplatin + paclitaxel with carboplatin + vinorelbine.³

Methods

This study is an observational survey (retrospective) study for advanced NSCLC patients who receive carboplatin + paclitaxel with carboplatin + vinorelbine regiment as first line chemotherapy since 1st January 2018 to 30th December 2019 in Dr. Wahidin Sudirohusodo central general hospital, Makassar, Sout Sulawesi.

Results

The total subjects used in study were 30 sampels. 20 patients received CP regiment and 10 patients received CV regiment. 60 % of patients who received CP and 70 % of patients who received CV showed symptoms reduction. Objectively, most of the therapy regiments resulted in stable disease, 60% in patients who received CP and 60% in patients who received CV. The mean survival time of patients who received CP were 10.6 months, and 9 months for patients who received CV.

Conclusion

There is no significant difference of efficacy and safety between CP chemotherapy compared to CV for NSCLC

Keywords :Efficacy,safety, carboplatin,paclitaxel, vinorelbine,Lung Adenocarcinoma

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AP08-477

Successful crizotinib retreatment after crizotinib-related interstitial lung disease in a patients with ROS1-rearranged advanced lung adenocarcinoma

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Introduction

Crizotinib has clear clinical benefits and has led to a paradigm shift in the treatment of advanced anaplastic lymphoma kinase (ALK)- or ROS1-rearrangement NSCLC. However, the occurrence of crizotinib-related interstitial lung disease (crizotinib-ILD) remains a major clinical dilemma that can lead to the permanent discontinuation of tyrosine kinase inhibitor (TKI) during cancer treatment. When there is no suitable alternative therapy for patients who develop crizotinib-ILD, some clinicians have reported successful crizotinib retreatment in cases of ALK-rearrangement NSCLC. We herein report the first successful crizotinib retreatment after crizotinib-ILD in a patient with ROS1-rearranged NSCLC.

Case report

An otherwise healthy 54-year-old Chinese women residing in Korea, with no smoking history. She was diagnosed with stage IV ROS1 rearrangement lung adenocarcinoma with brain metastases. Three months after initiating crizotinib, chest CT revealed good responses (beyond partial remission). However, at 4 months, chest images showed the lung lesions to be consistent with crizotinib-ILD through several tests including bronchoalveolar lavage. After withdrawing crizotinib immediately, she responded well to the corticosteroid therapy and the infiltration dramatically improved. After consulting with the patient and her family, we restarted 30 days after discontinuing crizotinib.

Discussion

Crizotinib-ILD is a relatively rare but sometimes fatal complication, and a major cause for permanent withdrawal of a drug during cancer treatment. Therefore, crizotinib retreatment should be considered for closely monitored patients who develop crizotinib-ILD during lung cancer treatment if there is no suitable alternative therapy covered by their country's medical insurance or according to the patient's preferences.

AP08-478

Comparative safety of immune checkpoint inhibitors and chemotherapy in advanced non-small cell lung cancer: A systematic review and network meta-analysis

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Background

Immune checkpoint inhibitors (ICIs) alone or in combination with chemotherapy (CT) are the standard of care for first-line therapy in metastatic non-small cell lung cancer (NSCLC) patients without actionable mutations. The safety ranking of different ICI and CT combination regimens has not been investigated. This study was aimed to provide a toxicity profile and safety ranking of different ICI and CT combination regimens.

Methods

We performed comprehensive searches of phase 2 and 3 randomized clinical trials (RCTs) comparing different ICI regimens (alone or combination) or CT for the first-line treatment of advanced NSCLC. Outcomes of interest were the cumulative incidence of any treatment-related adverse events (TRAEs), grade 3-5 TRAEs (grade 3-5), any immune-related adverse events (irAEs), and grade 3-5 irAEs (grade 3-5). Odds ratios and 95% credible intervals were calculated as summary statistics to quantify the effect of different ICI combination regimens.

Results

We included 21 RCTs from 2016 to 2021 with a total of 12,626 patients. The incidence of any TRAEs and grade 3-5 TRAEs ranked from high to low were ICI-CT (probability: 88.3% and 87.1%), ICI-ICI-CT (66.2% and 73.9%), CT alone (77.7% and 86.6%), ICI-ICI (98.9% and 99.2%), and ICI monotherapy (99.7% and 100%). Adding CT to ICI regimens resulted in a higher incidence of any grade or grade 3-5 TRAEs compared to ICI-ICI combinations or ICI monotherapy. However, ICI-ICI-CT combinations did not result in a higher incidence of TRAEs than ICI-CT combinations. For any irAEs and grade 3-5 irAEs, the ranking was ICI-ICI (probability: 97.6% and 99.8%), ICI monotherapy (97.2% and 99.8%), ICI-CT (99.5% and 99.9%), and CT alone (99.9% and 100%). Notably, the incidence of any grade and grade 3-5 irAEs was lower when adding CT to ICI monotherapy.

Conclusion

Lack of head-to-head comparisons, these findings provide evidence for clinical decision-making when considering different ICI combination regimens for advanced NSCLC patients.

All authors (C.-Y. Chen., C.-H. Huang, W.-C. Chen, M.-S. Huang, and Y.-F. Wei) have no conflicts of interest to disclose

AP08-479

Real-world efficacy of afatinib versus erlotinib in treating advanced squamous cell carcinoma of the lung

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Background and Aim

Afatinib and erlotinib are choices for patients with advanced squamous cell carcinoma (SqCC) of the lung. This study was aimed to report on the efficacy of afatinib and erlotinib in real-world practice.

Methods

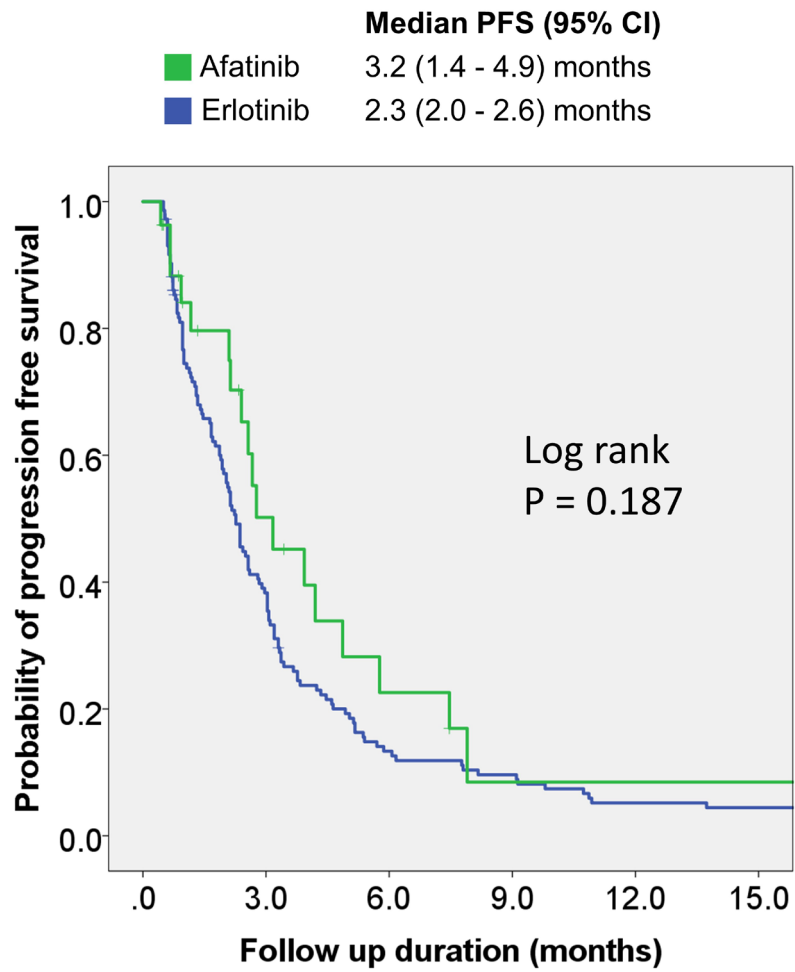
This retrospective hospital-based cohort study screened lung SqCC patients who received afatinib or erlotinib between Jan 2009 and Aug 2021. Patients receiving afatinib or erlotinib shorter than 2 weeks, receiving chemotherapy combined with afatinib or erlotinib, or with mixed-histology were excluded. Progression free survival (PFS) was evaluated.

Results

A total of 171 patients were analyzed (27 in afatinib and 144 in erlotinib groups). There were no differences in age and gender between afatinib and erlotinib groups. In the afatinib group, 48.1% received afatinib as third- or more lines of therapy, compared with 71.5% in the erlotinib group ($P=0.024$). There was no significant difference of PFS between afatinib and erlotinib groups (median 3.2 months [95% CI, 1.4-4.9] vs 2.3 months [95% CI, 2.0-2.6]; hazard ratio 0.71 [95% CI, 0.41-1.15, $P=0.160$] (Figure 1). Four patients received erlotinib treatment before afatinib use. All of them showed benefits from erlotinib treatment and 3 of them had stable disease after afatinib use.

Conclusion

Afatinib and erlotinib can be options in advanced lung SqCC patients who had progressed after prior treatments in a real-world setting. We did not find a significant improvement in PFS with afatinib compared with erlotinib. Afatinib may also provide benefits to patients with resistance to prior erlotinib treatment.



Number at risk

Afatinib	27	10	4	1	1	1
Erlotinib	144	53	18	13	7	6

AP08-480

Enhanced metastasis of B16F10 melanoma cells in glyoxalase 1-deficient tumor microenvironment

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Background and Aim

Glyoxalase1 (Glo1) is a major enzyme that involved in the detoxification of metabolite and is known to significantly up regulated in various cancers including lung, breast and colon cancer. Although many studies suggest Glo1 as a promising target of anti-cancer by suppressing the proliferation and viability of cancer, there is no evidence showing the regulatory role of Glo1 in tumor microenvironment (TME). In this study, we aimed to investigate metastasis of cancer and its cellular mechanism in Glo1-deficient TME condition.

Methods

To explore the pro-metastatic effects of cancer in Glo1-deficient TME condition, we injected B16F10 murine melanoma cells (3x10⁵ cells/mouse) to the female wildtype (WT) and Glo1^{-/-} mice. After 14th day of the injection, we analyzed metastasis, the function of immune cells and single cell RNA sequencing data in the lung tissues.

Results

An increased number of pulmonary nodule and T cells were measured in Glo1^{-/-} mice compared to WT mice. However, the expression levels of markers that represent T cell function were significantly decreased. Importantly, T cells of Glo1^{-/-} mice were less activated to the same stimuli and exhibited lower ability to produce cytokines including IFN- γ , TNF- α and Granzyme B than the WT counterpart. Furthermore, Glo1^{-/-} T cells have more proliferative characteristic by collapse of balance on cell cycle of hematopoietic stem cells.

Conclusion

This study indicates that Glo1 deficiency provides pro-metastatic niche by inducing alterations in hematopoiesis and dysfunction of T cells. Our findings suggest that regulation of Glo1 expression in TME could be an effective anticancer strategy.

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AP08-481

Predicting postoperative lung function in lung cancer patients by using radiological biomarkers

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Background and Aim

There were previous studies to predict postoperative lung function with pulmonary function test (PFT). However, regarding the lung function, there is a discrepancy between PFT and computing tomography (CT) findings. This study aimed to predict postoperative lung function with radiological biomarkers in CT.

Methods

We retrospectively reviewed 81 lung cancer patients who underwent lung surgery at Eunpyoung St. Mary's hospital from 2016 July until 2021 February. Postoperative lung function was defined as an outcome and measured by forced expiratory volume in one second (FEV₁). Preoperative PFT values, sex, age, pathology type, stage, cancer location, operation type, treatment modality and radiological biomarkers were investigated to predict the outcome. Radiological biomarkers representing airway wall thickness and severity of emphysema were measured quantitatively in chest CT by a semi-automated method using AVIEW™. These variables were analyzed by logistic regression.

Results

Internal perimeter of the segment of the bronchus measured in full-width at half-maximum method (Pi10fw) and adjuvant chemotherapy had p values less than 0.2 in univariable analysis. These variables and age, smoking history, stage, operation type and 15th percentile Hounsfield unit of the low attenuation area of the lung (Pi15) were included in the multivariable analysis. Only Pi10fw (adjusted odds ratio (OR) 0.27, 95% confidence interval (CI) 0.14-0.52, p value 0.048) remained statistically significant. This indicates that patients with lower airway wall thickness have preserved lung function after surgery.

Conclusion

Airway wall thickness (Pi10fw) was an independent predictor of preserved postoperative lung function in lung cancer patients.

This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Korea government (NRF-2020R1F1A1066281)

Table 1. Factors associated with preserved postoperative FEV₁

	Univariable analysis		Multivariable analysis	
	OR (95% CI)	p-value	OR (95% CI)	p-value
Stage (II-III vs. I)	0.94 (0.44-1.61)	0.789	4.00 (1.41-11.3)	0.183
Operation type (Open vs. VATS)	1.54 (0.82-2.88)	0.499	1.24 (0.60-2.56)	0.763
V0FEV ₁	1.00 (0.99-1.02)	0.802	1.01 (0.99-1.03)	0.431
Pi15	0.99 (0.99-1.00)	0.519	0.99 (0.98-1.00)	0.507
Pi10fw	0.37 (0.17-0.80)	0.200	0.27 (0.14-0.52)	0.048
Adjuvant chemotherapy	0.42 (0.23-0.76)	0.146	0.23 (0.09-0.56)	0.097

OR, odds ratio; CI, confidence interval; VATS, video assisted thoracic surgery; V0, preoperative; FEV₁, forced expiratory volume in one second; Pi15, 15th percentile Hounsfield unit of the low attenuation area of the lung; Pi10fw, internal perimeter of the segment of the bronchus measured in full-width at half-maximum method (Age, pathology type and smoking history data are not shown)

AP08-482

ANTERIOR MEDIASTINAL TUMOR OF TYHMOMA STAGE IV IN YOUNG AGE; RARE CASE

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Introduction

Thymoma is a slow growing neoplasm that can be aggressive by invading surrounding structures including the pleura and pericardium. One third of cases show localized tumor spread infiltrating the capsule and surrounding texture.

Case Report

The incidence of thymoma increases with age, generally occurring around 40-60 years old with the top of incidence in the 7th decade. Older patients cases mostly malignant, associated with the accumulation of age-related genetic defects. Cases of thymoma in young adults are rarely. This case has a very small prevalence with an incidence rate around 0.6 – 5% of all thymoma cases. A 27-year-old female patient was reported with a diagnosis anterior mediastinal tumor of thymoma T3N0M1a (pleural effusion, pericardial effusion) stage IVA PS ECOG 1. Clinically, the patient was initially short of breath during activities and it increasingly about 3 months before hospitalize, other respiratory complaints were cough with phlegm and chest pain. The patient has a history of pigtail catheter insertion due to massive pleural effusion on the right. Investigations on X-ray revealed mediastinal dilation and right pleural effusion. The patient already had bronchoscopy with suspected mediastinal tumor. Chest CT Scan until suprarenal with contrast revealed anterosuperior right mediastinal tumor and right pleural effusion.

Discussion

The results of serum tumor marker level showed normal limits. Histological examination of the core biopsy revealed a thymoma. Based on the available data and the results of supporting examinations, MDT team decided the diagnosis was thymoma and the patient was treated as a thymoma stage IVA.

AP08-483

A multicenter, open-label, phase II trial of pemetrexed plus bevacizumab in elderly patients with advanced or recurrent non-squamous non-small cell lung cancer

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Background and Aim

Elderly patients with lung cancer have increased over the past decades, however, the appropriate regimen for the elderly patients with advanced non-small cell lung cancer (NSCLC) were not fully established. To fulfill this unmet medical need, we conducted a phase II study to elucidate the efficacy and safety of pemetrexed plus bevacizumab in these patients.

Methods

This study was a multicenter, open-label, phase II study. The subjects were advanced or recurrent, chemotherapy naïve, non-squamous NSCLC patients who were more than 75 years older with performance status (PS) 0-1. Pemetrexed at a dose of 500 mg/m² and bevacizumab at a dose of 15 mg/kg were administered every 3 weeks. The primary endpoint was the investigator-assessed objective response rate.

Results

A total of 29 patients were enrolled from September 2012 to October 2020, and 27 patients were included for the analyses. Median age was 80 (75-88) years, and 17 patients were male (63%). Most of the patients had adenocarcinoma histology (85%). The median number of cycles administered was 6.5, and the overall response rate were 40.7% (95%CI 22.4%-61.2%) which met the primary endpoint. The median progression-free survival and overall survival were 8.8 (95%CI 5.2-12.9) and 27.2 (95%CI 16.9-41) months, respectively. Grade 3 or higher adverse events, such as liver dysfunction, bone marrow suppression, proteinuria, or hypertension, were observed in nine patients (33%), which was consistent with previous studies. We did not observe any grade 5 adverse events.

Conclusion

The combination of pemetrexed with bevacizumab may be a treatment option for the elderly patients with advanced non-squamous NSCLC.

AP08-484

Deubiquitinating enzyme regulates glyoxalase 1-mediated proliferation and apoptosis of human lung cancer cells

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Background and Aim

High expression of Glyoxalase 1 (Glo1) was observed in various cancer tissues and cells and is known to affect the proliferation and metastasis of cancer cells. Recently, Deubiquitinating enzymes (DUBs) greatly have been widely studied due to their regulatory role in cancer development. The aim of this study was to elucidate the correlation and clinical significance between high expression of Glo1 and DUBs in human lung cancer.

Methods

Expression of Glo1 was investigated using immunohistochemical staining in human lung cancer tissues and cell lines using quantitative real-time PCR and western blot. To identify Glo1 specific DUBs, we used CRISPR/Cas9-based DUB-knockout library kit consisting of sgRNAs individually targeting entire ubiquitin specific proteases (USPs).

Results

We found that Glo1 protein is highly expressed in human lung cancer tissues (adenocarcinoma and squamous cell carcinoma) and NCI-H522 lung cancer cell line compared with their normal counterparts. CRISPR/Cas9-based screening identified several potential USPs, which exhibited a positive correlation with the stability of Glo1 protein. Furthermore, we observed the regulatory role of Glo1 in inhibiting the proliferation of lung cancer cells and apoptosis by knocking-down of Glo1 specific USP.

Conclusion

Together, we elucidated the pathological relationship between Glo1 and USPs in lung cancer. This study suggests that USP stabilizes Glo1 protein and acts as an important modulator of tumorigenesis in cancer cell growth and metastasis

Acknowledgement

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AP08-485

Incidentally found resectable lung cancer with the usage of artificial intelligence on chest radiographs

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Background and Aim

Despite the importance of early screening for lung cancer, detection of early lung cancer using chest radiograph remains challenging. We aimed to highlight the benefit of using artificial intelligence (AI) in chest radiograph with regard to its role in the unexpected detection of resectable early lung cancer.

Methods

Patients with pathologically proven resectable lung cancer from March 2020 to February 2022 were retrospectively analyzed. Among them, we included patients with incidentally detected resectable lung cancer. Because commercially available AI-based lesion detection software was integrated for all chest radiographs in our hospital, we reviewed the clinical process of detecting lung cancer using AI in chest radiographs.

Results

Among the 75 patients with pathologically proven resectable lung cancer, 13 (17.3%) had incidentally discovered lung cancer with a median size of 2.6 cm. Eight patients underwent chest radiograph for the evaluation of extrapulmonary diseases, while five underwent radiograph in preparation of an operation or procedure concerning other body parts. All lesions were detected as nodules by the AI-based software, and the median abnormality score for the nodules was 78%. Eight patients (61.5%) consulted a pulmonologist promptly on the same day when the chest radiograph was taken and before they received the radiologist's official report. Total and invasive sizes of the part-solid nodules were 2.3–3.3 cm and 0.75–2.2 cm, respectively.

Conclusion

This study demonstrates actual cases of unexpectedly detected resectable early lung cancer using AI-based lesion detection software. Our results suggest that AI is beneficial for incidental detection of early lung cancer in chest radiographs.

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AP08-486

Quality of life of lung cancer patients during COVID-19 pandemic

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Background and Aim

The COVID-19 pandemic has affected various aspects of life, especially for people with chronic diseases such as lung cancer. The changes due to the pandemic impact their quality of life (QoL) which is important for their well-being. This study aimed to provide an overview of lung cancer patients' QoL during the COVID-19 pandemic.

Methods

A cross-sectional study was conducted in the Thoracic Oncology Outpatient Clinic of Persahabatan National Respiratory Referral Hospital, Jakarta. Patients were recruited using consecutive sampling methods. QoL was assessed using the Indonesian version of the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Core 30 items (EORTC QLQ-C30). This study also assessed the patients' sociodemographic and clinical characteristics and the factors related to COVID-19, including concerns about treatment delays, exposure to COVID-19 information, barriers to access to healthcare facilities and treatment continuation, psychological pressure, and interpersonal relationships with family and friends.

Results

94% and 6% of lung cancer patients have moderate and poor QoL during the COVID-19 pandemic. All patients have impaired QoL, but no statistically significant relationship was found between QoL and the subjects' characteristics or the factors related to the pandemic. Most patients are concerned about treatment delays and experiencing psychological pressure, but only a few patients experience treatment barriers during the pandemic.

Conclusion

This study showed an impaired QoL in lung cancer patients during the COVID-19 pandemic. Further research and development of more holistic and comprehensive interventions for lung cancer patients, particularly during remote treatment, are needed.

AP08-487

Phase II study of IRInotecan after COmbined chemo-immunotherapy for extensive-disease small cell lung cancer; IRICO study

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Background and Aim

Combined treatment of anti-programmed death-ligand 1 antibody (anti-PD-L1) plus platinum-etoposide is the standard treatment in first-line setting for the patients with extensive-stage (ES) small cell lung cancer (SCLC). However, the best treatment for the relapsed ES-SCLC after the first line treatment is currently still unclear. There are some approved chemo-agents against ES-SCLC, and treatment with irinotecan for the patients with ES-SCLC is well-established as both monotherapy and in combination with platinum. Therefore, we conducted a phase II study with irinotecan in the second or later line setting after treatment with combined anti-PD-L1 plus platinum-etoposide for ES-SCLC.

Methods

This study enrolls patients who are diagnosed with ES-SCLC, experienced failure with anti-PD-L1 plus platinum-etoposide. Patients are received irinotecan on days 1, 8, and 15, and repeated every 4 weeks. Doses of irinotecan (100/80/60 mg/m²) are determined according to the type of UGT1A1 gene polymorphism, and can continue the treatment until disease progression, intolerance, withdrawal of consent, or investigator decision. The primary endpoint of the study is response rate, and the secondary endpoints are overall survival, progression-free survival, and safety.

Results

This trial is ongoing.

Conclusion

Irinotecan is one of the major chemo-agents for SCLC. However, the frequency of use has been getting less because it is not selected for first line treatment. This study may be going to demonstrate clinical benefits after combined anti-PD-L1 plus platinum-etoposide and re-evaluate the efficacy of irinotecan for previously treated patients with ES-SCLC.

AP08-488

Treatment of elderly (>70 years) with lung cancer. A five-year material in clinical practice from Gavle Hospital – Sweden.

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Introduction

Sixty percent of all neoplasms and two-thirds of all deaths due to cancer occur in persons older than 65 years. More than 50% of patients with lung cancer are older than 65 years and 30% older than 70 years. With more persons surviving to older age treatment of the elderly with lung cancer has become an important issue.

Material and method

All patients 70 years or older with lung cancer seen at the Department of Respiratory Medicine, Gävle Hospital from 2012 to 2016 were retrospective reviewed. In all, 415 patients were analyzed.

Results

The mean age was 80 years, 236 (57.1%) were men. 94.8% of the males and 81.4% of the females were smokers or former smokers. 301 (72.5%) had PS 0-2. 7.5% had SCLC, 37% adenocarcinoma, and 21.2% squamous cell carcinoma. 19,2% had clinical lung cancer and the others adenocarcinoma in situ or low differentiated carcinoma. 10,1% underwent radical surgery, 24% received chemotherapy only, 20,8% radiotherapy against the tumour (thereof stereotactic 5,9%), and 2,8% concomitant chemo-radiotherapy. 6,6% received radiotherapy against metastases, and 36.6% had no therapy. Only 7,1% were given second-line chemotherapy. Survival was 163 and 159 days for patients 75-80 years and >80 years, respectively. Patients with PS=0 survived 236 days, those with PS=3 only 27 days. Survival among smoker or former smokers and never smokers were 212 and 132 days, respectively. Survival among those who received chemotherapy was 573 days, while for the others it was 181 days.

Conclusion

Significant survival among patients given second line chemotherapy (p 80 years old (P

Key words

lung cancer, elderly, survival

AP08-489

Plasma droplet digital PCR for T790M in advanced EGFR-mutant NSCLC patients on first- or second-generation tyrosine kinase inhibitors

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Background and Aim

Development of EGFR T790M is the major resistance mechanism to first- and second-generation TKIs in NSCLC. This study aimed to investigate the utility of droplet digital PCR (ddPCR) for T790M in plasma circulating tumor DNA (ctDNA) and explored its potential impact on prognosis.

Methods

Systemic treatment-naïve, advanced lung adenocarcinoma patients on gefitinib, erlotinib, or afatinib for TKI-sensitizing EGFR mutations were prospectively enrolled. Plasma samples were collected before TKI therapy and at tri-monthly intervals thereafter. Genotyping of ctDNA for T790M was performed by a ddPCR EGFR Mutation Assay.

Results

Seventy-five of 80 enrolled lung adenocarcinoma patients experienced progressive disease. Fifty-three (71%) of 75 patients underwent rebiopsy and T790M was identified in 53% (28/53) of rebiopsy samples. Meanwhile, plasma ddPCR detected T790M in 23 (43%) out of 53 patients. The concordance rate of T790M between ddPCR and rebiopsy was 76%, and ddPCR recognized additional 4 T790M-positive patients. Among 22 patients who did not receive rebiopsy, 10 (45%) of them were tested positive for T790M by ddPCR. Serial ddPCR analysis showed the median time interval from detection of plasma T790M to objective progression was 1.1 (0–4.1) months. Compared with 28 patients with rebiopsy showing T790M, the median overall survival of 14 patients with T790M detected solely by ddPCR was shorter (41.3 [95% CI, 36.6–46.0] vs. 26.6 months [95% CI, 9.9–43.3], respectively).

Conclusion

Plasma ddPCR-based genotyping is useful for detection and monitoring of T790M mutation in patients on gefitinib, erlotinib, or afatinib for activating mutations.

AP08-490

The highest expression of EGFR mutation among the genetic profiling in Advanced Stage Squamous Cell Lung Cancer

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Background and Aim

Genomic profiling is helpful in directing treatment and improving lung squamous cell carcinoma (SCC) patient outcomes. Commonly, SCC has a very low expression of EGFR mutation compared to Adenocarcinoma lung cancer. Accordingly, the observation of the EGFR mutation in SCC is not commonly conducted. Here we observed the gene alteration among the SCC patients that will aid clinicians in designing a more personalized treatment for SCC patients.

Methods

We observed retrospectively by using block paraffin of 19 patients with SCC from Wahidin Sudirohusodo Hospital, Indonesia, between January 2019 and December 2020. We describe mutational profile using a 5-gene (EGFR, KRAS, NRAS, BRAF, and C-Kit) panel, clinical characteristics, and their correlation in SCC patients.

Results

Lung SCCs from 19 patients have been tested. Among of 16 (84.2%) patients were male and predominantly smokers (68.4%). According to the stage, 7 (36.8%) were stage III and 12 (63.2%) were stage IV. Patients were treated with systemic chemotherapy and 57.9% (11/19) died in 2-year after being diagnosed with SCC. Our result surprisingly showed the EGFR mutations were very high, (36.8%) compared to common data of lung cancer, followed by KRAS (10.5%), and EGFR+KRAS mutations (5.2%). EGFR mutations were more common in male (26.3% vs. 10.5%; $P = 0.523$), smokers (26.3% vs. 10.5%; $P = 1.000$), stage III-IV (31.6%),

Conclusion

Our findings surprisingly a high mutation of EGFR in lung SCC. The data imply the importance of comprehensive profiling of genetic mutations to guide diagnosis and develop personalized therapy for SCC patients.

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AP08-491

Phase I study of amrubicin plus cisplatin with concurrent accelerated hyperfractionated thoracic radiotherapy for limited-stage small cell lung cancer; Protocol of ACIST study

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Background and Aim

The standard treatment of unresectable limited-stage (LS) small-cell lung cancer (SCLC) is etoposide plus cisplatin (EP) combined with concurrent accelerated hyperfractionated thoracic radiotherapy (TRT), which has been unchanged for over two decades. Based on the study that had proven non-inferiority of amrubicin plus cisplatin (AP) compared to EP for extensive-stage (ES) SCLC¹, we had previously conducted a phase I study of AP with concurrent TRT as 2 Gy/time, once daily, a total of 50 Gy for LS-SCLC and revealed that AP with concurrent TRT prolonged overall survival of 39.5 months with manageable toxicities². Therefore, we herein conduct the phase I study to investigate and determine the effect of AP combining with accelerated hyperfractionated TRT, recommended dose (RD), maximum tolerated dose (MTD) and dose limiting toxicity (DLT) of AP for LS-SCLC.

Methods

Treatment-naïve patients with LS-SCLC aged between 20 to 75 years who have performance status of 0 or 1, and adequate organ functions are enrolled. As the chemotherapy, cisplatin 60 mg/m²/day (day 1) and amrubicin (day 1 to 3) are administered with the TRT of 1.5 Gy/time, twice daily, a total of 45 Gy. The initial dose of amrubicin is set as 25 mg/m²/day. RD and MTD are determined by evaluating the toxicities.

Results

The three cases have enrolled and indicated no DLT. We are recruiting six additional cases.

Conclusion

This treatment of AP with concurrent accelerated hyperfractionated TRT may be one of the optimal choices with manageable toxicities for unresectable LS-SCLC.

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AP08-492

Dual inhibitory effects of novel Naringenin analogue in tobacco-carcinogen induced lung cancer via inhibition of PI3K/Akt/mTOR pathway

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Background

Phosphoinositide 3- kinase (PI3K)-AKT-mammalian target of rapamycin (mTOR) pathways is considered as the singling pathway which activates the diverse cellular function and found frequently dysregulated pathway in lung cancer. Consequently, flavonoids based inhibitors play a key kinase role in the pathway including mTOR, PI3K and AKT, have been extensively scrutinized in targeting the oncology in recent years. The common pathway to PI3K-Akt-mTOR used to target during the lung cancer therapy. Therefore, the current study was aimed to peruse the naringenin as dual PI3K/mTOR for lung cancer.

Material and methods

In the current experimental study mice were randomly divided into 7 groups with 12 mice in each groups The oxidative stress was evaluated in term of antioxidant parameters and proinflammatory cytokines. The concentration of PI3K, P-PI3K, mTOR, P-mTOR Akt and P-Akt were determined via using the Western blot techniques. We also performed the histopathological study to identify the changes during the disease.

Result & discussion

Naringenin significantly suppressed the oxidative stress via improving the status of endogenous antioxidant parameters such as SOD and MPO in a dose dependent manner. disease control group mice confirmed the change in protein levels of PI3K/Akt/mTOR pathway in lung as compared to normal control, which were significantly down-regulated by the Naringenin in a dose dependent manner. In the histological study, we observed that the Naringenin substantially reduced the benzopyrene induced neutrophils in lung tissue.

Conclusion

It can be concluded that Naringenin has shown promising anticancer effect via attenuation of PI3K/Akt/mTOR against lung cancer.

AP08-493

Association of muscle mass with the risk of lung cancer in never-smokers

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Background and Aim

Abnormal body composition is a major modifiable risk factor for cancer. However, the association of body composition with the risk of lung cancer in never-smokers (LCINS) remains uninvestigated. We aimed to evaluate the effect of muscle and adiposity on LCINS risk.

Methods

We conducted a case-control study of 326 LCINS patients who performed PET/CT at diagnosis and 348 never-smoker controls who performed PET/CT as a health check. Muscle and fat area at the 3rd lumbar vertebra and waist volume were quantified via volumetric body image analysis, then normalized by height to generate skeletal muscle index (SMI), fat index, skeletal muscle volume index (SMVI), and fat volume index. Sarcopenia was defined as reduced SMI (< 55cm²/m², men; < 39cm²/m², women). Multivariable adjusted logistic regression and generalized additive logistic models were used for case-control body composition comparisons.

Results

LCINS patients were older (64.6 vs. 54.8 years) and more often sarcopenic (47.9 vs. 27.0%). Sarcopenia was associated with a significantly increased risk of LCINS (aOR, 6.28; 95% CI, 2.17-18.16; men; aOR, 4.32; 95% CI, 2.67-6.99; women). LCINS risk decreased following an increase of SMI and SMVI in a dose-dependent manner. Men and women in the lowest quartile of SMI had an aOR of 12.71 (95% CI, 2.62-61.71) and 20.52 (95% CI, 9.45-44.55) for LCINS compared with those in the highest quartile. None of the adiposity parameters showed a uniform association with the risk of LCINS.

Conclusion

Muscle mass is inversely associated with the risk of LCINS.

AP08-494

SPINK1 is a prognosis predicting factor of nonsmall cell lung cancer

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Background

SPINK1 (Serine protease inhibitor Kazal-type 1) is thought to play a role in inhibiting of serine proteases, such as trypsin, which is involved in inflammation and cell proliferation. Altered expression of SPINK1 has been previously demonstrated to be associated with prognosis in various types of cancer. However, the prognostic value of SPINK1 in non-small cell lung cancer (NSCLC) has not been well studied. In the present study, we aimed to evaluate whether the role in NSCLC.

Methods

A total of 400 paraffin-embedded tissue samples obtained from patients with NSCLC who had undergone surgery in Gangnam Severance hospital was utilized. Immunohistochemical staining was performed to detect SPINK1 expression in the lung tissues, and the association between the proportion and intensity for SPINK1 and clinicopathological features of NSCLC was evaluated.

Results

Tissue expression of SPINK1 was significantly higher in patients with advanced NSCLC and correlated with several clinical features indicating disease severity. In addition, patients having higher SPINK1 expression in IHC more frequently had poor outcomes compared to those who did not. Cox-proportional hazard analysis also confirmed that SPINK1 is associated with adverse patient outcomes.

Conclusion

The expression of SPINK1 are associated with poor outcomes in NSCLC and could be used as a marker in patient prognostication.

AP08-495

Outcome of surgery in patients with operable locally advanced non-small cell lung cancer in King Chulalongkorn Memorial Hospital, the retrospective study

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Background

Surgery is the primary treatment of early-stage (IA-IIIB) non-small cell lung cancer (NSCLC), but not for locally advanced (IIIA or more) because recent studies showed low survival rates. Almost patients have larger tumor size and advance mediastinal lymph node stage, which makes surgery difficult resulting in incomplete resection (R1). This research is interested in survival outcome (overall and progress-free) and risk factors for mortality of complete resection (R0) in patients with locally advanced NSCLC.

Methods

We retrospectively studied patients with NSCLC who underwent surgery in Chulalongkorn Hospital from 2005 to 2020 for survival outcome and risk factors for mortality

Results

There were 334 cases which were male 38%, female 62% and average age 66.00±8.28 years. Most pathological finding were adenocarcinoma (93.4%). Locally advanced stages were 23.95%. Complete resection (R0) were found in 77 patients (96.25%). The overall survival of patient who underwent surgery prior to chemotherapy were not different from after chemotherapy (90.8 % and 77.8%, respectively, $p = 0.24$) with survival rate at 1, 3, 5 and over 5 years were 98.3%, 94.2%, 87.8% and 83.8%, respectively. Risk factors for mortality calculated by the univariate cox proportional analysis include tumor size greater than 5 cm (HR 4.78, 95%CI 1.28-7.78, $p = 0.02$) and present of lympho-vascular invasion (LVI) (HR 4.01 95%CI 1.19-13.6, $p = 0.02$). Progress-free survival for stage IIIA and IIIB was 46.5 months (95% CI 38.11-54.89) and 41.5 month (95% CI 25.25-57.64) respectively without statistically significant ($p = 0.33$).

Conclusion

Considering surgery in patients with locally advance NSCLC may improve survival and progress-free survival especially when complete resection (R0).

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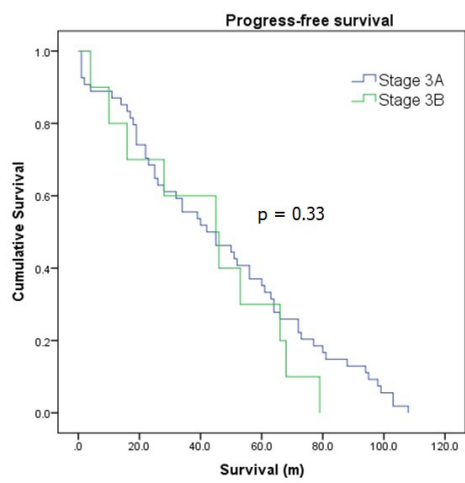
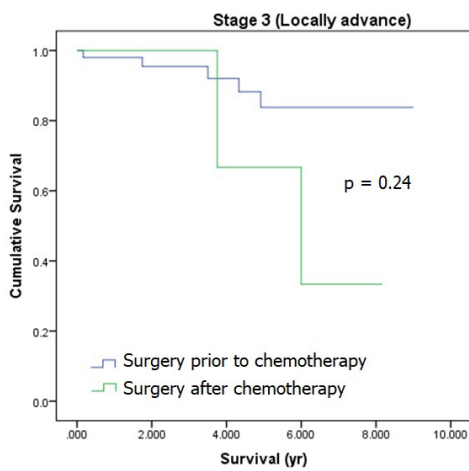
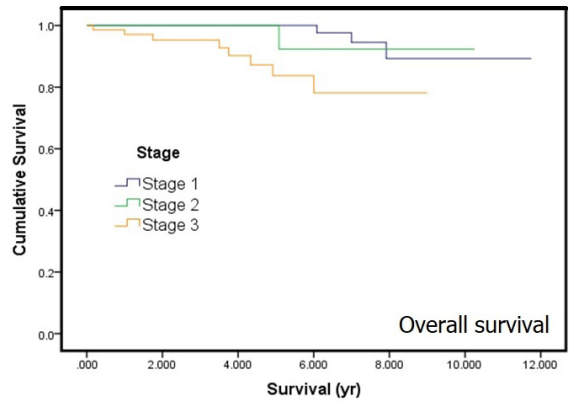
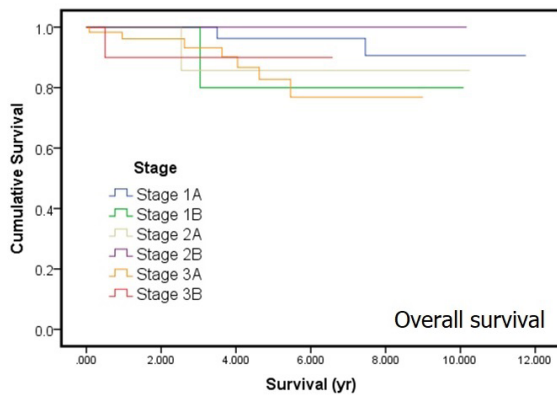
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none

Disclosure

none



AP08-496

How much private data is needed for deep learning in lung nodule detection on CT scans? A retrospective multicenter study

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Background and Aim

Early detection of lung nodules is essential for preventing lung cancer. However, the number of radiologists who can diagnose lung nodules is limited, and considerable effort and time is required. To address this problem, researchers are investigating the automation of deep-learning-based lung nodule detection. However, deep learning requires large amounts of data, which can be difficult to collect. Therefore, data collection should be optimized to facilitate experiments at the beginning of lung nodule detection studies.

Methods

We collected chest computed tomography scans from 515 patients with lung nodules from three hospitals (Gangneung Asan Hospital(GNAH), Kangwon National University Hospital(KNUH), and Hallym Sacred Heart Hospital(HSHH)) and high-quality lung nodule annotations reviewed by radiologists. We conducted several experiments using the collected datasets and publicly available data from LUNA16.

Results

The object detection model, YOLOX was used in the lung nodule detection experiment. Similar or better performance was obtained when training the model with the collected data (FROC: 0.93 in GNAH, 0.97 in KNUH, 0.86 in HSHH) rather than LUNA16 with large amounts of data (FROC: 0.89 in GNAH, 0.93 in KNUH, 0.76 in HSHH). We also show that weight transfer learning from pre-trained open data is very useful when it is difficult to collect large amounts of data. The figure shows that good performance can otherwise be expected when reaching more than 100 patients.

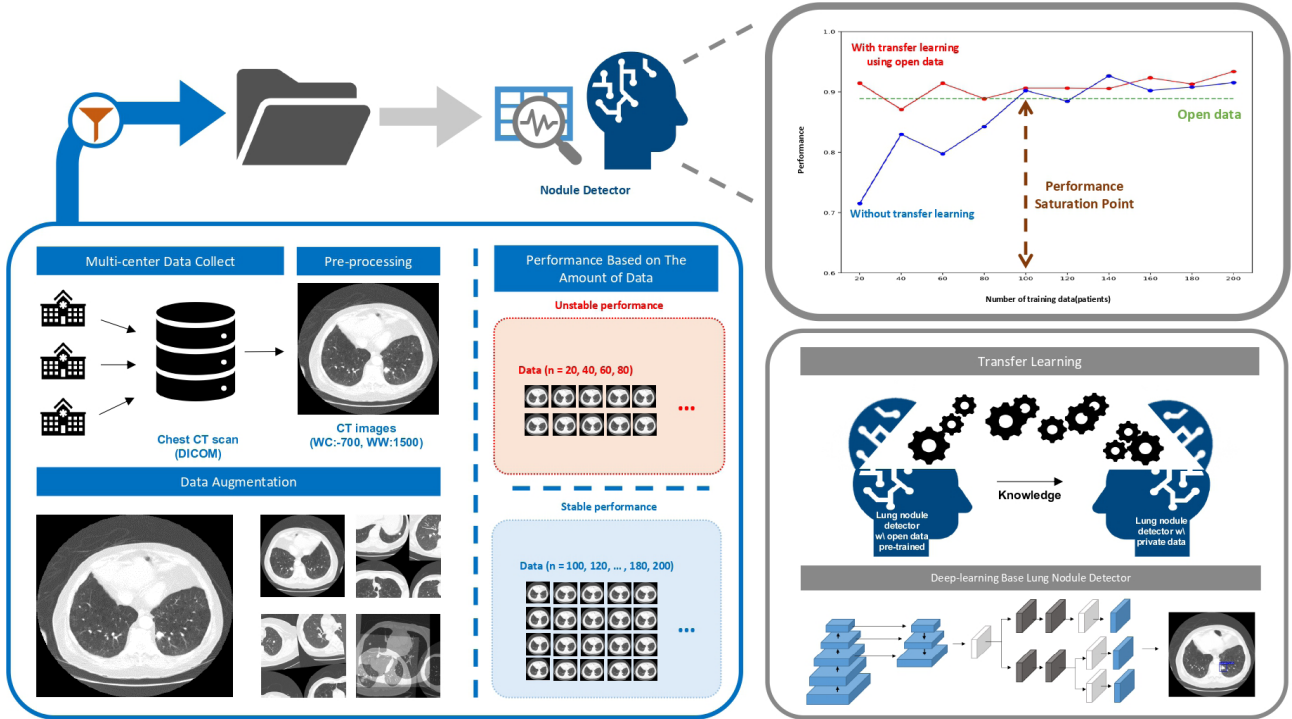
Conclusion

This study offers valuable insights for guiding data collection in lung nodules studies in the future.

Funding

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Institutional Review Board Statement: The study was approved by the Ethics Committee of Chuncheon Sacred Heart hospital (approval no. 2021-05-016, date of approval: 2021-06-11).



AP08-497

Chemotherapeutic agents and the EGFR-TKI osimertinib provoke calreticulin exposure in non-small cell lung cancer

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Background and Aim

Synergistic anticancer efficacy of combination treatment with immune checkpoint inhibitors (ICIs) and platinum-based chemotherapy in patients with advanced NSCLC may be attributable in part to the phenomenon of immunogenic cell death (ICD), which is characterized by the release of damage-associated molecular patterns (DAMP).

Methods

Using flow cytometry, we investigated the ability of seven chemotherapeutic agents and the third-generation EGFR-TKI osimertinib to induce translocation of the DAMP calreticulin to the cell surface in multiple NSCLC cell lines. The plasma concentration of soluble CRT in advanced NSCLC patients treated with cytotoxic chemotherapy or osimertinib was measured with an ELISA assay.

Results

Antimetabolites (including pemetrexed) and microtubule inhibitors (including docetaxel) induced expression of CRT at cell surface (ecto-CRT) to a greater extent than did platinum agents in six NSCLC cell lines. Ecto-CRT expression was positively correlated with apoptosis induction in NSCLC cells treated with these agents. The drug-induced up-regulation of ecto-CRT in NSCLC cells was partially attenuated by the pan-caspase inhibitor. Osimertinib similarly increased ecto-CRT expression in association with apoptosis induction in six EGFR-mutated NSCLC cell lines. Furthermore, the plasma concentrations of soluble CRT in 16 NSCLC patients treated with single-agent pemetrexed or docetaxel and in nine EGFR-mutated NSCLC patients treated with osimertinib were increased after treatment onset.

Conclusion

Antimetabolites, microtubule inhibitors, and osimertinib are effective inducers both of CRT exposure in NSCLC cell lines and of soluble CRT release in NSCLC patients, suggesting that these agents might prove effective for promotion of antitumor immunity in combination regimens with ICIs.

AP08-498

Impact of TTF-1 Immunostaining on the efficacy of platinum-based chemotherapy in Japanese non-squamous non-small-cell lung cancer patients

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Background

Recently, it has been reported that the results of TTF-1 immunostaining may affect the efficacy of chemotherapy, especially pemetrexed regimen.

Objective:

To evaluate the effect of TTF-1 staining on the efficacy of chemotherapy in Japanese non-squamous non-small-cell lung cancer (NSCLC) patients.

Methods

We retrospectively analyzed PFS and OS of patients with advance/recurrent non-squamous NSCLC who received platinum combination chemotherapy at our institution and TTF-1 immunostaining data were available, using the log-rank test to separate chemotherapy into pemetrexed-including regimens and other regimens. The results were further analyzed multivariate by Mann-Whitney U test.

Results

There were 92 TTF-1-positive patients and 53 TTF-1-negative patients, and both PFS (5.7 mo vs. 3.8 mo, $p=0.037$) and OS (32.1 mo vs. 10.5 mo, $p<0.001$) were significantly better in the pemetrexed group. On the other hand, in the non-pemetrexed group, there was a difference in PFS (5.2 mo vs. 4.2 mo, $p=0.010$), but no significant difference in OS (13.7 mo vs. 10.2 mo, $p=0.072$). Further multivariable analysis showed that TTF-1 immunostaining results remained significantly different in the pemetrexed group, but not in the non-pemetrexed group. However, there was no significant difference in either PFS ($p ?$) or OS ($p ?$) between the pemetrexed and non-pemetrexed groups for TTF-1 immunostaining both positive and negative, on multivariable analysis.

Conclusion

TTF-1 immunostaining is a prognostic factor in Japanese non-squamous NSCLC, and TTF-1-negative patients are basically refractory to chemotherapy. However, the difference in response between TTF-1 positive and negative patients is particularly large for platinum-pemetrexed regimens, since optimal treatment strategies, including the combination of immuno-checkpoint-inhibitors with or without anti-VEGF antibodies, should be considered in the future.

AP08-499

Presepsin to predict the prognostic value in patients with advanced non-small cell lung cancer receiving immune check inhibitors: a retrospective study

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Background and Aim

Presepsin (soluble CD14 subtype) is a new biomarker of infection and sepsis. The application of presepsin levels in clinical practice is limited to infectious diseases. Considering inflammation can influence cancer prognosis and response to chemotherapeutics, we investigated baseline plasma presepsin levels as a predictive marker of the therapeutic effects of PD-1/PD-L1 inhibitors in patients with advanced NSCLC.

Methods

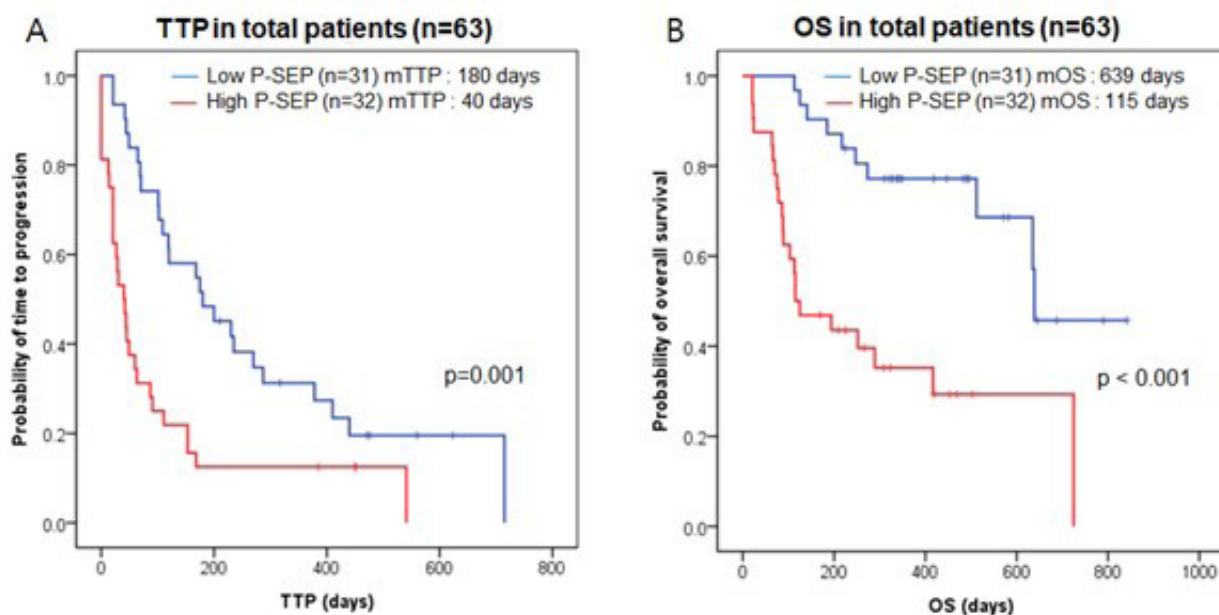
This study included patients with early NSCLC and advanced NSCLC treated with PD-1/PD-L1 inhibitors after platinum doublet at Chungnam National University Hospital (CNUH) from March 2018 to January 2020.

Results

There was a significant difference between the early-stage and advanced-stage groups regarding presepsin level $87.29 \pm 38.68 \text{ pg/ml}$ vs. $208.49 \pm 108.64 \text{ pg/ml}$ with a p-value < 0.001 .

Conclusion

Thus, baseline presepsin levels are a valid biomarker to predict the response and survival in patients treated with ICIs.



AP08-500

Tumor Microenvironment Characteristics in a Patient With Rapidly Progressive Lung Adenocarcinoma

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Introduction

Lung adenocarcinoma can progress from an indolent in situ carcinoma to an invasive, aggressive, metastatic tumor. The tumor progression to a state of invasiveness and metastasis is characterized by epithelial dysregulation and instability that drives loss of cellular adhesion and increased cell mobility and proliferation. Here, we report a case of a 62-year-old male with lung adenocarcinoma, who showed a rapid disease progression.

Case Reports

Tissue sample from a 62-year old patient, who had a suspected early lung cancer in computed tomography 6 months before the diagnosis of lung cancer. This patient demonstrated a widely disseminated bone and hepatic metastases after 6 months. Cells obtained from tumor and adjacent normal lung tissue were independently clustered after single cell RNA sequencing. We extracted epithelial cell barcodes obtained from tumor tissues, designated the cell clusters obtained from normal lung tissues and the nonepithelial cell clusters obtained from tumor tissues as the reference. A non-supervised clustering method was applied in the InferCNV package, and designated cells with clear chromosomal gene expression perturbation as lung cancer cells. Differentially expressed gene analysis identified up-regulated genes mainly related to stem cell markers. Gene ontology analysis highlighted the activation of different pathways, mainly related to apoptosis, immune response and programmed cell death.

Discussion

This case provides novel insights into the pathogenic pathways of rapidly progressive lung cancer and suggests that targeting these up-regulated pathways may be a candidate for therapeutic target in invasive lung adenocarcinoma.

AP08-501

Exonuclease 1 genetic variant is associated with clinical outcomes of pemetrexed chemotherapy in lung adenocarcinoma

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Background and Aim

Pemetrexed is an anti-folate agent which is one of the most frequently used chemotherapy agents for non-squamous non-small cell lung cancer (NSCLC) patients. However, clinical response to pemetrexed chemotherapy and survival outcome of patients varies significantly. We evaluated whether the genetic variants in miRNA target sites may influence the clinical outcome of pemetrexed chemotherapy in lung adenocarcinoma patients.

Methods

One hundred SNPs in miRNA binding regions in cancer-related genes were selected from the crosslinking, ligation, and sequencing of hybrids (CLASH) and CancerGenes database, and the associations with the response to pemetrexed chemotherapy and survival outcomes were investigated.

Results

Two polymorphisms, EXO1 rs1047840G>A and CAMKK2 rs1653586G>T, were significantly associated with worse chemotherapy response (adjusted odds ratio [aOR] = 0.41, 95% CI = 0.24-0.68, P = 0.001, under a dominant model; and aOR = 0.33, 95% CI = 0.16-0.67, P = 0.002, under a dominant model, respectively) and worse OS (adjusted hazard ratio [aHR] = 1.34, 95% CI = 1.01-1.77, P = 0.041, under a dominant model; and aHR = 1.47, 95% CI = 1.04-2.09, P = 0.030, under a dominant model, respectively) in multivariate analyses. Significantly increased luciferase activity was noted in EXO1 rs1047840 A allele compared to G allele.

Conclusion

In conclusion, two SNPs in miRNA binding sites, especially EXO1 rs1047840G>A, were associated with the chemotherapy response and survival outcome in lung adenocarcinoma patients treated with pemetrexed.

AP08-502

Nivolumab as maintenance therapy following platinum-based chemotherapy in non-small cell lung cancer patients after tyrosine kinase inhibitor therapy: a single-arm, open-label, phase 2 trial

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Background and Aim

Although several studies have reported the improved response rate of immunotherapy and cytotoxic chemotherapy combination, a therapeutic role of salvage treatment after failure of targeted therapy in the patients with epidermal growth factor receptor (EGFR) mutant non-small cell lung cancer (NSCLC) is unclear.

Methods

In this open-label, single arm phase 2 trial, we enrolled patients aged 18 years or older with EGFR mutant NSCLC who failed 1st or 2nd line EGFR tyrosine kinase inhibitor (TKI) treatment. Patients received platinum based chemotherapy followed by nivolumab maintenance therapy. A 240mg nivolumab was intravenously administered every 2 weeks for 3 months followed by 480mg every 4 weeks until disease progression and unacceptable toxic effects, or other protocol-defined reasons. The primary endpoint was progression-free survival (PFS). Secondary outcomes were overall survival (OS), and incidence of grade 3-4 treatment-related adverse events (AEs).

Results

The total number of 26 patients were enrolled between May, 2020 and July, 2021. The median PFS was 5.8 months (95% CI, 4.18-7.42 months). Median OS was not reached; 12-month and 24-month OS rates were 80.8% and 49.8%, respectively. Overall response rate was 7.7% (2/26) and disease control rate was 19.2% (5/26). Grade 3-4 treatment-related AEs occurred in 4 (15.4%) patients; the most frequent AEs was increased alanine aminotransferase (7.7%).

Conclusion

A nivolumab maintenance treatment after platinum-based chemotherapy did not seem to provide a treatment benefit after EGFR-TKI failure in patients with EGFR mutant NSCLC. There was no new unexpected toxicity to nivolumab.

AP08-503

Overdiagnosis of lung cancer in never-smokers with low-dose computed tomography in Korean women

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Background and Aim

The incidence of lung cancer in never-smokers (LCINS) shows a steady rise, especially among East Asian women. While current guidelines do not cover never-smokers in lung cancer screening, low-dose computed tomography (LDCT) as an opportunistic health check has been popularized. This study aimed to estimate the extent of lung cancer overdiagnosis subsequent to increased voluntary surveillance in never-smoker women.

Methods

A nationwide population-based cohort study of Korean women was conducted. We acquired the lung cancer incidence, mortality, and smoking prevalence data from Statistics Korea. The summary stage was obtained from Korean Cancer registry. The trends of LDCT implementation as a health check were estimated from the data of a tertiary referral hospital-affiliated health care center.

Results

From 1999 to 2019, the smoking prevalence remained stable (5-7%). During this period, the crude and age-standardized rate (ASR) of lung cancer incidence per 100,000 populations has increased from 14.8% to 37.4% and 13.0% to 17.4%, respectively. However, ASR of lung cancer mortality has decreased from 11.8% to 8.8%. ASR of stage I lung cancer has surged from 2.2% to 6.2% (2.8 times) from 2005 to 2019. The percentage of those who performed voluntary LDCT as part of a health check in never-smoker women has surged from 13.3% to 29.4%.

Conclusion

Among never-smoker Korean women, the ASR of lung cancer incidence increased whereas the mortality decreased. The detection rate of stage I lung cancer has tripled over 15 years. Our results indicate that overdiagnosis exists among never-smoker Korean women by the increasing prevalence of opportunistic LDCT implementation.

AP08-504

Five-year overall survival and prognostic factors in patients with lung cancer: Results from the Korean Association of Lung Cancer Registry (KALC-R) 2015

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Background and Aim

To provide the clinical characteristics, prognostic factors, and 5-year relative survival rates of lung cancer diagnosed in 2015

Methods

The demographic risk factors of lung cancer were calculated using the KALC-R (Korean Association of Lung cancer Registry) cohort in 2015, with survival follow-up until December 31, 2020. The 5-year relative survival rates were estimated using Ederer II methods, and the general population data used the death rate adjusted for sex and age published by the Korea Statistical Information Service from 2015 to 2020.

Results

We enrolled 2,657 patients with lung cancer who were diagnosed in South Korea in 2015. Of all patients, 2,098 (79.0%) were diagnosed with NSCLC and 345 (13.0%) were diagnosed with SCLC, respectively. Old age, poor performance status, and advanced clinical stage were independent risk factors for both NSCLC and SCLC. In addition, the 5-year relative survival rate declined with advanced stage in both NSCLC (82%, 59%, 16%, 10% as the stage progressed) and SCLC (16%, 4% as the stage progressed). In patients with stage IV adenocarcinoma, the 5-year relative survival rate was higher in the presence of EGFR mutation (19% vs 11%) or ALK translocation (38% vs 11%).

Conclusion

In this Korean nationwide survey, the 5-year relative survival rates of NSCLC were 82% at stage I, 59% at stage II, 16% at stage III, and 10% at stage IV, and the 5-year relative survival rates of SCLC were 16% in cases with limited disease, and 4% in cases with extensive disease.

Acknowledgments

The data used in this study were provided by the Korean Association for Lung Cancer (KALC) and the Ministry of Health and Welfare, Korea Central Cancer Registry (KCCR).

AP08-505

Low diffusion capacity predicts poor prognosis in extensive stage small cell lung cancer

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Background

Poor pulmonary function and chronic obstructive pulmonary disease (COPD) is associated with worse overall survival (OS) in non-small cell lung cancer (NSCLC) patients. Few studies are performed about the association between pulmonary function and OS in small cell lung cancer (SCLC) patients. We compared the clinical characteristics of extensive disease SCLC (ED-SCLC) with or without moderate impaired diffusion capacity (DLCO), and investigated factors associated with survival in ED-SCLC patients.

Methods

This is a retrospective single center study performed between January 2011 and December 2020. Of the 307 SCLC patients who received cancer therapy between the study period, 142 patients with ED-SCLC were analyzed. Patients were divided into the DLCO < 60% group and DLCO ≥60% group. The OS, and predictors of worse OS were analyzed.

Results

The median age was 68 years. One hundred twenty nine (90.8%) patients had a history of smoking, and 60 (42.3%) had COPD. Of the 142 ED-SCLC patients, 24.6% (n=35) patients were DLCO < 60% group. In multivariable analysis, DLCO < 60% (Odds ratio [OR], 1.609; 95% confidence interval [CI], 1.062-2.437; p = 0.025, number of metastasis (OR, 1.488; 95% CI, 1.262-1.756; p < 0.001), and first line chemotherapy less than 4 cycles (OR, 3.793; 95% CI, 2.530-5.686; p < 0.001) were associated worse OS. DLCO < 60% group demonstrated a shorter median OS than those with DLCO ≥60% group (4.9±0.9 vs. 10.6±0.8 months, P = 0.003). As the number of metastatic organs increased, the OS of patients were shorter. First line chemotherapy < 4 cycles group revealed shorter median OS than those with first line chemotherapy ≥ 4 cycles (3.0±0.4 vs. 11.4±0.5 months, P < 0.001). Forty (28.2%) patients received first line chemotherapy less than 4 cycles, and the most common reason for first line chemotherapy less than 4 cycles was death (n=22, 55%) from grade 4 febrile neutropenia (n=15), infection (n=5), and massive hemoptysis (n=2).

Conclusion

In this study, one fourth of ED-SCLC had DLCO < 60%. Low DLCO (not FEV1 or FVC), high number of metastasis, and first line chemotherapy less than 4 cycles were independent risk factors for poor survival outcomes in ED-SCLC.

AP09-506

Therapeutic effects and mechanism of action of a novel inhalable formulation of phosphoinositide 3-kinase delta inhibitor in fungus-induced severe asthma murine model

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Background and Aim

Severe asthma represents significant unmet needs for the treatment of asthma. Corticosteroids, although refractory in most cases, are still the mainstay of the treatment in severe asthma. Phosphoinositide 3-kinase delta (PI3K delta) is crucial in mediating corticosteroid resistance in immune/inflammatory cells through various mechanisms. Recently, we developed a novel inhalable formulation of the PI3K delta inhibitor (material X).

Methods

We investigated the therapeutic effects and potential mechanism of action of material X in severe asthma murine model, in comparison with dexamethasone, through analyses of pulmonary gene expressions.

Results

Aspergillus fumigatus (Af)-induced eosinophilic lung inflammation, which is refractory to dexamethasone, was successfully ameliorated by the respiratory administration of material X. Moreover, pathway analyses suggested that, in contrast to dexamethasone, Af-induced increases of the ECM and collagen pathways associated with airway remodeling were significantly lowered by material X in the bulk-RNA sequencing data. Through single-cell RNA sequencing, we found that those pathways were enriched in the fibroblast population. Moreover, inference of the potential intercellular communications between fibroblasts and various immune cells found that material X significantly alleviated the Af-induced increase of IL-17A interaction between fibroblasts and T cells. In addition, of the total 19 cell types identified, increased numbers of eosinophils in Af-exposed mice were remarkably decreased by material X. GSEA analysis and inference of cell-cell communication suggested that material X abrogated typical type 2 inflammation and T cell-mediated IL-4 and IL-13 signaling of severe asthma.

Conclusion

We identified the therapeutic potential of material X in severe asthma involving the regulation of pathways related to airway remodeling, IL-17A as well as T2 inflammation in the lungs.

AP09-507

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thuthu thudad¹

¹ *Hand, Gogod, HCM, Turkey*

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AP09-508

The development and validation of Digital Peak Expiratory Flow Device (D-PEF Device) for asthma monitoring

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Background and Aim

Digital Peak Expiratory Flow Device (D-PEF Device) was developed for asthma monitoring. The objective of the study is to validate and test for the accuracy of D-PEF Device by comparing to spirometer's PEF collection.

Methods

D-PEF Device was developed based on the conventional peak flow meter where patients perform a blowing maneuver on the device. It records the blowing velocity with an internal turbine as round per minute (RPM), which is converted into liters per minute (L/min). Recorded data can be viewed directly from the device. The validation process of D-PEF Device was done in vitro by comparing PEF values obtained by D-PEF Device against PEF values generated by the spirometer from 9 controlled inputs generated by the calibration syringe for spirometer. Coefficient Correlation and Bland-Altman method were used for comparison.

Results

The results shows significant correlation coefficient at 0.99 (95% CI 0.9964-0.9997). Bland-Altman method shows that 89% of the mean difference between the two devices lies within the limit of agreement (LOA).

Conclusion

The results were propitious and D-PEF Device can potentially be used for asthma monitoring. Validation in healthy human subjects will be performed in a few months.

AP09-509

Urine bromotyrosine and eosinophils counts in asthma patients at Persahabatan Hospital, Jakarta, Indonesia

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Background and Aim

Asthma is a heterogeneous disease characterized by chronic inflammatory disorders characterized by the release of inflammatory mediators.¹ In allergic and nonallergic asthma patients, there is an increase of eosinophils in the peripheral blood.² Bromotyrosine is also a biomarker for oxidative stress formed from protein tyrosine residues by hypobromic acid derived from eosinophils.³ This study aim to assess the level of urinary bromotyrosine and eosinophils count in asthmatic patients.

Methods

This study was a cross-sectional study on stable asthma patients, who were treated at the asthma polyclinic at Persahabatan Hospital, Jakarta, Indonesia between Januari to May 2021. Sampling was carried out by consecutive sampling and subjects were examined for their blood eosinophils and urine bromotyrosine by ELISA.

Results

This study included 48 asthma patients. There was a difference between median value of urinary bromotyrosine levels in asthma patients (0.942 g/mL) and control (0.748 g/mL) although it was not significant ($p = 0.798$). The mean value of absolute blood eosinophil levels in asthma patients was 345 cells/mm³, while the mean value of blood eosinophil count in asthma patients was 4,2%.

Conclusion

The level of bromotyrosine urin and eosinophil count was higher among asthma group.

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AP09-510

A Cost-Effectiveness Analysis of Introducing Budesonide/Formoterol in Vietnamese Patients with Moderate to Severe Asthma

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Background and Aim

We evaluated the cost effectiveness of bud/form for maintenance and relieve (SMART) in moderate to severe asthma compared to the higher dose of ICS+LABA from the perspective of the Vietnam's health care system.

Methods

A Markov chain model was conducted to evaluate the costs and consequences of adopting SMART versus the higher dose of ICS+LABA. We extracted our clinical parameters from a systematic review and meta-analysis. We considered all direct and indirect medical costs, including the costs of exacerbations, physician visits and laboratory tests. All costs were presented in Vietnamese Dong (VND) in the financial year 2021. The unit costs were captured from national data and the resource utilization was validated from expert panel. Deterministic and probabilistic sensitivity analyses were conducted to ensure the robustness of our model.

Results

We evaluated two scenarios in treating moderate to severe asthma patients with SMART against the higher dose of ICS+LABA. In the first scenario where Bud/Form Turbuhaler 1 inhalation bid was compared to sal+flu Evohaler 2 inhalations x 25/125mcg, the incremental cost per QALY gained resulted was VND-46,056,122,604. In the second scenario, Bud/Form Turbuhaler 2 inhalations bid compared to sal+flu Evohaler 2 inhalations x 25/250 resulted in VND-39,957,016,273 per QALY gained.

Conclusion

In moderate to severe asthma, comparing SMART to a higher dose of ICS+LABA resulted in low costs and better outcomes (cost saving option). This conclusion will guide the decision makers in Vietnam in putting the best treatment option in the management of moderate to severe asthma.

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AP09-511

The correlation between the blood eosinophils and neutrophils count with severity in stable asthma patients in lampung, Indonesia

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Background and Aim

Asthma is a heterogeneous disease that is typically defined by chronic airway inflammation causing respiratory symptoms such as wheezing, shortness of breath, chest tightness, and coughing.¹ Asthma is a chronic disease that can occur at any age.² There are two inflammatory phenotypes in the airways of asthmatics, namely, eosinophil or neutrophil inflammation.^{3,4} This study aimed to determine the correlation between the count of blood eosinophils and neutrophils with the degree of severity in stable asthma patients.

Methods

The study used observational analysis with a cross-sectional approach. The number of samples was 225 samples from medical records at Harum Melati Respiratory Clinic, Lampung. Data were recorded in the form of patient characteristics, spirometry examination results, and blood laboratory test results of eosinophils and neutrophils count.

Results

The result showed that there was a correlation between eosinophils count ($p = 0.000$), rod neutrophils count ($p = 0.001$), and segment neutrophils count ($p = 0.006$) with the severity of stable asthma. FEV1/PVC values is $\pm 51\%$ and PEF values is $\pm 58\%$.

Conclusion

Elevated eosinophil and neutrophil levels were detected in patients with stable asthma of severity grades.

AP09-512

The Correlation of Interleukin-33 Levels with Controlled Asthma in Pregnancy

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Abstract—Objectives

Asthma is one of the most common chronic medical conditions that may complicate pregnancy. The main role of Interleukin 33 (IL-33) in the pathogenesis of asthma is the activation of Th2 cells. Interleukin 33 activates the production of Th2 cells by naive T cells through the IL-33 receptor (ST2). The underlying immunological mechanisms in asthma pregnancy are not fully understood.

This study aims to determine the differences of IL-33 levels in uncontrolled asthma, partly controlled, well controlled compared with non-asthmatic pregnant women. Methods: This was a case control study and conducted in Makassar Indonesia from November 2020 to June 2021. Examination of IL-33 levels were performed from blood samples and the level of asthma control determined by GINA 2020 Criteria. Results: Women with Asthma in pregnancy were 40 subjects and 40 non asthma in pregnancy as control. Subject of asthma in pregnancy were 14 uncontrolled, 16 partly controlled and 10 well controlled. The mean age was not significantly different between the subjects of pregnant women with asthma in pregnancy (28.025 + 5.17years) and pregnant women without asthma (28.025 + 4.26 years). In this study serum IL-33 levels were not significantly different in pregnant women with asthma pregnant and women without asthma (1.77 + 0.91 vs 1.60 + 0.86; and statistically not significant (p=0.38). Serum IL-33 levels were not significant different in uncontrolled asthma compared with partly controlled asthma (1.62 + 0.85 vs 1.98 + 0.7 with p value = 0.44). Conclusion: Serum IL-33 levels were not different in women with asthma pregnancy compared with pregnant women without asthma.

Keywords

asthma, pregnancy, controlled

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There was no conflict of interest in this study

AP09-513

Beyond asthma control, life-changing encounter with a holistic medical paradigm of Korean Eight Constitution Medicine: In-depth pragmatic case studies for asthma patients in Australia

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Background and Aim

Research has confirmed that not all asthma is the same. People present with different trigger factors, inflammatory responses, and symptoms. Korean Eight Constitution Medicine (ECM) recognises these differences as deriving from inherent physiological and psychological traits. ECM uses different acupuncture and dietary regimens to treat asthma on this basis. This is the first ECM clinical case study outside Korea to explore ECM as a complementary therapy for asthma.

Methods

In-depth Pragmatic Case Study was conducted for three asthma patients in Australia and the clinical outcomes were analysed utilising Mixed Method model. Medical diagnosis and Pulmonary Function Test confirmed the asthma condition. Twice weekly ECM acupuncture treatments were provided over three to six months, between March and September 2021. Each semi-structured consultation was audio-recorded and the discourse was analysed using Conversation Analysis method. The clinical outcomes were analysed against the patient's baseline using the medical diagnostic tools and the patient's self-assessment: PEF, ACQ, and miniAQLQ.

Results

ECM was effective in managing asthma and promoting health across five domains: 1) reduced asthma medications, 2) good asthma control, 3) improved comorbidities, 4) significantly improved quality of life, 5) positive changes to attitude, feelings, and thoughts toward life.

Conclusion

This research explored the effects of ECM on three asthma patients in Australia. The results demonstrated not only good control of asthma but also life-changing empowerment to the patient, and therefore present a promising opportunity for the holistic care approach of ECM to be a valuable complementary therapy for asthma patients in Australia.

Ethics Approval and consent to participate

UTS HREC approved the study and the informed consents were received by each patient prior to the study.

Acknowledgments

The authors very much appreciate: for Professor Helen Reddel (Woolcock Institute of Medical Research) and Professor Elizabeth Juniper (QoL Technologies) for providing permission to use the clinical outcome measures

of PEF, ACQ, and mini-AQLQ; for Invitation to Health, GenBiome, Chinabooks, and Asthma Australia for assisting participant recruiting and supporting clinical study.

AP09-514

The Relationship Between Neutrophil to Lymphocyte Ratio and Severity of Asthma Attack at General Hospital of Dr. Soedirman Kebumen, Central Java, Indonesia

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Background and Aim

Asthma is caused by a hypersensitivity reaction that causes the activation of inflammatory mediators. An elevation of the neutrophil to lymphocyte ratio (NLR), an indicator of inflammation, has been associated with disease severity, hospitalization, malnutrition, and mortality in various chronic diseases such as cardiovascular, and chronic obstructive pulmonary disease (COPD). There is also a chronic inflammation in asthma. Cytokines in the pathogenesis of asthma cause an increase in neutrophils. This research aims to know the relationship between neutrophil to lymphocyte ratio and the severity of asthma attacks at the General Hospital of Dr. Soedirman Kebumen, Central Java, Indonesia.

Methods

This research is using a cross-sectional study method with a total of subjects consisting of 25 pediatric patients in General Hospital Dr. Soedirman Kebumen from January 2018 until December 2019. Subjects were male and female, aged 1-17 years old who only had a diagnosis of bronchial asthma and no comorbidities and had complete medical record data. The data taken were the severity of asthma attack (mild-moderate, severe, and asthmatic status) based on GINA diagnostic criteria and the patient's neutrophil and lymphocyte data to calculate the NLR. The data obtained were then analyzed using statistical analysis software chi-square type.

Results

The results showed that there were 17 subjects with mild-moderate asthma attacks and the mean of the NLR value is 5.23 ± 1.14 , there were 4 subjects with severe asthma attacks and the mean of the NLR value is 19.33 ± 5.01 , there were 2 subjects with asthmatic status and the mean of the NLR value is 8.3 ± 0.15 . The statistical analysis results showed a relationship between NLR and the severity of asthma attacks in the subjects with a p-value

Conclusion

There is a relationship between the neutrophil to lymphocyte ratio (NLR) and the severity of asthma attacks in the subjects with a p-value < 0.05 .

All authors declare no potential conflicts of interest.

AP09-515

Gene expression profiles in upper and lower airways from fungus-induced allergic united airway disease murine model

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Therapeutic approaches for numerous conditions involving respiratory tract have been artificially categorized into upper and lower airways and treated independently. Recently, increasing number of studies have reported similar pathobiological mechanisms between upper and lower airways, thereby providing a scientific rationale for the development of therapeutic agent effectively working on united airways. However, not enough information exists on the similarities and differences in the behaviors between upper and lower airways in the specific disease context. Herein, we firstly established the allergic united airway disease murine model induced by *Aspergillus fumigatus* (Af) and investigated the gene expression profiles between upper and lower airways. Firstly, we confirmed the successful establishment of Af-induced allergic airway inflammation in both upper and lower airways using histopathology and biochemical assays, respectively. Then, transcriptomic data revealed top 10 upregulated genes in the sinonasal cavity (Mcpt1, Mcpt2, Ighv2-3, Ighg1, Ighe, Ighv5-4, Mcpt9, Clca1, Ighv8-12 and Igkv8-30) and lung tissues (Rnase2a, Ighe, Ighg1, Chil4, Mcpt2, Mmp12, Ccl8, Rph3a, Msx3 and Igkv14-126) in this model. Pathway enrichment analyses suggested that pathways related to various immune responses (NK cell-mediated cytotoxicity, antigen processing and presentation, chemokine signaling pathways, etc.), and infectious diseases (Influenza A and *Staphylococcus aureus* infection, etc.), were more enriched in upper airways than lower airways. However, pathways related to endocrine systems (adipocytokine signaling pathway etc.), and signal transductions associated with Wnt and TGF β were downregulated in the lung tissues than those in upper airways. These data on the different gene expression profiles between upper and lower airways in the allergic phenotype of united airway disease might be helpful for the optimal design of therapeutic drug for the allergic airway disease.

AP09-516

The Correlation of Immunoglobulin E Plasma Levels with Asthma Controlled in Pregnancy

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Background and Aim

The immunological mechanisms of asthma in pregnancy are not fully understood. This study aims to determine the differences of IgE levels in uncontrolled asthma, partly controlled, well controlled compared with non-asthmatic pregnant women. Methods: This was a case control study in Makassar Indonesia from November 2020 to June 2021. Examination of IgE levels were performed from blood and the level of asthma control determined by GINA 2020 Criteria. Results: Women with Asthma in pregnancy were 40 subjects and 40 non asthma in pregnancy as control. Subject of asthma in pregnancy were 14 uncontrolled, 16 partly controlled and 10 well controlled. The mean age was not significantly different between the subjects of pregnant women with asthma in pregnancy (28.025 + 5.17 years) and pregnant women without asthma (28.025 + 4.26 years). Serum IgE levels were higher in pregnant women with asthma than pregnant women without asthma (529.8 + 688.11 IU/mL vs 66.77 + 119.09 IU/mL; p=0.001). IgE levels were higher in uncontrolled asthma compared with partly controlled asthma (801.02+ 170 IU/mL vs 476.93 + 143 IU/mL). IgE levels were higher in Partly controlled asthma compared with well controlled asthma (476.93 + 143 vs 72.75 + 26.47; p value = 0.001). Conclusion: Serum IgE levels were higher in women with asthma pregnancy compared with pregnant women without asthma and the highest levels of IgE were found in uncontrolled asthma.

Keywords

asthma, pregnancy, controlled

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AP09-517

Ovalbumin exposure contributes to glucocorticoid resistance in a chronic murine model of asthma associated with increased phosphorylation of GR S226 and p38 MAPK

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Background and Aim

This study aims to investigate whether ovalbumin exposure can induce glucocorticoid resistance as a result of p38 MAPK activation in asthma.

Methods

A chronic murine model of asthma was established by exposure to ovalbumin sensitization and challenge. The characteristic features of allergic asthma, including airway hyperreactivity, histopathology of lung tissues, inflammatory cytokine levels in bronchoalveolar lavage fluid (BALF), and IgE levels in serum were examined. Furthermore, the inhibitory effects of corticosteroid on the proliferation and cytokine secretion of splenocytes under stimulation of LPS, glucocorticoid receptor (GR) DNA-binding activity of splenocytes, expression of GR α and phosphorylation of GR s226 in splenocytes, and p38MAPK phosphorylation in splenocytes and lung tissues were determined.

Results

Ovalbumin exposure markedly induced airway hyperresponsiveness, increased inflammatory infiltration in lung tissues, and elevated levels of IL-4, IL-5, and IL-6 in BALF and IgE in serum, as well as increasing phosphorylation of p38 MAPK in lung tissues. Furthermore, ovalbumin exposure significantly weakened the inhibitory effects of corticosterone on the proliferation and cytokine secretion of splenocytes, impaired the GR DNA-binding activity, and increased the phosphorylation of GR S226 and p38MPAK in splenocytes in asthma group.

Conclusion

Taken together, ovalbumin exposure contributes to steroid resistance in chronic asthma, which is associated with increased phosphorylation of GR S226 and p38 MAPK.

The authors declare that they do not have any commercial or associated interests that represent conflicts of interest in connection with the work submitted.

AP09-518

THE RELATIONSHIP OF ADHERANCE LEVEL OF INHALER USE TO CLINICAL SYMPTOMS IN ASTHMA PATIENTS IN PRINGSEWU, LAMPUNG

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Background

Asthma is a respiratory disease that is generally characterized by an inflammation of the airways. Several important factors are influencing the prognosis, one of which is patient compliance in undergoing inhaler treatment. The high level of adherence to therapy in asthmatic patients will have a good effect on improving lung function.

Methods

This study used a descriptive-analytic design with a cross-sectional study approach. The parameters used were the level of adherence using the MMAS-8 questionnaire and asthma symptoms using the GINA asthma control level questionnaire. Sampling was carried out at the Harum Melati Clinic and RSU. Wisma Rini Pringsewu. A population of 173 asthma patients was obtained, but only 126 samples met the criteria, namely patients who used inhalers and did not have other lung diseases.

Results

Based on the results of this study using the Spearman correlation test, it was found that there was a relationship between the level of adherence to inhaler use and clinical symptoms in asthmatic patients with $p = 0.000$, and a positive correlation coefficient of $r = 0.376$, which means it has a low or weak relationship (95% CI = 3.34 - 4.26)

Conclusion

There is a relationship between the level of adherence to the use of inhalers and clinical symptoms in asthma patients

Keywords

Asthma, Adherence, Level of control

AP09-519

Real-world efficacy of "fixed triple" single-inhaler combinations in COPD and asthma patients

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Background and Aim

Recently, three "fixed triple" single-inhaler combinations of an inhaled corticosteroid (ICS), a long-acting β 2-agonist (LABA), and a long-acting muscarinic antagonist (LAMA) have become available for patients with chronic obstructive pulmonary disease (COPD) and asthma of moderate severity or higher. The superiority of three "fixed triple" single-inhaler combinations over ICS/LABA combinations has been demonstrated. We examined the patients who already used "fixed triple" single-inhaler combinations at this center for appropriate use in the future.

Methods

We conducted a retrospective review of electronic medical charts of 312 patients with stable-phase asthma, COPD and ACO receiving treatment with "fixed triple" single-inhaler combinations for 2 year (April 1, 2020 to March 31, 2022).

Results

In patients with asthma, eosinophil count and FeNO were reduced and %PEF values were also improved. (p

The high rate of continuation rate of use of "fixed triple" single-inhaler combinations was a result supported by the effectiveness of the three different "fixed triple" single-inhaler combinations

AP09-520

VALIDITY AND RESPONSIVENESS OF EUROQOL-5-DIMENSIONS IN ASTHMA: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Objectives

We synthesized published evidence on the construct validity (CV), and responsiveness (R) of EQ-5D and compare them with asthma-specific HRQoL scales, to guide its further research and clinical applications in asthma.

Methods

We searched key databases from inception to 19 June 2021, and used the COnsensus-based Standards for the Selection of Health Measurement Instruments (COSMIN) methods to appraise the evidence. The effect size estimates were aggregated using the inverse variance method to evaluate the relative efficiency of EQ-5D measures against Asthma Quality of Life Questionnaire (AQLQ) and/or its corresponding preference-based index, Asthma Quality of Life-5 Dimensions (AQL-5D).

Results

There were 481 tests (CV:417; R:64) drawn from 29 selected articles (validation:7; clinical:22). Overall, 77.5% and 76.6% of the A-priori hypotheses tested for assessing CV (convergent validity:56.1%; known-groups:88.1%) and R, respectively, were satisfied. The methodological quality was "very good" or "adequate" in 77.2% of CV tests and 92.2% of R tests. Pooled correlation coefficient between EQ-5D index and AQLQ total scores was 0.52 (95% CI, 0.43-0.59), and between VAS and AQLQ total scores was 0.53 (95% CI, 0.34-0.69). The Cohen's d ratios for the index, LSS and VAS compared to AQLQ were 0.58 (number of tests, n=24), 1.09 (n=16), and 0.77 (n=37), respectively; The Cohen's d ratio for the EQ index compared to AQL-5D was 0.38 (n=4). The SRM ratios for the index and VAS compared to AQLQ were 0.26 (n=10) and 0.63 (n=9), respectively.

Conclusion

EQ-5D appears to be a valid and responsive instrument to measure health-related quality of life in patients with asthma.

(250 words)

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AP09-521

The asthma some risks of adults in the Industrial city

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Background and Aim

Asthma is a complex factors environmental influence and genetic. It imposes a growing burden on our society in terms of morbidity, quality of life, and healthcare costs.¹⁻³ The study investigated the some risk factors of asthma among adults in industrial city.

Methods

Cross-sectional study was conducted in industrial city the Orkhon of the Mongolia from June to October 2019. The study involved 107 asthma patients and 478 healthy individuals, with peripheral blood sampling, Chronic Respiratory Disease Survey questionnaire of the Asia Pacific. The research ethics permit was obtained from Biomedical Ethics Review Committee of Mongolian National University of Medical Science №2019/D-06. Patient with diagnosed old asthma and current new asthma were analyzed for some risk factors and peripheral blood count of eosinophilia.

Results

An average age of 50.3 ± 9.2 . Of these, males were 50.4 ± 9.4 , 47.9% (n = 284), and females were 50.1 ± 8.9 . Old asthma was 12.5% (74) new asthma diagnosed 5.9% (35). Questionnaire validation is 88.5% by Cronbach alpha. Mean value of FEV₁, FVC and eosinophil count were different in asthma and normal population. Communities in close proximity to mine dumps had an increased likelihood of asthma: female OR 1.84 (95 % CI: 1.14-2.95) p=0.01, residence in industry OR 1.52 (95 % CI: 0.95-2.32), p=0.05, heavy occupation OR 1.37 (95 % CI: 0.83-2.26).

Conclusion

Women are more likely to suffer from asthma. Also, living close to the mining area and working harsh, occupational hazardous increase the risk of asthma.

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AP09-522

The significance of soluble ST2 in patients with bronchial asthma

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Background and Aim

Aggravation of bronchial asthma (BA) results in a significant reduction in the quality of life of patients with this condition. Therefore, useful markers for understanding and managing the medical condition of BA are required. Soluble suppression of tumorigenicity 2 (sST2) is a decoy receptor for interleukin (IL)-33. In this study, we investigated the significance of sST2 in patients with BA.

Methods

We recruited patients with BA who visited our hospital from 2020 through 2021. We evaluated several indicators such as severity of BA, blood tests, and lung function tests. Serum levels of sST2 were quantified using ELISA kits.

Results

This study included 89 patients (46 men) whose median age was 67 years (IQR: 53 to 77 years). The numbers of patients meeting the criteria for treatment steps according to the Japanese Asthma Prevention and Management Guideline were as follows: step 1, 13 patients; step 2, 17 patients; step 3, 33 patients; and step 4, 26 patients. Serum sST2 levels showed a statistically significant correlation with white blood cell count ($r_s=0.309$, $p=0.003$), neutrophil count ($r_s=0.303$, $p=0.004$), C-reactive protein ($r_s=0.282$, $p=0.008$), IL-6 ($r_s=0.251$, $p=0.018$), and treatment steps ($r_s=0.219$, $p=0.039$). Furthermore, serum levels of sST2 in the severe BA group were significantly higher than those in the mild-moderate BA group ($p=0.031$).

Conclusion

Serum sST2 may be a useful marker that reflects neutrophilic inflammation and severity in patients with BA.

AP09-523

Association between house dust mite specific immunoglobulin E and fractionated exhaled nitric oxide in uncontrolled asthma patients

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Background and Aim

Asthma affects approximately 300 million people worldwide. Most allergic asthma is associated with airway sensitization due to exposure to common aeroallergens, particularly from house dust mites (HDM). Activation of airway inflammatory pathways that occur due to allergen exposure will produce fractionated exhaled nitric oxide (FeNO). This study aims to determine the relationship between *Dermatophagoides pteronyssinus* and *Dermatophagoides farinae* specific IgE levels with FeNO levels in uncontrolled asthma patients.

Methods

This cross sectional study in 86 uncontrolled asthma patients based on asthma control test less than 24 points. HDM-specific IgE assay using protia Q96M. FeNO examination using Bedfont NObreath.

Results

From 86 subjects with uncontrolled asthma, the mean age of uncontrolled asthma patients at Persahabatan Hospital was 52.45 + 12.94 years, most of them were female (84.9%). The proportion of asthma patients who were allergic to HDM reached 64 %. The median level of specific IgE for HDM in subjects was 3.94 (0-100) IU/ml for Der p and 4.47 (0-100) IU/ml for Der f. There was a significant relationship between specific IgE levels Der p (p value = 0.009, r = 0.279, Spearman's test) and Der f (p value = 0.001, r = 0.339, Spearman's test) and FeNO.

Conclusion

There is a significant relationship between the levels of specific IgE for HDM Der p and Der f with FeNO in patients with uncontrolled asthma. However, the correlation level obtained is weak.

Keyword

Asthma, house dust mite, fractional exhaled nitric oxide, immunoglobulin E.

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AP09-524

Assesment of quality of life in asthmatic patients and influencing factors

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Background

Quality of life is a key component of health in asthmatics patients, and is a measure of the patients well-being and treatment effectiveness.

Aim

Assess the quality of life in asthma patients, to determine the factors leading to poor quality of life.

Methods

The study was done by hospital-based cross-sectional method. Comprising a total of 50 people, the quality of life of asthma patients was assessed using the "Sydney Asthma Quality of Life Questionnaire" (total 20 questionnaire, marking each symptoms on a scale of 1 to 5 points for last 4 weeks, 1 point no symptoms, 5 points most strong), also asthma control level and severity of exacerbation was determined by GINA guidelines. The questionnaire was translated by the Brislin method and the internal reliability was Cronbach $\alpha = 96\%$. Data were analyzed using SPSS-25

Results

The average age of patients was 56 ± 10.3 year, of which female 84% (42). In this study, 68% (34) reported a poor quality of life (QoL) (cut-off point 2.5), the average score of QoL was 3.3 ± 1.2 (breathlessness and social 3.3 ± 1.3 ; mood 2.8 ± 1.2 ; concern 3.8 ± 1.3). Asthma severity of exacerbation ($r=0.6$, $p=0.001$), asthma control levels ($r=0.43$, $p=0.002$), knowledge of asthma ($r=0.35$, $p=0.01$), stepwise treatment ($r=0.34$, $p=0.01$) and emergency department ($r=0.3$, $p=0.04$) significantly contributed to asthma QoL. Poor QoL is increased severity of exacerbation (OR=21.4), emergency department (OR=7.2), stepwise treatment (OR=5.4) and inadequate knowledge of asthma (OR=2.36).

Conclusion

Asthma quality of life was poor (68.0%). The quality of life is most affected by the severity exacerbation, the need for emergency care and follow-up treatment steps.

AP09-525

The measurement of obesity associated with the levels of asthma control among Thai female asthmatic populations

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Background

Asthma prevalence increases in obese and overweight patients. Significantly, females have more abdominal obesity than males. Obese asthma has poor symptom control and worsening response ICS compared with non-obese asthma. However, the effective measurement of obesity in asthmatic patients is unclear. The aim of the study was to measure obesity associated with the levels of asthma control among Thai female patients.

Methods

Cross-sectional descriptive study in asthmatic females, aged ≥ 18 years old, from 12 hospitals were assessed. We measured obesity by four methods, including Body Mass Index (BMI), Waist Circumference (WC), the Waist Hip Ratio (WHR), and Fat Mass (FM). Fat mass was measured by the bioelectrical impedance analysis. Asthma control was assessed by the Asthma Control Test (ACT) tool.

Results

Among 329 female participants, a total 67.8% had ability to well control asthma. According to the BMI (Body Mass Index), WC (Waist Circumference), WHR (Waist Hip Ratio), and FM (Fat Mass) respectively, a total of 24%, 56.5%, 77.5%, and 40% were obese. A Chi-square test showed that body mass index and fat mass were independently associated with the levels of asthma control in female asthmatic patients.

Conclusion

The result showed that female asthmatic patients with normal BMI and acceptance levels of fat mass had ability to control asthma. Therefore, the healthcare team should assess obesity by measuring the BMI and fat mass of female asthmatic patients.

Keywords

level of asthma control, female, obesity

Acknowledgement: This study was supported by the Master of Nursing Science Program in Adult and Older Adult Nursing, Faculty of Nursing, Thammasat University, and the Center of Excellence for Allergy, Asthma and Pulmonary Disease, Thammasat University Hospital.

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Factors		Well controlled (n=223)	Uncontrolled (n=106)	χ^2	p-value
1. BMI	obese	46 (20.63)	33 (31.13)	4.345	.037*
	non-obese	177 (79.37)	167 (72.93)		
2. WC	obese	118 (52.91)	68 (64.15)	3.691	.055
	non-obese	38 (35.85)	105 (47.09)		
3. WHR	obese	168 (75.34)	87 (88.08)	1.875	.171
	non-obese	55 (24.66)	19 (17.92)		
4. FM	obese	77 (34.53)	56 (52.83)	9.992	.002**
	Non-obese	146 (65.47)	50 (47.17)		

BMI; Body Mass Index, WC; Waist Circumference, WHR; Waist Hip Ratio, FM; Fat Mass

AP09-526

Clinical features of *Aspergillus* sensitisation in uncontrolled asthma patients : a pilot study in Indonesia

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Background

Asthma is a heterogenous disease with characteristics of chronic airway inflammation. *Aspergillus* sensitisation (AS) is an early condition of pulmonary aspergillosis in asthma, which could progress to Allergic Bronchopulmonary Aspergillosis (ABPA). The diagnosis of AS was obtained if the hypersensitivity reaction is positive to the *A.fumigatus*, while the diagnosis of ABPA was obtained from clinical, immunological and radiological characteristics.

Methods

This pilot study was designed as a cross sectional study conducted from 86 subjects started November 2020 until January 2022 in Asthma Clinic Persahabatan Hospital. Assessment of asthma control was according to the Asthma Control Test (ACT) with score ≤ 24 . Based on *A.fumigatus* specific IgE, the subjects were divided into AS positive and AS negative.

Results

The proportion of uncontrolled asthma patients who had AS was 3.5% (3/86) while the proportion of ABPA was 1.1% (1/86). There were factors that influenced AS in uncontrolled asthma, including pulmonary TB history ($p=0.03$). Characteristics of clinical symptoms of cough with productive and brownish phlegm were found in 2/3 of the AS. Immunological characteristics in subjects with AS obtained a median value with a total of IgE 465 (22-1690) IU/ml and a median of total eosinophil count 380 (0-770) cells/ μ l. Radiological features of ectasis and fibro-infiltrate were found in 2/3 of subjects with AS.

Conclusion

Diagnosis of AS in uncontrolled asthma patients should be carried out early, especially in patients with a history of pulmonary TB. This can prevent AS developing into ABPA and permanent lung damage.

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AP09-527

FEF 25-75% and its correlation with markers of allergic inflammation

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Introduction

FEF25-75% is considered a marker of small airway obstruction [1] and correlates well with raised fractional exhaled nitric oxide (FeNO) and peripheral blood eosinophil counts (BEC) [2]. A reduced FEF25-75% correlates with a positive methacholine challenge (MCT) in patients with non-obstructive spirometry and asthma like symptoms [3]. Here we present data to explore a correlation between FEF25-75% and BEC or total IgE

Methods

Data collected for patients with non-obstructive spirometry who had a MCT done between April 2014 and January 2020. Quantitative variables were expressed as mean and standard deviation. Categorical variables expressed as numbers and percentages. Statistical comparisons between continuous characteristics were carried out using the t-test, and a significant p-value was taken to be < 0.05. Linear regression was used to ascertain a link between the FEF25-75% and the independent variables i.e. BEC and IgE

Results

Notes for 483 were reviewed, baseline characteristics are shown in table 1. No difference noted in IgE and BEC values for patients with FEF25-75% 65% (table 2). Comparing MCT positive versus negative patients, there was no significant difference in IgE however BEC was significantly higher in MCT +ve patients; 2.43 vs 1.76, p value 0.04 (table 2). Regression didn't show a relationship between FEF 25-75% and BEC and IgE even when only MCT +ve were included (table 3)

Conclusion

In our cohort of patients with asthma like symptoms and non-obstructive spirometry, we did not find a link between reduced FEF25-75% and increased total IgE or BEC.

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Table 1:

	n	mean	±Std dev
<i>Age</i>	483	36	±13
<i>BMI</i>	483	28.2	±6.3
<i>Absolute FEV1</i>	483	3	±0.72
<i>% FEV1</i>	483	90.4	±11
<i>FEV1/FVC</i>	483	83.7	±5.9
<i>FEF 25-75</i>	483	3.3	±1
<i>%FEF 25-75</i>	483	96.1	±23.3
<i>IGE</i>	295	213.1	±368
<i>Eosinophil</i>	340	2.01	±2.6

AP09-528

Bronchoalveolar Lavage Fluid Cytokines Changes After Bronchial Thermoplasty

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Background

Bronchial thermoplasty (BT) is a non-pharmacological intervention in severe asthma. The well-known mechanism of BT is the reduction of airway smooth muscle. However, the effect on airway inflammation remains uncertain.

Aims

The study aimed to investigate the effect of BT on bronchoalveolar lavage fluid (BALF) cytokines before, during, and 12 weeks after BT in severe asthma patients.

Methods

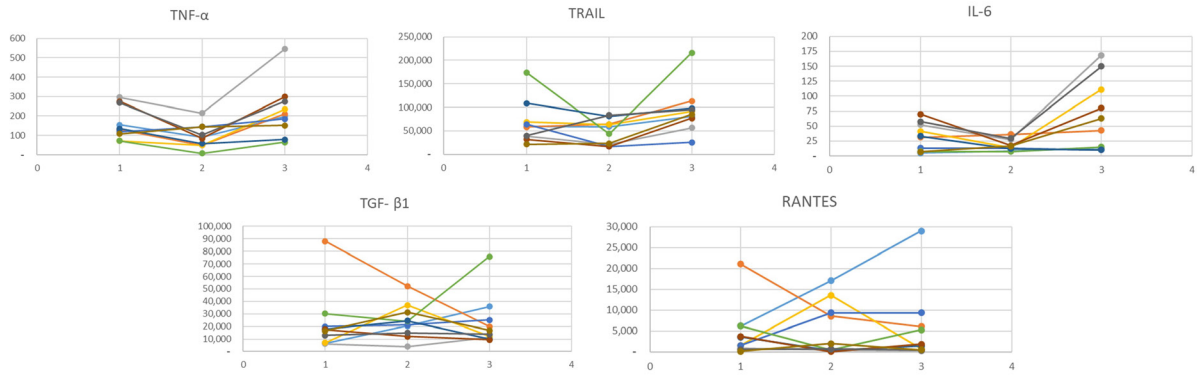
Ten severe asthma patients were recruited. BALF was obtained from right lower lobes before BT, after 1st BT, and 12 weeks after BT. BALF cytokines were measured and values compared between each time point. Lung function and symptom score were measured pre and post-BT.

Results

Tumor necrosis factor (TNF)- α concentration was significantly decreased after 1st BT and significantly increased at 12 weeks after BT. Interleukin-6 (IL-6) and TNF-related apoptosis inducing ligand (TRAIL) concentration were significant increased at 12 weeks after BT. There were no significant changes in the level of Regulated upon activation, normal T-cell expressed and secreted (RANTES) and transforming growth factor-beta (TGF- β) concentration over time after BT. At 12 weeks after BT, there were significantly greater improvements in the scores on the AQLQ (3.93 ± 0.88 to 5.3 ± 0.99 , $p=0.002$) and score on ACT (13.6 ± 3.27 to 19 ± 4.44 , $p=0.002$). The post bronchodilator forced expiratory volume in 1 second did not differ significantly between pre- and post-BT.

Conclusion

BT has limited effect on TNF- α , IL-6, TRAIL, RANTES, TGF- β in BALF suggesting that its clinical benefit may not be related to these cytokines. The effect on long-term airway inflammation probably needs further studies.



AP09-529

Vitamin D content in pregnant women with bronchial asthma in a sharply continental climate

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Background and Aim

Bronchial asthma is widespread among pregnant women. The winter period in the Amur region is 6-7 months. At this time, the UV index is 0, which means that the inhabitants of the Amur Region are already predisposed to vitamin D deficiency. In this regard, it is of interest to study the characteristics of the course of asthma during pregnancy, depending on the level of vitamin D, taking into account territorial characteristics, which was the purpose of this study.

Methods

The study involved 100 pregnant women with asthma and 50 pregnant women of the control group were examined. All pregnant women were determined the level of vitamin D in the blood serum using high performance liquid chromatography.

Results

The average level of vitamin D in pregnant women with asthma was significantly lower than in the comparison group ($p=0.01$). Moreover, the lower the level of vitamin D, the more severe the disease. It was found that the lowest level of vitamin D was in pregnant women with severe uncontrolled asthma (p

Conclusion

Thus, vitamin D deficiency leads to a worsening of the course of asthma during the gestation period and a greater number of exacerbations, compared with its optimal content.

AP09-530

Eosinophilic inflammation in asthma patients with various types of airway hyperresponsiveness

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Background

Eosinophilic inflammation is one of the links in the pathogenesis of asthma, which causes the development of airway hyperresponsiveness (AHR). We aimed to assess the eosinophilic inflammatory profile in asthma patients with cold AHR in combination with exercise-induced bronchoconstriction (EIB) and/or AHR to hyposmolar and hyperosmolar stimuli.

Methods

The study involved 142 patients with moderate asthma. The level of asthma control was assessed by Asthma Control Test. Cold AHR was diagnosed by 3-minute isocapnic hyperventilation with cold air, EIB - by 6-minute dosed loading on the treadmill. AHR to hyposmolar stimulus was detected using 3-minute ultrasonic inhalation of distilled water, to hyperosmolar stimulus - by inhalation of hypertonic solution. The number of eosinophils in induced sputum after bronchoprovocation was expressed as a percentage of the total number of cells.

Results

Four groups were formed. Group 1 included 82 patients with cold AHR, group 2 included 15 patients with a combination of cold AHR and EIB, group 3 included 32 patients with a combination of cold and hiposmolar AHR, group 4 - 13 patients with a combination of cold and hyperosmolar AHR. The numbers of eosinophils in the induced sputum of patients in groups 1 to 4 were $11.1 \pm 1.2\%$, $20.4 \pm 4.3\%$ ($p < 0.01$), $20.8 \pm 2, 5\%$ ($p < 0.001$), $26.1 \pm 5.7\%$ ($p < 0.001$), respectively. The level of asthma control worsened with a combination of various types of AHR: 17.7 ± 0.6 , 14.2 ± 1.6 ($p < 0.05$), 15 ± 0.89 ($p < 0.05$), 15.1 ± 1.6 ACT points, respectively.

Conclusion

There is dissociation between the depression of the bronchial eosinophilic pool and the asthma control in patients with different AHR.

AP10-531

Quality of life in OSA patients

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Aims and objectives

1. To study the quality of life of OSA patients
2. To correlate this with the severity of OSA

Material and methods

Sample size: 50 patients with OSA and on treatment

Inclusion criteria

1. Patients aged 20 years and above
2. Patients diagnosed with OSA as per PSG
3. Patients on treatment for OSA
4. Patients on regular follow-up

Exclusion criteria

1. Patients unable to consent
2. Patients with comorbidities
3. Patients with CNS lesion and unable to follow commands
4. Patients on anti-tubercular therapy

Methodology

Patients fulfilling the inclusion criteria were given the SF-36 questionnaire.

Results

1. Our study population had 50% males and 50% females
2. Most common age group of our study population was 46 ± 7 ; $p\leq 0.01$
3. 9 patients in our study had mild OSA
4. 28 patients in our study had moderate OSA
5. 13 patients in our study population had severe OSA
6. SF-36 score in mild OSA patients was 68.1 ± 10 ; $p\leq 0.05$
7. Moderate OSA patients had SF-36 score 55.7 ± 8 ; $p\leq 0.03$
8. Severe OSA patients had SF-36 score 21.9 ± 11 ; $p\leq 0.01$

Conclusion

It can thus be concluded that the quality of life deteriorates with the increasing severity of OSA. Early diagnosis and appropriate treatment can significantly reduce the morbidity and mortality associated with the disease and can also improve the overall quality of life of the patients. Actively diagnosing and appropriately treating the OSA patients can improve their quality of life.

AP10-532

Heart Wrenching Non Compliance Require Personalized Solutions

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Introduction

Non compliance with positive airway pressure therapy is challenging. We present a case of a patient treated with positive airway pressure therapy with a unique compliance issue.

Case Report

A 75 year old gentleman with severe sleep disordered breathing was successfully treated with positive airway pressure with adaptive servo ventilation delivered via a full face mask. At follow up, the patient was non compliant. We discovered that his wife who co-sleeps with him, suffers from advanced cancer and dementia and needed to be comforted and hear his voice till he fell asleep. If he did not respond to her, she became anxious and agitated. She only fell asleep after him and therefore he was non compliant. We advised the patient to use a nasal pillows interface and gave him a prolonged ramp time. This would enable him to comfort his wife while he was wearing his interface. After his wife fell asleep he would be able to get the pressure he needed. We also advised him to use a wrist alarm so that he could wake himself up and put on PAP therapy after his wife had fallen asleep in the event he forgot it earlier. He implemented the solutions above and was able to improve his usage of PAP therapy and his quality of life.

Discussion

This case highlights the importance of a holistic approach to compliance and the need for solutions tailored to the individual patient. Understanding the circumstances and reasons for non compliance is paramount in efforts to improve compliance.

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AP10-533

A case of rapid eye movement sleep - related bradyarrhythmia syndrome with severe obstructive sleep apnea syndrome

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Introduction

Rapid eye movement sleep-related bradyarrhythmia syndrome is characterized by transient asystole and atrioventricular conductance disturbances during phasic REM sleep.

Case

50-year-old male with loud snoring, excessive daytime sleepiness and tiredness. Pertinent findings: BMI: 30.6 lb/in², small chin, short neck with circumference of 16 inches, modified mallampati IV. Echocardiogram showed concentric left ventricular remodeling. 24-hour ECG showed repeated episodes of second degree AV block type II at nighttime with a maximal duration of 6 seconds ventricular pause frequently noted in the second half of the night. Diagnostic polysomnography showed an AHI of 78.7/hour predominantly obstructive apnea. Electrocardiogram during sleep showed recurrent episodes of bradycardia, as low as 37 beats per minute and 2nd degree AV Block, Mobitz Type II occurring exclusively during phasic REM sleep with longest pause of 6.2 second. Full-night in-laboratory CPAP titration was performed. CPAP of 11 cmH₂O significantly improved AHI to AHI of 0.5/hour with sufficient REM sleep however, arrhythmia during REM sleep persisted. CPAP treatment was started and patient was referred back to cardiologist for a possible pacemaker insertion.

Discussion

OSA - related cardiac arrhythmias showed significant resolution when treated with CPAP. However, during REM sleep, bradyarrhythmia independent of sleep-disordered breathing can be observed. Autonomic nervous system likely the influence in the development of this disorder. The main cause is possibly an increased vagal tone during phasic REM sleep with the absence of normal compensatory sympathetic activity. Patients usually presents variably. Definitive treatment is still debated but pacemaker insertion is considered if indicated.

AP10-534

A case report on complex sleep apnea managed with bilevel positive airway pressure with backup rate (BiPAP-ST)

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Introduction

Complex Sleep Apnea, also termed treatment-emergent central sleep apnea (TECSA) describes emergence of central apnea events following treatment for obstructive sleep apnea (OSA). The aggregate prevalence of continuous positive airway pressure (CPAP)-related TECSA was 8%. Most cases would resolve spontaneously with chronic positive airway pressure (PAP) therapy, but central events may persist in some. Treatment is through application of noninvasive ventilation with a set backup rate, or use of servoventilation.

Case Report

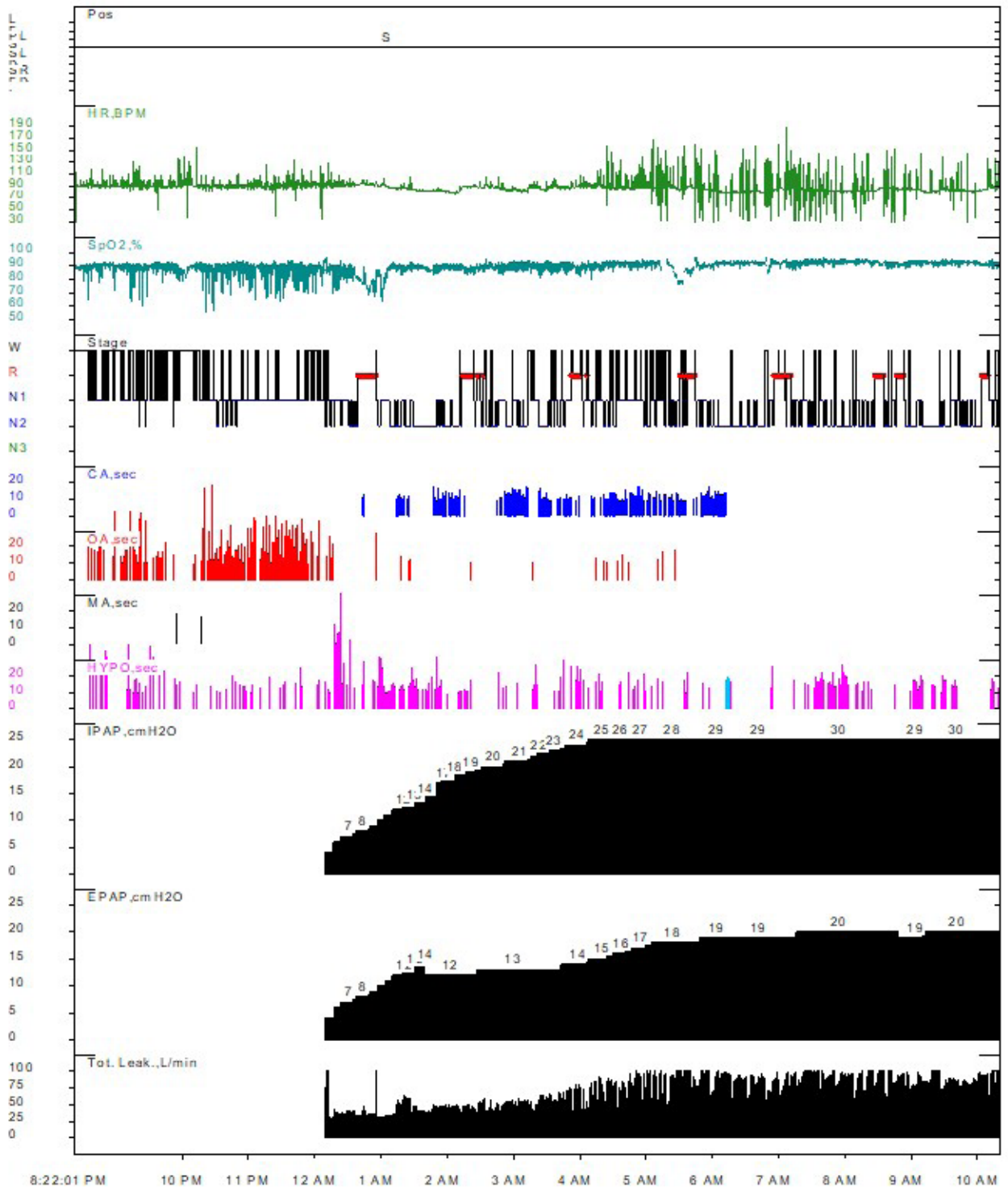
A 54-year-old male admitted for renal failure secondary to diabetic kidney disease and concomitant congestive heart failure (with an ejection fraction [EF] ranging 40-45%) was noted to have apneic episodes and desaturations on admission. Overnight polysomnogram revealed severe OSA (Respiratory disturbance index [RDI] 93.5 events/hour) and underwent PAP titration with central apnea events noted. This improved with the introduction of backup rate (BUR) of 9 cycles/minute. He was prescribed a bilevel PAP with backup rate (BiPAP-ST) during his sleep periods with these settings: Inspiratory PAP (IPAP) 30 cm H₂O, Expiratory PAP (EPAP) 20 cm H₂O, BUR 9/min. Pressures were well-tolerated and good usage compliance was observed, which led to improvement and eventual recovery.

Discussion

Advanced ventilation modes like BiPAP-ST, or adaptive servoventilation (ASV) are utilized for cases with emergent central apnea events, with ASV being superior except in cases of heart failure with reduced EF (having EF of $\leq 40\%$). Patient had ejection fraction of 40-45%, so we opted to err of the side of caution and used a BiPAP-ST device. The relative expense of ASV devices was another important consideration.

Disclosure statement

The investigators have no conflict of interest to declare



AP10-535

Effect of bariatric surgery in morbid obesity with obstructive sleep apnea patients.

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Background

Morbid obesity is related to sleep-disordered breathing; obstructive sleep apnea (OSA) is the most common. The initial effective treatment of OSA is weight reduction. Bariatric surgery is a promising solution for morbid obesity in the OSA.

Methods

A quasi-experimental before and after study of morbid obesity with OSA patients, to evaluate the efficacy of bariatric surgery with a 1-year follow-up of the clinical outcome; determine weight difference, cardiovascular and metabolic components on comorbidities conditions.

The morbid obesity of OSA patients who underwent bariatric surgery performed by laparoscopic sleeve gastrectomy technique from January 2018 to June 2020 was included in the study.

Results

A total of 16 individuals from January 2018 to June 2020 were enrolled in the study. The mean weight was 127.5±28.3 kilograms, mean BMI was 48.5±6.2 kg/m². 1 year after bariatric surgery; there was a difference of the body weight from 127.5±28.3 kg. to 104.4±23.7 kg. (adjusted difference, 190.10; 95% CI, 149.02-231.19; P<0.001), the BMI from 48.5±6.2 kg/m² to 39.8±6.3 kg/m² (adjusted difference, 49.74; 95% CI, 36.68-62.81; P<0.001) and the ESS from 9.8±3.6 to 5.4±1.9 (adjusted difference, 7.84; 95% CI, 1.51-14.17; P=0.015). The percent of EWL and BMI reduction were 18.12 and 17.94.

Conclusion

This study suggests that bariatric surgery is effective for morbid obesity with OSA. There was a significant improvement in comorbidities. Surgical intervention of bariatric surgery using the LSG technique was an effective treatment option for morbid obesity with OSA.

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AP10-536

Recurrent Intracerebral Hemorrhage in a Young Obstructive Sleep Apnea Patient: A Case Report

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Introduction

Hemorrhagic strokes comprise one third of stroke cases and have a higher fatality rate compared to ischemic or transient ischemic strokes. Obstructive sleep apnea (OSA) is a highly prevalent disease, but remains an underrecognized risk factor for hemorrhagic stroke, especially among younger patients.

Case report

We present a case of a 46-year-old male who had recurrent hemorrhagic stroke despite multiple attempts at medical management. Work-up for possible causes of his recurrent strokes were repeatedly inconclusive; however, OSA was not initially considered. After his initial stroke, the patient continued to develop other cardiometabolic diseases during his course of treatment until he was eventually evaluated for, and was diagnosed with OSA. He was managed with positive airway pressure therapy which likely contributed to the improvement of his overall health status, and halted succeeding recurrences of stroke.

Discussion

The patient's course suggests that his unrecognized and untreated OSA may have been the key risk factor contributing to his recurrent strokes and comorbid conditions. This highlights the need for physicians to have a high degree of suspicion for OSA when evaluating hemorrhagic stroke patients with the goal of improving outcomes and preventing complications.

AP10-537

Metabolic-Oxidative Signature of Obstructive Sleep Apnea in Nepalese Patients

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Background

Untreated OSA causes sleep related symptoms and also causes increased incidence of RTA, cardiovascular diseases and all cause mortality. Currently OSA has been recognized as the consequence of number of interrelated metabolic and oxidative pathologies. As there are limited data of association of OSA with metabolic/oxidative stress and its correlation with severity of OSA, study of metabolic and oxidative profile of these patients in view of defining the Metabolic-Oxidative signature of Obstructive Sleep Apnea was carried out in eastern Nepal.

Aims

To study metabolic and oxidative profile of OSA and its association with clinical severity.

Methods

Hospital based descriptive cross-sectional study. Biochemical profile results related to metabolic –oxidative pathway of the OSA patients were obtained. Quantitative and qualitative data were obtained. Quantitative data were compared using Mann–Whitney test while qualitative variables compared using Pearson χ^2 . Correlation was carried out using Pearson and Spearman's test. P-value

Results

33 patients of OSA were enrolled. Majority of patients had deranged metabolic and oxidative parameters despite mild OSA. Among metabolic stress parameters, most commonly deranged were decreased HDL, increased MAP, waist circumference(WC) and raised RBS. Increased MAP and WC was significantly correlated with severity. Among oxidative parameters, commonly deranged were HBA1c, Vitamin D, Uric acid and CRP, Of which uric acid was also significantly correlated with severity of OSA.

Conclusion

Besides symptom complex, OSA is also harbinger of metabolic and oxidative stress that can lead to various cardiometabolic diseases and premature mortality thus early recognition and treatment can mitigate these consequences.

AP10-538

An Iatrogenic Twilight State

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Introduction

Parasomnias occur either De novo or secondary to sleep disruption. Beta blockers are routinely prescribed for cardiovascular diseases. We present a case of a patient experiencing parasomnias temporally related metoprolol use.

Case report

64 year old lady with hypertension and coronary artery disease treated with daily metoprolol succinate extended release 100 mg tablet. The patient's symptoms included snoring, restless sleep at night, instances of abnormal nocturnal motor behaviors resulting in her and her husband sleeping apart for the past 2 years. While attempting to elicit precipitating life event that occurred 2 years ago, we discovered that the patient was started on metoprolol around then. An attended polysomnography was denied by insurance. Home sleep testing revealed moderately severe sleep disordered breathing. Verapamil was substituted for metoprolol. Subsequently, sleep quality improved with cessation of all nocturnal parasomnia behavior, even before initiation of positive airway pressure therapy.

Discussion

Parasomnias can occur secondary to sleep disordered breathing or medications. Lipophilic beta blockers have been implicated in the etiology of sleep disturbances like insomnia, sleep walking, nightmares and hypnogogic hallucinations. Serotonin, melatonin release and sleep instability have been postulated in the pathophysiology. In our case, history suggested a temporal relationship between starting a beta blocker and abnormal nocturnal behavior. Furthermore, cessation of abnormal behavior coincided with switching to a calcium channel blocker. All too often though, unexplained parasomnias are treated with cortical suppressant medications. This case highlights the importance of investigating iatrogenic causes of parasomnia phenomenon and the merits of reviewing the patient's medications as potential contributing factors.

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AP10-539

Modified interface for non-invasive ventilation in a patient with amyotrophic lateral sclerosis with limited upper limb function

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Introduction

Hypoventilation is a recognized complication of amyotrophic lateral sclerosis (ALS). Non-invasive ventilation (NIV) remains the established treatment and when upper limb function is significantly affected, patients rely on others to put on the interface to ensure there is good fit.

Case report

A 61-year-old male with ALS presented with progressive upper limb weakness and exertional dyspnea for eight months. On examination, there was upper limb muscle wasting and fasciculations. Muscle strength assessment was shoulder abduction (1/1), elbow flexion (2/3), elbow extension (2/2), wrist extension (3/3), finger extension (1/3), and poor hand grip. Deep tendon reflexes and sensory examination were intact. His Revised Amyotrophic Lateral Sclerosis Functional Rating Scale (ALSF_{RS}-R) was 36. His partial pressure of carbon dioxide (PaCO₂) of 47mmHg. The maximal inspiratory pressure was 15cmH₂O, sniff nasal inspiratory pressure was 16 cmH₂O, and diaphragm excursion of 16.9mm (deep inhalation). Taken together with his respiratory symptoms, NIV was indicated and prescribed. However, the patient was unable to fit the conventional oro-nasal interface independently, necessitating modifications.

Discussion

Elastic straps from an N95 respirator were tied to the sides of the mask, with foam strips added around the straps to provide cushioning for comfort. In a seated head-to-knee and forward bend position, the patient was able to slit the straps securely behind both ears, similar to putting on a surgical mask. Upon reviewing the compliance report, the elasticity of the straps enabled good fitting with minimal leakage. In conclusion, simplified straps for interface could benefit individuals with limited upper limb function.

All authors: No conflict of interest to declare.



AP10-540

Tolerance to non-invasive ventilation support in patients with amyotrophic lateral sclerosis: our early experience

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Background

Alveolar hypoventilation is a well-recognized complication of amyotrophic lateral sclerosis (ALS). Non-invasive ventilation (NIV) remains the established treatment. It is recognized that the presence and severity of bulbar palsy can impact patient's tolerance to NIV.

Methodology

This retrospective study aims to determine factors influencing NIV tolerance in patients with ALS. We recruited symptomatic patients between January 2022 to May 2022. Patients were divided into two groups (Tolerated versus non-tolerated to NIV) for comparison.

Results

Data from ten patients were retrieved. Variables between patients who tolerated versus patients who failed to tolerate NIV were compared. These include partial pressure of carbon dioxide (PaCO₂) [43.3±7.7 mmHg versus 44.7±7.3 mmHg (p=0.81)], bicarbonate level [28.0±3.2 mmol/L versus 27.4±3.4 mmol/L (p=0.81)], sniff nasal inspiratory pressure [21cmH₂O±7.5 versus 13.5cmH₂O±7.0 (p=0.09)], diaphragm excursion on ultrasound (quiet breathing) [11mm±5.4 versus 9.3mm±2.9 (p=0.59)] and diaphragm excursion on ultrasound (deep breathing) [21mm ±12.8 versus 21.9 mm ±6.3 (p=0.91)]. The average revised Amyotrophic Lateral Sclerosis Functional Rating Scale (ALSFRS-R) during initiation of NIV was 26 versus 31.5. The majority of patients in both groups could not produce reliable results on spirometry. Five of the six patients who tolerated NIV did not have severe bulbar insufficiency (83%). In contrast, three out of four (75%) who failed NIV had bulbar insufficiency.

Discussion

In a small cohort of patients, this study could not determine any contributing factors leading to poor tolerance to NIV. However, patients with bulbar insufficiency appear less tolerant to NIV, consistent with existing literature.

All authors: No conflicts of interest to declare.

AP10-541

Obstructive sleep apnea in never smokers with newly diagnosed lung cancer: preliminary results

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Background and Aim

Obstructive sleep apnea (OSA) has been associated with an increased incidence of lung cancer, however, cigarette smoking is a potential confounder of the relationship between OSA and lung cancer. The aim of this study was to evaluate the prevalence of OSA in never smokers with lung cancer.

Methods

This study was a preliminary cross-sectional analysis of the prospective study recruiting consecutive hospitalized patients who were never smokers (age 19-80 years) and were newly histologically diagnosed with lung cancer. Respiratory polygraphy was conducted in all patients prior to cancer treatment.

Results

Of a total of 25 enrolled patients, 21 (mean age, 63 years; women, 81%; mean body mass index, 24.6 kg/m²) were included for analysis. All patients were diagnosed with adenocarcinoma, and part-solid nodules accounted for 19%. The majority of patients had early stages of lung cancer (stage I, 48%; stage II, 14%; stage 3, 19%; stage 4, 19%). The prevalence of OSA (apnea-hypopnea index [AHI] $\geq 5/h$) was 52%. The mean AHI was $10.8 \pm 12.1/hour$, and the mean AHI in supine position was $16.8 \pm 16.8/hour$. The mean oxygen desaturation index was $13.3 \pm 14.0/hour$, and sleep time spent with SpO₂ < 90% (TS90) was 7.7 ± 12.4 minutes.

Conclusion

OSA and nocturnal hypoxemia are prevalent in never smokers with lung cancer.

AP10-542

Relation of Orofacial Myofunctional Therapy to improvement of tongue function and movement as well as sleep quality in Obstructive Sleep Apnea patients.

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Background and Aim

Orofacial Myofunctional Therapy (OMFT) is a group of exercises that specifically aims to strengthen the tongue and throat muscles. In patients with Obstructive Sleep Apneas (OSA), it is known that their throat and tongue muscles can get more relaxed during sleep, resulting in blockage of the airway. This study aims to determine the relationship between OMFT in the overall improvement of sleep in patients with OSA.

Methods

16 patients with OSA who have started on one or more session of OMFT were identified and recruited for the study. Baseline demographic such as BMI was taken before the start of each therapy session. Clinical assessment of tongue movement and function were also measured. Patient's sleep quality was assessed using Epworth Sleepiness Scale (ESS) and FOSQ-10. Analysis was then performed to compare the data of the patient before and after undergoing at least one session of OMFT.

Results

Patients who undergo OMFT showed an improvement in their tongue function ($p=0.0072$) along with their ESS ($p=0.38$). Further analysis shows that patients who recorded frequency of conducting OMFT sessions 5 or more times a week, have a significant improvement in Tongue range of movement test as well as tongue function test ($p=0.017$ and $p=0.0158$ respectively).

Conclusion

OMFT helps in improving patient's tongue function. Increased compliance with the OMFT is shown to have a significant benefit to patient's tongue range of movement. However, further studies can still be done to correlate OMFT to patient's Apnea-Hypopnea Index to determine the actual benefit of OMFT to patient with OSA.

AP10-543

Evaluation of sleep quality among doctors working in medical wards in a tertiary care center using Pittsburg Sleep Quality Index: A descriptive study.

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Background and Aim

Pittsburg Sleep Quality Index (PSQI) is a self-rated questionnaire to objectively measure sleep quality (SQ) and patterns of sleep disturbances over last one-month period. PSQI is a nineteen item questionnaire covering seven broad areas of sleep. A score of 5 or more implies poor SQ. This study was aimed to assess the overall sleep quality and disorders of sleep among doctors.

Methods

A cross sectional descriptive study was conducted among 54 doctors currently working in medical units. They were enrolled based on a convenient sampling method. Data were collected from February 2022 through April 2022, by using a PSQI.

Results

Out of 54 participants, majority were males (68.51%) with a mean age of 31.75 years. Sixty-six percent were undergoing postgraduate studies. Majority of doctors (59.25%) had an overall poor SQ, although subjective SQ was fairly good in 44.44% cases. Out of those who had poor SQ, 78% were males. Poor SQ was predominant among postgraduate trainees (62.5%). Sleep latency was less than 30 minutes in 79.62%. Sleep duration was between 5 to 7 hours in a majority (80.87%). Habitual sleep efficacy was more than 85% in 83.33%. Only 3 subjects had one or two sleep disturbances per week. Sleep medications were not used in 94.44%. Daytime dysfunctions were seen in 16.36% cases.

Conclusion

PSQI is a good indicator of objective SQ. Although majority of doctors had better perceived SQ, most of them had poor SQ according PSQI in our study. Poor SQ among doctors is probably due to engagement in night on calls.

AP10-544

Prevalence of Obesity Hypoventilation Syndrome in Patients with Obstructive Sleep Apnea and co-morbidities associated with it in a Tertiary Center in Pahang

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Background

Obesity Hypoventilation Syndrome is a triad consisting of body mass index more than 35 kg/m², Partial pressure carbon dioxide more than 45mmHg and hypoventilation without secondary causes. It is associated with higher impact on morbidity, lower quality of life as well as greater health expenses. The prevalence OHS in known literature were estimated around 0.4% of adult population. The prevalence of patient with OHS in OSA group varies widely from 8% to 50%. In our Kuantan district, this prevalence remains unknown.

Aim

To determine prevalence of Obesity hypoventilation syndrome (OHS) with obstructive sleep apnea (OSA) in adults referred to sleep clinic Hospital Tengku Ampuan Afzan and the co - morbidities associated with it.

Methodology

This is a retrospective observational study involving patients who underwent full polysomnography with end tidal CO₂ monitoring in Hospital Tengku Ampuan Afzan from May 2017 until march 2021. Patient's medical records and polysomnography results were used for data collection and analysis.

Results

Total of 210 patient's data were analyzed. The study showed that 37.6% of patient have evidence of hypoventilation and out of this, 30.9% fulfill the criteria of OHS . Among the patients who have OHS, 45.9% were female and 54.1% were male. The mean BMI of patients with OHS is 40.4 kg/m². The mean AHI in OHS patients is 61.74. The lowest oxygen saturation level in OHS group is 31%. 85.1% of patients with OHS have hypertension, where 37.8% has type 2 diabetes mellitus and 10.8% has heart failure. 62.2% of patients with OHS managed to achieve at least an adequate titration with CPAP, where as 27% (need a higher pressure with bi level PAP titration to reduce the RDI by 75% from baseline.

Conclusion

Obesity hypoventilation syndrome prevalence is getting higher and is associated with metabolic and cardiovascular diseases. Early diagnosis and intervention for OHS is important in order to avoid serious health consequences.

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AP10-545

Impact of the COVID-19 pandemic on adherence to positive airway pressure in patients with obstructive sleep apnea

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Background and Aim

The objective of this study was to evaluate the impact of the COVID-19 pandemic on adherence to positive airway pressure (PAP) in patients with obstructive sleep apnea (OSA) in South Korea where social distancing rather than national lockdown was implemented.

Methods

This retrospective study was conducted on adult (≥ 19 years) patients with OSA who received PAP prescription at Seoul National University Hospital. Included patients met the following criteria: 1) PAP adherence data were available in a year before and after 22 March 2020, the date of the social distancing announcement; 2) PAP treated for more than 3 months and adherent to PAP before 22 March 2020. The threshold of clinical significance for PAP adherence was defined as 0.5 hours/day.

Results

Of a total of 183 patients (mean age, 63 years; men, 67%), 89% had apnea-hypopnea index ≥ 15 /hour. The average PAP usage before the COVID-19 pandemic was 5.1 ± 1.7 hours and 4.8 ± 2.0 hours during the pandemic (mean difference, -0.3 [95% CI, -0.5 to -0.1] hours; $P=0.003$). A mixed linear regression model adjusting age, sex, socioeconomic status, and PAP adherence before the COVID-19 pandemic showed that patients who used PAP ≥ 4 hours before the pandemic had a greater decrease in adherence (-0.46 [-0.67 to -0.26] hours; P for interaction= 0.001).

Conclusion

The COVID-19 pandemic had a negative impact on adherence to PAP therapy in patients with OSA in South Korea. However, the impact was not clinically relevant in this population.

AP10-546

Upper Respiratory Reflux and Autonomic Nerve Dysfunction: The Study of Heart Rate Variability, Risk of Having Sleep Disordered Breathing, and Its Inclination Towards Anxiety-Depression.

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Background and Aim

Altered vagal nerve activity caused by impaired autonomic regulation was thought to be responsible for esophageal sphincter dysfunction in Gastroesophageal Reflux Disease (GERD). Yet the role of autonomic nerve dysfunction (AND) in the pathogenesis of Upper Respiratory Reflux (URR) remains unclear. URR and AND is also thought to be associated with other entities, such as anxiety-depression and sleep-disordered breathing (SDB). The purpose of this research is to determine the proportion and characteristics of AND based on Heart Rate Variability (HRV) analysis in patients with URR and control group. Other risk factors that might contribute to the incidence of URR and AND, such as the risk of SDB and anxiety-depression, were also assessed.

Methods

Forty subjects were enrolled in the URR group and 33 subjects as control. Fiberoptic laryngoscopy, HRV analysis, SDB risk assessment (ESS and PSQI questionnaire), and anxiety-depression status (HADS questionnaire) were performed on both groups.

Results

The difference in proportion of AND between URR and the control group was significant ($p=0.001$). The proportion of AND in the URR group was 71.4%. The difference in the risk of SDB based on ESS and PSQI was significant in the URR group compared to control group ($p\leq 0.05$). The status of anxiety based on HADS in the URR group was also significantly different compared to control ($p=0.001$).

Conclusion

The proportion of AND in the URR group was greater than control. HRV findings were characterized by reduction of SDNN and LF/HF ratio, with the domination of parasympathetic properties. The risk of SDB and the inclination towards anxiety-depression were related to URR and AND.

Statement and Declarations

The author declares no conflict of interest and no funding was received for this study.

AP10-547

Clinical Significance of Sleep Apnea Syndrome in Patients with Idiopathic Pulmonary Fibrosis

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Background and Aim

Sleep apnea syndrome (SAS) is sometimes complicated with idiopathic pulmonary fibrosis (IPF), and recognized as one of the important comorbidities. It was reported that IPF patients with SAS, who have a high degree of hypoxia during sleep have a poor prognosis and CPAP treatment may improve mortality. However, clinical characteristics of IPF patients with SAS have not been clarified in detail. The aim of this study was to determine the clinical characteristics of IPF patients with SAS.

Methods

We included 44 IPF patients who admitted to our hospital and were performed SAS examinations. Frequency and severity of SAS were evaluated and compared the relationship with clinical parameters.

Results

SAS was diagnosed with 33 (75%) IPF patients. 17, 12, and 4 patients had mild ($5 \leq$ apnea hypopnea index [AHI] < 15), moderate ($15 \leq$ AHI < 30), and severe (AHI ≥ 30) SAS, respectively. Body mass index and SP-D levels were significantly higher and levels of KL-6 and SP-A tend to be higher in IPF patients with SAS than in those without SAS. However, there were no differences in parameters of pulmonary function tests and GAP score between IPF patients with and without SAS. In addition, there were no differences between clinical parameters and severity of SAS. Furthermore, complication of SAS did not affect clinical outcome in IPF patients.

Conclusion

In patients with IPF, SAS is frequently complicated and may be associated with disease activity.

AP10-548

Clinical presentation and treatment adherence of older adults referred for obstructive sleep apnoea

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Background and Aim

Obstructive sleep apnoea (OSA) is increasingly recognised in Singapore. The clinical characteristics of older individuals are less studied. We aim to investigate the clinical presentation and long-term outcomes of adults aged >60 referred for OSA.

Methods

We conducted a retrospective cohort study of patients referred for evaluation of OSA and had level 1 polysomnography (PSG) between August 2016 and March 2017. Baseline demographics, symptomatology, PSG and follow-up data were collected, with patients divided into 2 groups (aged >60 vs ≤60).

Results

One hundred and four individuals were identified. Older adults were predominantly female (72% vs 40%, $p<0.01$); mean age was 71 years (vs 45 years, $p<0.01$) and median BMI 29 (vs 32 kg/m², $p=0.55$). Older adults were less likely to self-initiate referrals (38% vs 67%, $p=0.01$) compared to younger adults. Snoring (55% vs 73%, $p=0.10$) and daytime somnolence (self-reported sleepiness, 41% vs 61% [$p=0.08$], and Epworth Sleepiness Score, median 4 vs 8 [$p<0.01$]) were less reported in older adults with corresponding lower sleep efficiency (median 66.9% vs 79.7%, $p=0.02$) but with no significant difference in AHI (median 34.8 vs 40.9 events/h) and percentage of moderate OSA (83% vs 73%). PAP acceptance was similar between groups; two-year compliance appeared higher in older adults (55% vs 25% accepted therapy) but not statistically significant ($p=0.13$).

Conclusion

Older patients referred for OSA evaluation experienced less sleepiness despite a lower sleep efficiency and high prevalence of OSA. Therapeutic benefits of PAP therapy and the motivation of treatment adherence may be different.

AP10-549

Cohort profile : the Korean Obstructive Sleep apnea MORbidity Study (KOSMOS)

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Background and Aim

Obstructive sleep apnea (OSA) is a disease that includes various clinical types. Treatment compliance and treatment outcomes vary for each clinical type. In order to provide the best treatment for each OSA patient, it is necessary to diagnose an appropriate clinical type and identify the long-term course of the disease. For this purpose, the Korean Obstructive Sleep apnea MORbidity Study (KOSMOS), a prospective large multicenter cohort was designed.

Methods

Adults diagnosed with OSA with an apnea-hypopnea index (AHI) of 5 or higher through polysomnography were enrolled. Positive airway pressure (PAP) treatment was not related to enrollment. Fourteen university hospitals participated.

Results

A total of 147 OSA patients (107 males and 40 females) were enrolled from April 2020 to May 2022. Among them, 85 patients completed the visit 2 (6 months after registration), and 42 patients completed the visit 3 (1 year after registration). Median age, BMI and neck circumference were 60.0 [44.0;66.0], 27.1kg/m² [24.3;30.5] and 38.0cm [36.0;41.0], respectively. The most common comorbidities were hypertension (48.2%), dyslipidemia (42.9%), diabetes (18.4%), asthma (18.4%), and cardiovascular disease (12.2%). The main reasons for hospital admission were snoring, sleep apnea, daytime sleepiness, and fatigue. The median AHI and ODI were 30.5 [12.1;49.2] and 24.4 [8.4;44.6]. Of the enrolled OSA patients, about 70% received PAP prescriptions.

Conclusion

The KOSMOS is designed to investigate the clinical course of Korean OSA patients with various clinical types and treatments including PAP therapies. KOSMOS will continue to enroll OSA patients and expand participating institutions.

AP11-550

Clinical characteristics and outcomes of critically ill patients with COVID-19 in ICU: A multicentre retrospective cohort study in Korea

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Background and Aim

Coronavirus disease 2019 (COVID-19) has wide clinical spectrum ranging from asymptomatic infection to severe disease which leads to various complications and high mortality rate. We aimed to investigate clinical characteristics and outcomes of patients with severe COVID-19 requiring mechanical ventilation.

Methods

Clinical data of 353 patients with severe COVID-19 pneumonia requiring mechanical ventilation were retrospectively collected from 9 hospitals in South Korea. We evaluated mortality and mechanical ventilation-related complications including intubation-related airway injury (IRAI), ventilator-associated pneumonia (VAP) or lung injury (VILI) and hemodynamic disturbance. Intubation timing was categorized based on 24 hours from intensive care unit admission.

Results

Of all patients, the median age was 70 years (interquartile range [IQR] 64-76), 61.2% were male. During the follow-up (median: 30 days, IQR: 19-53 days), 214 patients (60.6%) had mechanical ventilation-related complications (IRAI=9.8%, VAP=73.8%, VILI=22.0%, hemodynamic disturbance=38.8%) and 160 (45.3%) died. In the multivariable analysis, old age (> 70 years old), use of neuromuscular blocker, inhalation of nitric oxide, and use of extracorporeal membrane oxygenation were significantly associated with increased risk of complications (VAP/VILI). And old age, female, inhalation of nitric oxide and use of continuous renal replacement therapy were significantly associated with increased risk of mortality. Late intubation (≥ 24 hours) did not show significant association with complications (odds ratio=1.109, 95% CI=0.707-1.741) and mortality (hazard ratio=1.310, 95% CI=0.954-1.800).

Conclusion

Our study suggests that in patients with severe COVID-19 pneumonia requiring mechanical ventilation, intrinsic characteristics of patients including age, gender and disease severity were significantly associated with clinical outcomes.

AP11-551

Predictors of Mechanical Ventilator Dependence in Critical COVID-19 Pneumonia

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Introduction

Predictors of mechanical ventilation dependence (MVD) is essential for prognostication, determining treatment intensity and resource allocation. The aim of this study is to identify the predictors and outcomes of MVD in critical COVID-19 pneumonia.

Methods

This was a retrospective cohort analytical study of critical COVID-19 pneumonia patients. Predictors and outcomes of MVD were determined and a scoring system was established. MVD was defined as the need for MV for >6 hours per day for >21 days.

Results

Fifty-eight (18.83%) out of 308 subjects had MVD. In univariate analysis, MVD subjects were older, had diabetes mellitus (DM), smoker, increased neuromuscular blockade (NMB) use; lower hemoglobin, platelet, sodium, PaCO₂ level, PaO₂/FiO₂ ratio; higher FiO₂ requirement and radiologic involvement score; more cardiovascular, need for renal replacement therapy (RRT), gastrointestinal and neurologic complications. MVD patients had longer duration of MV, ICU length of stay and higher in-hospital mortality of 77.58%. Multivariate model showed that MVD patients were diabetic, had FiO₂ >40% and P/F ratio 40% at day 7+3 post intubation, need for RRT, gastrointestinal complications a score of two points each; P/F ratio

Conclusion

MVD is common in critical COVID-19 pneumonia. DM, FiO₂ >40% and P/F ratio

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AP11-552

Age is an important prognostic factor in COVID-19 patients treated with extracorporeal membrane oxygenation

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Background and Aim

Age is known to be highly correlated with the prognosis of ECMO. Various scores are presented to predict the prognosis according to ECMO application. However, it is not well known which scoring system and patient age are helpful in predicting prognosis of COVID-19.

Methods

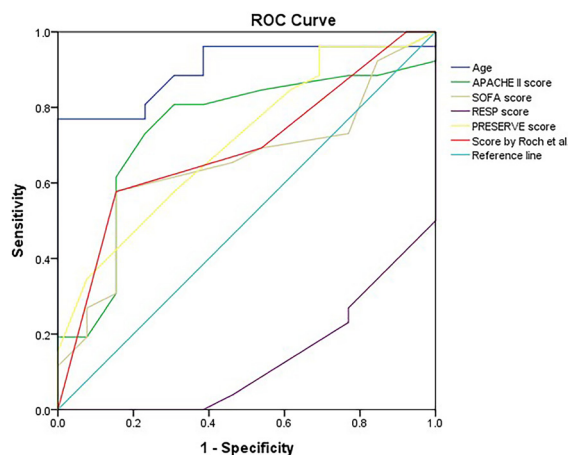
We retrospectively reviewed COVID-19 patients who admitted between January, 2020 and December, 2021. Receiver operating characteristic (ROC) curve analysis was carried out to evaluate the prediction accuracy.

Results

During study period, 991 patients were hospitalized, and 39(3.9%) patients received ECMO. Of these, 13patients(33.3%) were survivor, and 26patients(66.7%) were non-survivor. The non-survivor was older than the survivor (69.0[65.3-73.5] vs. 49.0[42.5-63.0], years, $p<0.001$), but there was no difference in clinical frailty scale. Also, there was no difference in comorbidity for other diseases except that hypertension was more common in non-survivors (69.2% vs. 15.4%, $p=0.002$). There were no significant differences in initial vital signs, laboratory data, and radiologic findings. A comparison of the area under the curves (AUCs) for age and scoring system to predict prognosis was as follows: age, 0.902(95% confidence interval[CI], 0.805-0.999), APACHE II score, 0.741(95% CI, 0.571-0.912), SOFA Score, 0.651(95% CI, 0.474-0.828), RESP Score, 0.132(95% CI, 0.020-0.244), PRESERVE score, 0.709(95% CI, 0.541-0.877), Score by Roch et al., 0.691(95% CI, 0.519-0.862). The optimal cutoff points for the age were 65(sensitivity 76.9%, specificity 100%).

Conclusion

Although this study was conducted in a small number and in a single center, it showed that age is an important factor related to the prognosis of ECMO.



AP11-553

Lung transplantation in COVID-19-associated acute respiratory distress syndrome (ARDS) versus non-COVID-19 ARDS

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Background and Aim

Patients with coronavirus disease 2019 (COVID-19) develop acute respiratory distress syndrome (ARDS). Only a few papers were published on transplantation in refractory ARDS. This study aims to compare COVID-19 ARDS undergoing LTx and compare with non-COVID-19 ARDS LTx recipients.

Methods

Electronic medical records of patients undergoing LTx (n=169) from 2008 to 2021 at our institution were retrospectively analyzed. COVID-19 ARDS patients receiving LTx from 2020 and 2021 (n=9) and non-COVID-19 ARDS patients receiving LTx from 2011 and 2021 (n=15) were included. Student's t-test and χ^2 -test were performed for intergroup differences.

Results

Among 24 ARDS patients undergoing LTx, 9 (37.5%) were associated with COVID-19. COVID-19 ARDS cohort was older (58[interquartile range (IQR): 55-61] vs 44[36-56] years; $p<0.01$) and spent more time before transplantation (194[170-212] vs 86[65-113] days; $p<0.01$) and on extracorporeal membrane oxygenation (ECMO; 55[43-74] vs 13[10-15] days; $p<0.01$) than non-COVID-19 ARDS. No 28-day mortality occurred in either group. The total intensive care unit (ICU) stay (101[79-114] vs 35[25-54] days; $p<0.01$) and post-Op ICU stay (27[22-37] vs 14[11-18] days; $p<0.01$) were longer and post-Op MV-free days (11[0-18] vs 25[16-26] days; $p<0.01$) were shorter in COVID-19 ARDS compared with non-COVID-19 ARDS.

Conclusion

In this single-center observational study comparing COVID-19 ARDS and non-COVID-19 ARDS patients undergoing LTx, short-term (28-day) mortality did not differ between the two groups. COVID-19 ARDS cohort showed longer total ICU stay and post-Op ICU stay, and shorter post-Op MV-free days compared to non-COVID-19 ARDS cohort, which are possibly attributable to longer pre-Op hospital days and ECMO days of COVID-19 ARDS cohort.

AP11-554

Physiotherapy treatment techniques used for ventilated vs non-ventilated ARDS patients in maharashtra india. - A survey

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Background and Aim

Acute respiratory distress syndrome (ARDS) is a rapidly progressive form of respiratory failure characterised by severe hypoxemia and non-hydrostatic pulmonary edema. Role of physiotherapy in ARDS is to decrease patient dependence on the ventilator, decrease the risk of complications and to restore physical independence. Due to lack of well-designed studies recommended Physiotherapy treatment strategies used for patients with ARDS in ICU are unclear.

Aim

To determine the practice patterns of physiotherapists for ventilated vs non ventilated acute respiratory distress syndrome (ARDS) patients in the Intensive care unit in Maharashtra India.

Materials And Methods

A cross sectional survey was conducted across Maharashtra, in which 200 questionnaires were sent to cardio-pulmonary physiotherapists. The questionnaire, addressed different treatment techniques of ventilated and non-ventilated ARDS patients.

Results

A total of 105 completed questionnaires were returned. The treatment techniques used were almost similar for ventilated and non-ventilated patients. 79% therapist used Supine Positioning in ventilated patients whereas upright position (84.7%) was used more in non-ventilated patients. 93% of responders use secretion clearance and manual techniques for both ventilated and non-ventilated patients. In non-ventilated patients, breathing strategies were used by 90% responders, functional training was performed by 75% therapist and 55% therapists used inspiratory muscle training.

Conclusion

Physiotherapy treatment techniques used for ARDS patients by therapist in Maharashtra predominately focuses on body positioning, airway clearance techniques, for ventilated patients whereas body positioning, airway clearance techniques, breathing strategies, range of motion exercises, inspiratory muscle training and functional training were commonly used for non-ventilated patients.

AP11-555

Weekend versus weekday admission and clinical outcomes in heart failure patients with and without atrial fibrillation in Taiwan

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Purpose

We conduct this study to explore the associations of weekend and weekdays admission with the clinical events among heart failure (HF) patients with and without comorbid atrial fibrillation (AF).

Methods

In this study, we recruited 57919 HF patients without AF hospitalized in weekends and 57919 HF patients without AF hospitalized in weekdays. There were 21467 and 21467 HF patients with AF admission in weekends and weekdays, respectively. The outcomes of interest included all-cause mortality, CV death (ICD-9-CM 390-459), and heart failure recurrence. Cox proportional hazard regression model was applied to estimate the hazard ratio. Variables found to be statistically significant in a univariable Cox proportional hazard regression model were further examined in a multivariable Cox proportional hazard regression model. The cumulative incidence curves were obtained by the Kaplan-Meier method and assessed by the Log-rank test.

Results

HF patients with AF and hospitalized in weekends had the highest incidence rates of rehospitalization due to HF (233.8 per1000 person-years), and CV death (23.9 per 1000 person-years) among four groups. Kaplan-Meier method shows that HF patients with AF had the higher cumulative incidence of HF recurrence than that of patients without AF.

Conclusion

HF patients with AF and hospitalized in weekends are at highest risk of HF recurrence among these four groups.

NONE

AP11-556

Impact of duration of corticosteroid treatment for postoperative acute lung injury after lung cancer surgery

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Background

Acute lung injury (ALI) is one of the most serious pulmonary complications after lung resection. Despite the known beneficial effects of corticosteroid treatment, limited data are available regarding the duration of corticosteroid treatment.

Methods

This retrospective study included 91 patients who were treated as postoperative ALI among 7,317 patients who underwent lung resection surgery for lung cancer between January 2017 and March 2021. Patients were divided into two groups including short-course and long-course, based on the duration of corticosteroid treatment for 14 days.

Results

Among 91 patients, 31(34%) received short-course corticosteroid treatment and the remaining 60(66%) received long-course. While similar baseline characteristics were observed between two groups, higher C-reactive protein level (17.0 vs. 13.2, $p=0.024$) and lower SpO₂/FiO₂ ratio (330.4 vs. 414.3, $p=0.249$) was noted in long-course groups. Moreover, long-course group tended to have longer one-lung ventilation time (104.0 vs. 126.5, $p=0.208$) and total operation time (180.0 vs. 213.5, $p=0.065$). Long-course group also demonstrated higher rates of complications such as arrhythmia (15% vs. 3.2%, $p=0.178$) and superimposed infection (23.4% vs. 6.4%, $p=0.122$) and higher rate of surgical site complications (15% vs. 3.2%, $p=0.096$). However, there was no statistically significant factor associated with increased mortality, according to multivariable analysis.

Conclusion

C-reactive protein and SpO₂/FiO₂ ratio at post operative status may indicate poor prognosis, leading to long-course steroid treatment. Moreover, association of longer duration of corticosteroid treatment with post operative complications suggests necessity of efforts to shorten the duration of corticosteroid treatment for postoperative acute lung injury after lung cancer surgery.

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AP11-557

Effect of Rapid Response Team on Reduction of In-hospital Cardiopulmonary Arrest in Inpatients via Emergency Department

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Background and Aim

About a quarter of rapid response team (RRT) activation occurs within 48 hours of hospital admission. In particular, in-hospital mortality increases about four times during RRT activation early in hospitalization in patients through the emergency department (ED). Therefore, early monitoring of inpatients through ED is essential.

Methods

From March 2020, we conducted EMR-based monitoring of all hospitalized patients admitted through ED by the rapid response team for 48 hours. To examine the effectiveness of monitoring inpatients through the ED, the number of CPR in the general ward and within 48 hours of inpatients through ED were observed before and after monitoring (11 months, respectively).

Results

During the 11 months before the start of EMR-based monitoring (April 2020 to February 2021), there were 44 cases of CPR, which was 2.15 cases per 1000 admissions. The number of CPR cases within 48 hours of inpatients via ED was 17, which was 2.43 cases per 1,000 admissions. During the 11 months (April 2021 to February 2022) after the start of EMR-based monitoring, there were 40 cases of CPR, which was 2.27 cases per 1000 admissions. Eight cases of CPR occurred within 48 hours of admission of inpatients via ED, or 1.24 cases per 1,000 admissions.

Conclusion

Initial monitoring of inpatients via ED did not reduce overall CPR incidence but decreased CPR during monitoring time. Considering that in-hospital mortality increases during early RRT activation in patients admitted through ED, early monitoring of inpatients through ED may contribute to reducing in-hospital mortality.

AP11-558

Serial amino acid profiling as a marker of sepsis-associated acute kidney injuries and recoveries of renal function in intensive care units

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Background and Aim

Acute kidney injury (AKI) following sepsis has been known to be associated with increased mortality. Previous studies showed that lactate and kynurenine could be useful biomarkers for the diagnosis of AKI in sepsis, as well as its recovery.

Methods

This retrospective study included 59 patients with sepsis or septic shock who were admitted to the medical intensive care unit (ICU) from June 2018 through August 2019 at Severance hospital. We measured serial serum amino acid levels on days 0, 1, 3, and 7 of ICU admission using liquid chromatography-tandem mass spectrometry (LC-MS/MS) to profile the dynamics of amino acids indicating potential septic AKI and its recovery.

Results

Higher kynurenine (KYN) and kynurenine-to-tryptophan (KT) ratio on day 0 and 1 were associated with septic AKI whereas lower tryptophan (TRP) at day 0 and arginine (ARG) at day 0,1 were associated with septic AKI. Lower TRP on day 0, 1, 3, glutamine (GLN) on day 0, 1, glutamic acid on day 0 and phenylalanine (PHE) on day 1,3 were associated with recovery from septic AKI within 1 week. The area under the curve with TRP, PHE and GLN on day 1 for prediction of recovery from septic AKI was 0.861 (95% CI 0.705-1.000), which was comparable to AUC value of ROS curve combining serum creatinine and albumin ($p>0.05$).

Conclusion

Serial amino acid profiling including TRP, PHE could be useful for predicting recovery from septic AKI in patients admitted to ICU. Further survival evaluation and design for prediction models using serial amino acid profiling need to be investigated further.

The author declares that she has no relevant or material financial interests that relate to the research described in this paper

AP11-559

The association between anaemia in the first week and one-year mortality among critically ill patients: propensity score-matched and -weighted analyses

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Background and Aim

Anaemia is highly prevalent in critically ill patients, but the long-term mortality impact remains unclear. We linked two databases and used propensity score-based methods to address the association between the presence of anaemia in the first week and one-year mortality in critically ill patients.

Methods

We retrospectively enrolled consecutive patients who were admitted to medical intensive care units (ICUs) at Taichung Veterans General Hospital between 2015 and 2020. The primary outcome was one-year mortality through retrieving death registry data in a nationwide database, and the hazard ratios (HRs) with 95% confidence intervals (CIs) was calculated. We used both propensity score-based matching and weighting methods, including propensity score matching (PSM), inverse probability of treatment weighting (IPTW) and covariate balancing propensity score (CBPS) in this study.

Results

A total of 7,089 patients were eligible for analyses, and 45.0% (3,189/7,089) of them had anaemia, defined by average levels of haemoglobin lower than 10 g/dL. The standardised difference of covariates in means between patients with and without anaemia were lower than 0.20 after matching and weighting, and the use of CBPS further reduced the imbalance of covariates. We identified a consistent association among distinct cohorts, and adjusted HRs in primary, PSM, IPTW and CBPS cohort were 1.270 (95% CI 1.153–1.398), 1.198 (95% CI 1.075–1.335), 1.312 (95% CI 1.191–1.446) and 1.340 (95% CI 1.212–1.482), respectively.

Conclusion

We found that week-1 anaemia correlated with increased one-year mortality in critically ill patients, and more studies are warranted to elucidate underlying biological mechanisms.

AP11-560

Xuebijing alleviates LPS-induced acute lung injury by inhibiting gasdermin-E-mediated pyroptosis of alveolar epithelial cells

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Background and Aim

Xuebijing (XBJ) is a Chinese herbs-derived therapeutic with a potent anti-inflammatory effect, which has been approved to treat severe infectious diseases. This study was designed to investigate the therapeutic effect of XBJ on acute lung injury (ALI) and its underlying mechanisms.

Methods

Mice were administered intraperitoneally with XBJ (5 ml/kg) before being challenged with LPS to induce ALI. 15 days-survival rate, histological changes and inflammatory cytokines production in lungs were measured to evaluate the protective effects of XBJ. Then we screened active ingredients and potential targets of XBJ in treating ALI by constructing a network pharmacology analysis. Based on the targets screened, we further examined the signaling pathways of XBJ in vivo and in vitro.

Results

We confirmed that XBJ significantly increased the survival rate of ALI mice by 50%, reduced inflammatory cell infiltration in lung, and improved pulmonary edema and hemorrhage. In addition, XBJ dramatically downregulated the expression and release of TNF- α , IL-6, and IL-1 β . We identified 109 potential therapeutic targets of XBJ, which were mainly involved in multiple signaling pathways related to programmed cell death in addition to anti-inflammatory responses. Based on this, we found that XBJ could inhibit gasdermin-E-mediated pyroptosis of lung cells. We further confirmed that TNF- α could trigger pyroptosis of alveolar epithelial cells and XBJ inhibited gasdermin-E-mediated pyroptosis of alveolar epithelial cells by suppressing TNF- α production.

Conclusion

Therefore, this study proves the therapeutic effect of XBJ on ALI and reveals that XBJ protects alveolar epithelial cells against gasdermin-E-mediated pyroptosis by reducing TNF- α production.

AP11-561

critical illness and cancer risk: Real world registry in Asia

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Objective

The objective of this study was to identify the risk of incident cancer among patients with acute critical illness.

Methods

The study applied the big database from the National Health Research Institutes in Taiwan. The risk of incident cancer over a 12-year period in patients with 4 types of newly diagnosed acute critical illness (septicemia/septic shock, acute myocardial infarction, hemorrhagic stroke and ischemic stroke) was investigated using Cox proportional hazards regression model with further controlling for the competing risk of death.

Results

This study included 42,675 patients in the acute critical illness cohort and 42,675 patients in the age- and sex-matched comparison cohort. Correlation between the incidence of cancer and critical illness was found after adjusting for age, sex, comorbidities and further controlling for death [adjusted subhazard ratio (aSHR) = 1.73, 95% confidence interval (CI) = 1.63-1.84]. Five common incident cancers associated with acute critical illness were hematologic malignancy (aSHR = 4.00, 95% CI = 3.11-5.14), cancers of liver (aSHR = 2.25, 95% CI = 1.93-2.63), uterus (aSHR = 1.86, 95% CI = 1.32-2.61), head and neck (aSHR = 1.79, 95% CI = 1.39-2.30) and esophagus (aSHR = 1.62, 95% CI = 1.09-2.42). Among these cancers, septicemia/septic shock was found to confer a higher risk of incident cancer compared to other subtypes of acute critical illness.

Conclusion

This research is the first to tackle this clinically relevant issue regarding the types of acute critical illness most associated with cancer development with a very large sample size and robust methods. After adjustment for the potential confounding factors and consideration of the competing risk of death, the association between having an acute critical illness and incident cancer was noted.

none

AP11-562

Bedside examination...a forgotten art in modern ICU's

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Aims and objectives

1. To study the role of ROX index
2. To study the efficacy of ROX index as rescue alarm system

Methodology

Sample size: 500

Inclusion criteria

1. Patients aged ≥ 18 yrs
2. Patients with diagnosis of ARDS/ALI
3. Patients with GCS ≥ 13
4. Patients requiring supplementary oxygen

Exclusion criteria

1. Patients unable to consent
2. Patients on LTOT
3. Patients with active tuberculosis and on anti-tubercular therapy

Results:

1. Our study population was male predominated with 68% males and 32% females
2. Most common age group in our study population was 45 ± 7 ($p \leq 0.01$)
3. The mean ROX index at admission of 5.58 ± 3.6 ($p \leq 0.05$) was associated with 95% survival and 5% requirement of IMV
4. The mean ROX index 2 hrs post admission of 3.34 ± 5.6 ($p \leq 0.06$) was associated with 98% survival and 2% requirement of IMV
5. The mean ROX index 6 hours post admission of 4.48 ± 2.6 ($p \leq 0.05$) was associated with 96% survival and 1% requirement of IMV
6. The mean ROX index 12 hours post admission of 3.58 ± 5.6 ($p \leq 0.04$) was associated with 99% survival and 1% requirement of IMV
7. The mean ROX index 12 hours post admission of 5.14 ± 6.6 ($p \leq 0.05$) was associated with 99% survival and 1% requirement of IMV
8. The overall mortality in the study population was 8%
9. IMV requirement was 22% in our study population

Clinical implications

ROX index should always be utilised when the work load is high as in recent covid pandemic and it is not possible to get a ABG done frequently

Approximate cut-off's of ROX index:

Hours after admission	ROX index	Requirement of IMV
2 hours	≤ 2.85	95%
6 hours	≤ 3.47	99%
12 hours	≤ 3.85	99%
≥ 12 hours	≤ 4.88	80%

AP11-563

Predicting urine output of patients in Intensive Care Unit using deep neural network based on MIMIC-III data

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Background and Aim

Patients receiving treatment in the intensive care unit (ICU) are vulnerable to acute kidney injury, and acute kidney injury is associated with an increase in mortality in ICU patients. Preventing the exacerbation of acute kidney injury will be easy if clinicians can predict a patient's urine output in the ICU.

Methods

In this study, we developed a deep learning model that can predict the urine volume of patients based on data measured bedside. Data were extracted from the Medical Information Mart for Intensive Care III (MIMIC-III). The model predicts the patient's average urine output over the next 12 hours from patient data obtained non-invasively in the intensive care unit every hour for 24 hours. It was trained using 1,087,860 data of 4,673 people and tested with 65,457 data of 276 people.

Results

The area under the curve of the receiver operating characteristic curve was calculated to be 0.9519. Before knowing the risk of acute renal injury due to an increase in serum creatinine, the model quickly predicted the risk of acute renal injury by an average of 705.8 minutes (99.9% CI [305.64 minutes, 1105.96 minutes]).

Conclusion

Through this study, we designed a model that can predict a patient's urine volume with high accuracy only with data obtained in a non-invasive way using deep learning, and the possibility of designing a model that can predict the onset of acute kidney injury by extending this study was presented.

AP11-564

obesity paradox in sepsis: a multicenter prospective study

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Background and Aim

The nutritional status is one of prognostic factors in sepsis. Recently, there are growing evidences regarding the obesity paradox in sepsis. However, Asian have different profile of body mass and definition for obesity from Western population. The association between body mass and sepsis outcome is not fully understood in Asian population. This study aimed to evaluation the impact of obesity on sepsis outcome in a Korean National Sepsis cohort.

Methods

A multicenter prospective observational study was conducted in 20 intensive care units in 19 hospitals from September 2019 to December 2020. Eligible patients with sepsis (n = 6,424) were classified into obese (n=1,335) and non-obese groups(n=5,089). Then, non-obese patients were 1:1 propensity-matched to obese patients based on age, comorbidity index, SOFA, clinical frailty score and ECOG. The primary outcome was the hospital mortality.

Results

After propensity matching, obese and non-obese groups were balanced in baseline characteristics. The hospital mortality was higher in non-obese group than in the obese group (32.7% vs 25.3%; $p < 0.001$). The home discharge rate was higher in the obese group than in the non-obese group (70.3% vs 65.1%; $p=0.016$). The obese group showed higher mean frailty score and lower ECOG at discharge than the non-obese group, respectively (4.7 ± 2.0 vs 5.0 ± 2.1 , $p=0.020$; 2.6 ± 1.8 vs 3.0 ± 1.8 , $p < 0.001$).

Conclusion

Obesity paradox existed in a Korean cohort of sepsis. Obesity was associated with higher hospital survival and functional outcome at discharge.

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AP11-565

The effects of Polymyxin B Hemoperfusion to multiorgan dysfunction in patients with sepsis : A Korean multicenter cohort study

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Background and Aim

In meta-analysis, Polymyxin B hemoperfusion (PMX-HP) has shown improvement of survival in patients with sepsis but it is still controversy of clinical benefits. So this retrospective study aimed to evaluate the effect of PMX-HP compared to Continuous Renal Replacement Therapy (CRRT).

Methods

This study evaluated the efficacy of applying PMX-HP as compared with using CRRT only, in multiple organ dysfunction measured using delta Sequential Organ Failure Assessment (SOFA) scores among 7113 critically ill patients with sepsis from 18 different hospitals in South Korea. Patients were enrolled who were 19 years old or older and had been admitted to an ICU with recognized sepsis and they were from non-ICU hospital wards or ER. The exclusion criteria were not receiving renal replacement therapy (RRT) or receiving RRT after 3 days

Results

The 794 patients were enrolled from 7113 patients with sepsis, 88 (1.2%) received PMX-HP treatment with or without CRRT, while 706 (9.9%) patients received only CRRT. The initial SOFA score was no difference between PMX-HP and CRRT group (median 7.50 vs 8.00, $p=0.217$), and in the delta SOFA score between day0 and day7, PMX-HP group did not show slowing progression in multiple organ dysfunction over CRRT only group (median -1.00 vs 1.00, $p=0.055$). However the 28 day mortality rate was lower in PMX-HP group than CRRT only group (38.6% vs 52.4%, $p=0.017$).

Conclusion

Among patients with sepsis, PMX-HP treatment is not significantly lead to delay progression to multiple organ dysfunction than applying CRRT only, but shows improving 28 day mortality rate.

AP11-566

TDI01, a selective ROCK2 inhibitor, alleviates inflammation and vascular permeability in mouse model of ALI/ARDS.

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Background and Aim

Acute lung injury (ALI)/ acute respiratory distress syndrome (ARDS) is a severe and dangerous disease. Currently, the treatments are still limited. Disrupted endothelial barrier results in increased vascular permeability and inflammation, which are pathological hallmarks of ALI/ARDS. TDI01, a novel and selective ROCK2 inhibitor, is currently being tested in phase I clinical trials for the treatment of idiopathic pulmonary fibrosis and silicosis. Therefore, in the present study, the effect of TDI01 on LPS-induced inflammatory injury and vascular dysfunction in mouse model was investigated.

Methods

WT mice were randomly divided into LPS and TDI01+LPS groups and intratracheally injected with LPS (10mg/kg). TDI01 was orally pretreated (200mg/kg) for 3 days in TDI01+LPS group. Histological changes were determined by hematoxylin-eosin (HE) staining and scored. Proinflammatory cytokines mRNA expression was examined. Vascular permeability was tested by quantification of FITC-dextran and EBD extravasating from pulmonary vessels. Mechanistically, ROCK2 activity was also assessed by phosphorylation level of various substrates (ERM, MLC) and autophosphorylation by ROCK2 on S1366.

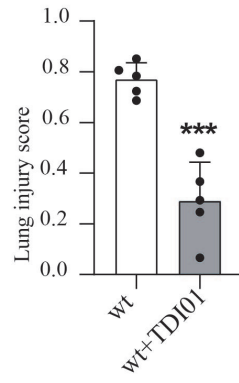
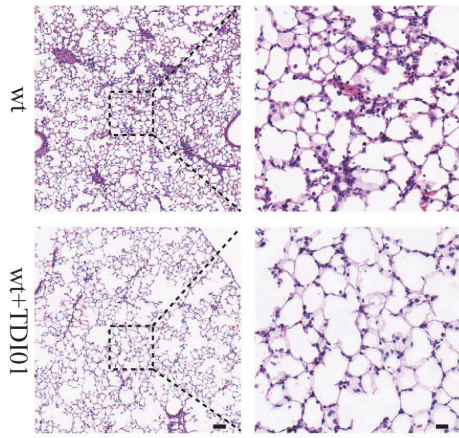
Results

TDI01 could effectively inhibit endothelial ROCK2 activity as determined by decreased colocalization of pERM, pMLC2 and p-ROCK2 with VE-cadherin. Histology and proinflammatory cytokines expressions demonstrated an effective reduction in inflammation in TDI01 pretreated group. Significantly decreased exosmic FITC-dextran and EBD were also observed.

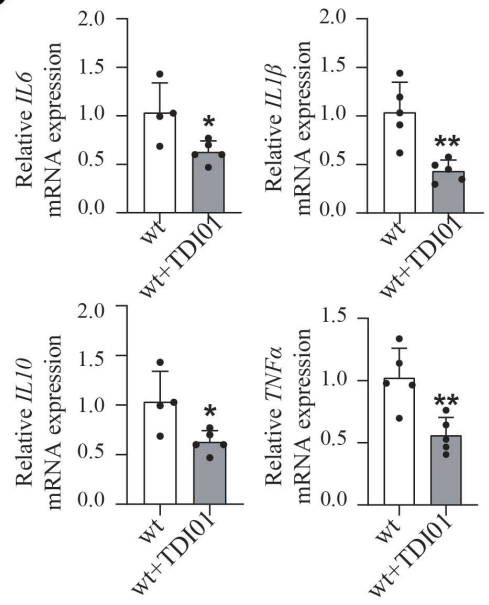
Conclusion

The present study revealed that TDI01 exhibited a beneficial effect in alleviating the inflammatory response and pulmonary edema. Besides, TDI01 could exert its function in preservation of vascular integrity. TDI01 provides potential valuable insights for the treatment of ALI/ARDS.

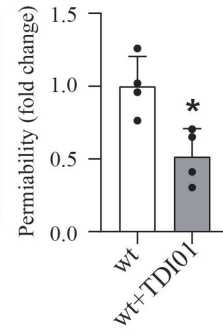
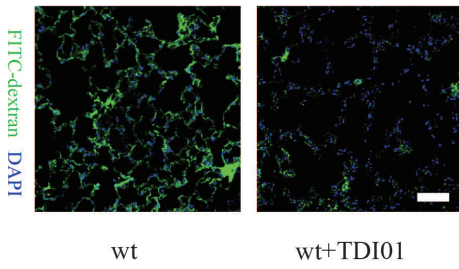
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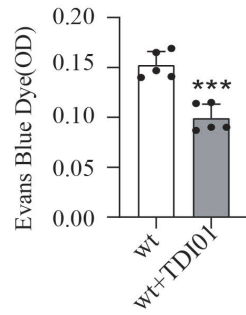
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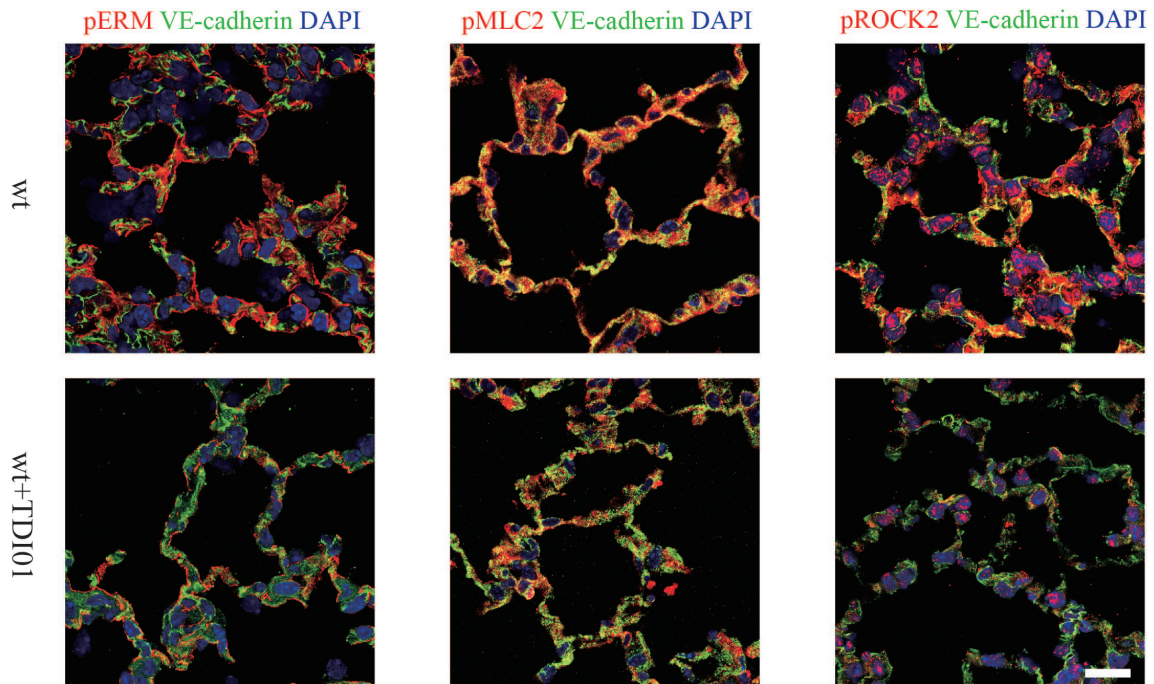
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AP11-567

Application of 2019 ESC guidelines in patients with high-risk acute pulmonary embolism

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Background and Aim

Recent 2019 ESC guidelines for acute-phase treatment of high-risk pulmonary embolism (PE) recommends extracorporeal membrane oxygenation (ECMO) in combination with surgical embolectomy or catheter-directed treatment, in refractory circulatory collapse or cardiac arrest. Since January 2019, we followed the 2019 ESC guidelines for management of patients with hemodynamic instability in acute high-risk PE.

Methods

We retrospectively reviewed medical records of patients diagnosed with acute high-risk PE and treated with ECMO between January 2014 and December 2021. Treatment by 2019 ESC guideline was applied since 2019. We compared the outcomes of the guideline treatment with conventional treatment.

Results

Total 25 patients were enrolled in the study (guideline group 9, conventional group 16). Mean age was 59 in guideline group and 53 in conventional group (p-value 0.45). Time from PE diagnosis to ECMO application was 1.8 hours [standard deviation (SD) 3.6 hours] in guideline group and 2.5 hours (N=7) (SD 3.5 hours) in conventional group (p-value 0.68). Overall 30-day mortality was 33.3% [95% confidence interval (CI) 2-63] (3/9) in guideline group and 43.7% (95% CI 18-67) (7/16) in conventional group (odds ratio 0.65, p-value 0.69). Surgical embolectomy was performed in 88.8% (8/9) of guideline group and 56.2% (9/16) of conventional group (odds ratio 5.82, p-value 0.18) after application of ECMO. Cardiac arrest occurred in 55.5% (5/9) of guideline group and 75% (12/16) of conventional group (p-value 0.39).

Conclusion

After applying 2019 ESC guidelines, surgical embolectomy is increasing, cardiac arrest and mortality are decreasing compared with previous days.

AP11-568

Prevention of invasive mechanical ventilation in severe COVID-19 with pulse corticosteroid therapy: a case report

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Introduction

Pulse corticosteroid therapy has shown to be effective for severe COVID-19 patients in various studies, particularly in reducing the rate of invasive mechanical ventilation and mortality. Inexpensive and easily accessible, this regimen is among the most feasible options in developing countries, especially in a high-burden setting.

Case report

A 33-year-old man positive with SARS-CoV-2 presented at the emergency department with progressive dyspnea. Upon admission, his respiratory rate was 25 breaths per minute and SpO₂ (saturation of peripheral oxygen) was 92% on room air, but then worsened rapidly with an SpO₂ fluctuating around 84% despite receiving HFNC (high flow nasal cannula) 50l/min and ABG (arterial blood gas) readings indicating respiratory alkalosis. His conditions suggest hyperinflammatory response in COVID-19, represented by high d-dimer (1.49 mcg/mL), ferritin (>2000 ng/mL) and C-reactive protein (40.53 mg/l) levels. As such, pulse therapy was initiated with methylprednisolone 40mg x 12 vials. He was also re-evaluated every 12 hours to gradually decrease corticosteroids dosage (see table). Until hospital day 17, as his clinical condition improved, the ABG levels returned to normal and ferritin dropped to 1000, he was switched to oxygen mask 8l/min. Corticosteroids use ended on day 21, and 3 days later, two consecutive negative tests led to his discharge.

Discussion

Without any serious adverse events and complications, pulse therapy has proven to be safe and effective on this patient, which is of particular interest and suggests randomized control trials to be conducted to further examine its effectiveness.

Acknowledgement

The authors are grateful for Dr. Thu-Anh Nguyen, Woolcock Institute of Medical Research, Hanoi, Vietnam and all health workers at Thu Duc City hospital for their support in the data collection process, the patient care and in the preparation of this case report.

Date	Corticosteroid use per day
Hospital day 1 - 2	None
Hospital day 3	Dexamethasone 4mg/1ml x 2 ampoules Methylprednisolone 40mg x 12 vials
Hospital day 4 - 5	Methylprednisolone 40mg x 9 vials
Hospital day 6 - 8	Methylprednisolone 40mg x 4 vials
Hospital day 9 - 10	Methylprednisolone 40mg x 2 vials
Hospital day 11	Methylprednisolone 40mg x 4 vials
Hospital day 12 - 15	None
Hospital day 16 - 19	Methylprednisolone 40mg x 1 vials
Hospital day 20	Dexamethasone 4mg/1ml x 2 ampoules
Hospital day 21	Corticosteroid use ended.

AP11-569

Comparisons of HATCH, HAVOC and CHA2DS2-VASc scores for all-cause mortality prediction in atrial fibrillation: a real-world evidence study

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Objective

This study focused on the predictive ability of the 3 scores for all-cause mortality in 6444 patients with atrial fibrillation (AF).

Methods

To assess the predictive accuracy of risk of death modelled by HATCH, HAVOC and CHA2DS2-VASc scores, the area under the curve of receiver operating characteristics (AUROC) was applied.

Results

Over follow-up time, the cumulative incidence of death was clearly associated with the three scores (log-rank test, $p < 0.001$). The AUROC for the HATCH (0.6618) was significantly higher than HAVOC Score (0.5733) and CHA2DS2-VAScs Score (0.6423).

Conclusion

HATCH score has better ability in predicting mortality in comparison to other two scores in patients with AF.

Keywords

adult intensive & critical care; cardiac epidemiology; cardiology.

NONE

AP11-570

Continous Positive Airway Pressure with Bain Circuit in patients on NIV for Hospital Transfers

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Background

Continous Positive Airway Pressure with Bain Circuit in patients on NIV for Hospital Transfers to intensive care and Radiology suites between Bain Circuit and Transport Ventilator through a case-series.

Methods

During the second surge of COVID from April to July 2021, total of 50 patients were transferred on NIV to various COVID ICU's, Post COVID ICU's and Radiology department for CT scans of Thorax. The maximum distance being 1.9 kilometers to COVID ICU and minimum distance of 100 meters to CT Scan from the Emergency Medicine Department. This study is a Case Series observing for hazards during the process of shifting patients on NIV by either CPAP mode of transport ventilator or Bain circuit attached to the face interface. All patients who were transported were accompanied by ACLS certified doctors and those transported to the designated COVID ICU's were done in ACLS ambulances. A pre transport ABG was performed to rule out insufficient oxygen delivery in all cases. All 50 patients were diagnosed cases of COVID pneumonia on clinical examination, RT-PCR, bedside X-ray and HRCT thorax during the course of hospitalization.

Results

Of the 50 instances of transfer noted in our study, 40 such patients were transported using Bain circuit attached to the NIV interface attached to the oxygen cylinder providing a steady flow of 10 -15 l/min. During transfer using transport ventilator out of the 10 instances, 3 times patients have desaturated resulting in the usage of spare cylinder. No catastrophic event (Death) was recorded.

Conclusion

Bain circuit when attached to the NIV mask proved to be more reliable in transporting patients to COVID ICU than CPAP mode of transport ventilator.

We strongly recommend this approach to improve the safety of COVID patients in transport who is on NIV. There is a need to compare the results of this study at multiple centers so as to arrive to a generalized outcome.

AP11-571

A machine learning model for predicting weaning success using only ventilator data during spontaneous breathing trials.

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Background and Aims

Liberation from mechanical ventilation is an important intervention determining successful treatment for critically ill patients with acute respiratory failure. Although there have been many studies to predict the appropriate extubation timing, but it has been difficult to apply in the real world including multiple parameters in various situations. This study aims to develop a machine learning model to predict weaning success using only ventilator data which is routinely available information during spontaneous breathing trial (SBT) in most intensive care unit settings.

Methods

For patients who were candidate for weaning from mechanical ventilation, SBT was performed for about 10 to 30 minutes. We collected ventilator data, including waveform and numeric data, and extubation was performed if the patient was tolerated during SBT. The proposed model architecture is based on a convolutional neural network (CNN). The model classifies the weaning result of patients using ventilator data.

Results

A total of 138 patients were included in the study, 103 successfully weaned mechanical ventilator and 35 patients failed and resumed mechanical ventilator. Enrolled patients were randomly assigned to either the training cohort (n = 110) or the validation cohort (n = 28). The area under the receiver operating characteristic (AUROC) value for weaning prediction showed 0.91.

Conclusion

Prediction model using only ventilator data provides a simple and promising tool to assist clinicians in determining the optimal extubation time.

AP11-572

Post-appendectomy Chemical Pneumonitis leading to Acute Respiratory Distress Syndrome: An Unusual Case of Mendelson's Syndrome

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Introduction

Mendelson's syndrome is a spectrum of conditions ranging from chemical pneumonitis to full-blown acute respiratory distress syndrome (ARDS) resulting from aspiration of gastric contents. Recognition may be challenging, hence, the diagnosis may be overlooked causing unintentional delays in management.

Case Report

We present a case of a 45-year-old female who was admitted in a tertiary government hospital for acute appendicitis. During emergency appendectomy, gastric intubation occurred with resultant aspiration of gastric contents leading to bronchospasm and delayed extubation. She was initially managed as respiratory failure from nosocomial pneumonia with hyperreactive airway. Unfortunately, chemical pneumonitis was not entertained until the fourth hospital day. Her condition worsened rapidly to ARDS with persistent hypoxemia and high PEEP requirements. Empiric antibiotics, low tidal volume ventilation, high dose steroids, sedation, recruitment maneuvers and supportive management were instituted. Despite all these, her condition worsened as she developed ventilator-associated pneumonia and septic shock which ultimately led to her demise.

Discussion

The main challenge in this particular case was the recognition of Mendelson's syndrome because of its relative rarity and the patient's unusual presentation. Possible risk factors for its development was the emergency nature of the surgery and the occurrence of gastric intubation intraoperatively. Unfortunately, there are no well-established guidelines on the management of this disease. Therefore, because of its significant morbidity and mortality, prevention is the best form of treatment. In addition, timely recognition of risk factors and a coordinated interdisciplinary team approach are vital for improving patient outcomes

AP11-573

Peptic Pneumonia: A Case of Mendelson Syndrome in a Post-Partum Presenting as Massive Venous Thromboembolism

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INTRODUCTION

Mendelson Syndrome, also termed as Peptic Pneumonia, was described as chemical pneumonitis in young obstetrical patients following aspiration of gastric acid under anesthesia who developed respiratory distress and cyanosis within two hours of suspected aspiration which may cause death. Chest radiographs can reveal unilateral or bilateral lower lobe infiltrates.

CASE REPORT

A 27-year-old G2P2002 delivered a baby boy via NSD under inhaled anesthesia, was transferred to the ICU an hour after delivery for sudden onset of respiratory distress with desaturations and hemodynamic instability. Furthermore, she had a week of bed rest for oligohydramnios on her last three weeks of pregnancy. Massive pulmonary embolism was highly entertained and was started on systemic anticoagulation. Her worsening condition with gross hematuria and weakness of both upper extremities prompted transfer to the Philippine Heart Center. Initial chest radiograph showed extensive pulmonary edema. Further work-ups revealed negative CT-pulmonary angiography with leg venography and normal 2D-echocardiogram which ruled out massive venous thromboembolism. Sputum cultures were sterile, hence diagnosis of Mendelson Syndrome. She was started on non-invasive ventilation, empiric antibiotics and diuretics with rapid resolution of pulmonary congestion. She was successfully weaned off from NIV and discharged improved.

DISCUSSION

In peptic pneumonia, the severe symptoms may lead us to think of amniotic fluid embolism or massive pulmonary embolism. Early recognition and awareness of the syndrome is key for the patient's recovery and improvement. This entity is now rarely taken into account given the COVID-19 pandemic has markedly limited patient-physician monitoring especially in the obstetrical field.

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DISCLOSURE: No conflicts of interest

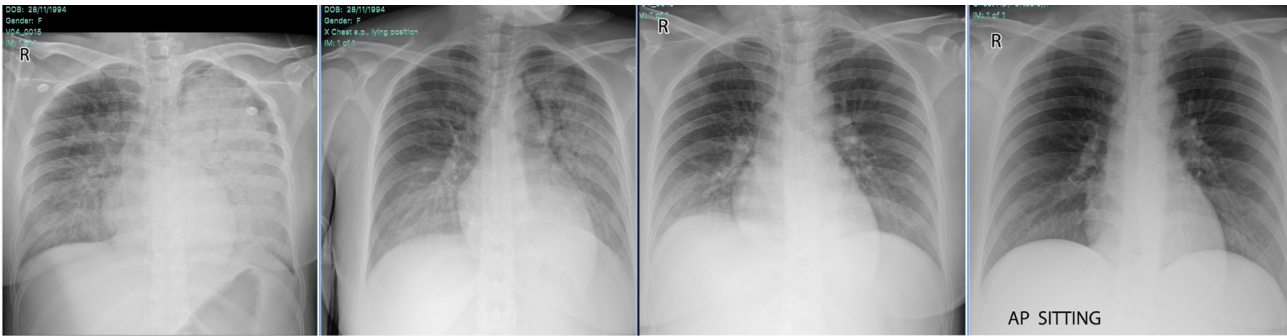


Figure 1.A

Figure 1.B

Figure 1.C

Figure 1.D

Figure 1. Chest radiographs of patient, MK with Peptic pneumonia, also known as Mendelson Syndrome.

- 1.A Admitting chest radiograph** showing acute pulmonary edema, atypically and uncommonly more on the left than right lung.
- 1.B 24 hrs after initiation of NIV** and maximal diuretics showing partial clearing of congestion
- 1.C Hospital Day 5.** Weaning of NIV started with radiographs showing significant clearing of congestion
- 1.D Hospital Day 8 prior discharge.** At 2LNC. Complete clearing of pulmonary congestion.

AP11-574

Acquired central alveolar hypoventilation as a sequelae of brainstem tuberculoma

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Introduction

Central alveolar hypoventilation (CAH) syndrome is characterized by the loss of automatic breathing. This occurs mainly during sleep. We describe a young patient with CAH caused by brainstem tuberculoma who was dependent on mechanical ventilation despite anti-tuberculous treatment.

Case report

We report a rare case of CAH in a 16-year-old girl who was initially diagnosed with brainstem glioma based on magnetic resonance imaging. She developed episodic apnoea during awake and sleep after undergoing craniotomy and debulking of the tumour. The histopathological examination of the brainstem specimen revealed a diagnosis of brainstem tuberculoma. She had persistent CAH 2 weeks after initiation of anti-tuberculous medication. We performed gradual weaning of PC-SIMV over a period of 2 weeks. The final ventilatory setting was IPAP 14 cmH₂O, PEEP 6 cmH₂O and pressure support 10 cmH₂O with a rate of 16 breaths/minute with the portable ventilator (Trilogy EVO, Philips Respironics). Serial sleep report generated from PC-SIMV ventilator showed no significant reduction in frequency of central apnoea event. She underwent regular rehabilitation which included locomotor training, chest wall range of motion exercise, upper extremities ergometer, and mechanical insufflation pressures of -20 cmH₂O and exsufflation pressures of minus 20 cm H₂O for airway secretion elimination.

Discussion

This case report highlights a rare neurologic complication of brainstem tuberculoma with resultant CAH. Early identification and initiation of appropriate ventilation strategies can help to improve outcomes associated with chronic hypercapnic respiratory failure. Ventilation titration should be individualised, based on clinical pathway and time required for ventilation.

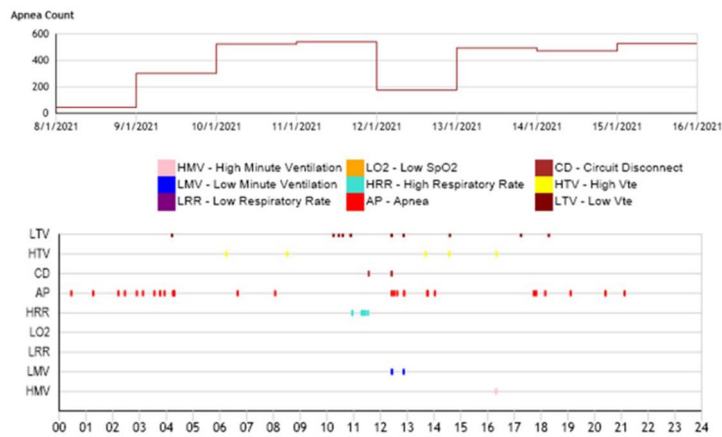
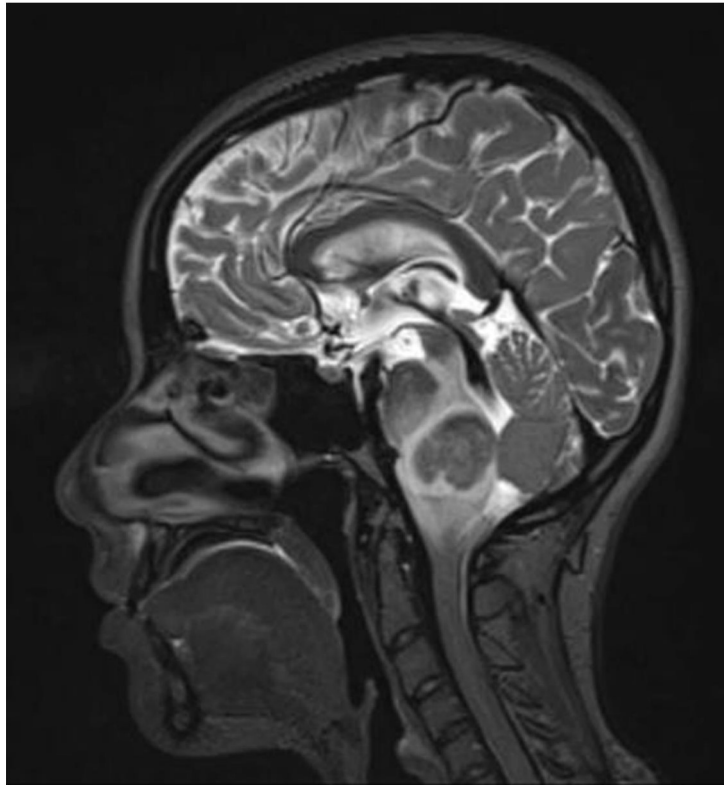


Figure 1: A: MRI sagittal view shows lobulated mass at the pontomedullary junction with extensive white matter oedema and obstructive hydrocephalus. B: Sleep report generated from the PC-SIMV ventilator showing the significant apnoeic episodes.

AP11-575

A Meta-analysis on Preoperative Incentive Spirometry in Preventing Pulmonary Atelectasis in Post-Coronary Artery Bypass Grafting Patients

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Background

Atelectasis is a major cause of morbidity among post-operative patients such as those who underwent Coronary artery bypass grafting surgery. Post-operative atelectasis is brought about by the effect of using high concentration inspiratory oxygen during induction of anesthesia, mucus plug, use of muscle relaxant and inadequate pain control. Interventions should be rendered to prevent such complication. One of this is incentive spirometry which is a simple, readily available, and cost-effective intervention.

Objectives

Ascertain the efficacy of preoperative incentive spirometry in preventing atelectasis in post-CABG patients.

Methods

A literature search showed 23 records, from which 10 non-randomized studies were excluded. On the set inclusion and exclusion criteria, only 2 articles were eligible for review. Two reviewers assessed the quality of the studies. Selected studies were found to be of low risk of bias based on Review Manager Bias assessment tool. Statistical analysis were done using the Review Manager Software 5.3.

Results

Study 1 crossed the line of null effect, which means the null value lies within its 95% confidence interval. On the other hand, Study 2 didn't cross the vertical line. This shows that there is a practical significance between the treatment and control groups, favoring the treatment group. In the plot, on average the studies show an effect that favors the treatment group.

Conclusion

Atelectasis postoperatively lead to morbidity and prolonged hospitalization. Incentive spirometry which is a simple, yet readily available intervention should be rendered and given prime importance. This meta-analysis shows that pre-operative incentive spirometry can practically prevent the development of post-operative atelectasis.

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AP11-576

Case of Post hypercapnic metabolic alkalosis

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Introduction

Post hypercapnic metabolic alkalosis is under looked problem which can result worsening of CO₂ retention and difficulty in weaning off leading to prolonging ICU stay, in the patients with chronic CO₂ retention.

Case report

63 years old female with type 2 diabetes, hypertension, morbid obesity (52 kg/m²) and severe obstructive sleep apnea (OSA) with defaulted follow-up, admitted following found fallen. Her SpO₂ 90 % on admission. She had received supplemental oxygen and SpO₂ of 100% maintained at accident services unit. Patient deteriorated and was admitted to ICU. (Summary of ABGs- Table 1)

Diagnosis was type 2 respiratory failure with possible underlying OHS /OSA with pulmonary hypertension and RHF was made. BNP 2000 pg/mL. Bilateral effusions were transudate effusion. She was treated with iv frusemide 40 mg daily. Patient was extubated on ICU day 4 and thereafter received Non-invasive ventilation (NIV) with high BiPAP settings.

On day 6 patient found to have progressively worsening metabolic alkalosis and unresolving hypercapnia despite of NIV. Extensive evaluation did not reveal cause for alkalosis. On day 8 due to worsening metabolic alkalosis, acetazolamide was added. Following that she had marked improvement in metabolic alkalosis as well as CO₂ retention was noted and managed to wean off successfully.

Conclusion

In severe metabolic alkalosis there is a risk of developing hypoventilation as a compensatory mechanism which result respiratory depression and CO₂ retention prolonging need for assisted ventilation and ICU stay. In such instances Acetazolamide facilitate weaning off by decreasing serum bicarbonate and increasing respiratory drive.

Day	1	3	6	7	8	9	10
pH	7.054	7.37	7.56	7.607	7.646	7.5	7.4
PaCO ₂	137.5	60	72.2	72	54.3	56	74.3
PaO ₂	67.7	89.3	78.4	75.4	53.3	86	92.4
HCO ₃	38.7	33.9	66	72.5	59.8	48	47.6

AP11-577

Predictors of consciousness recovery improvement in patients with hypoglycemic encephalopathy.

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Aim

Hypoglycemic encephalopathy (HE) can cause long-lasting mental changes, disability, and even death. We aimed to investigate prognostic factors for HE and to determine when the treatment of HE becomes futile.

Methods

We retrospectively evaluated the data of patients admitted for prolonged HE at Dongguk University Ilsan Hospital between December 2005 and July 2021. We assessed the Glasgow Outcome Scale (GOS) to assess functional outcome.

Results

Forty-four patients were enrolled in the study. Thirty-two of these showed the improvement on GOS after treatment. Patients with improved consciousness had a shorter duration of hypoglycemia (2.48 ± 2.18 vs. 5.59 ± 6.76 hours, $p = 0.04$) and a lower incidence of brain lesions than those without improvements in consciousness (76.0% vs. 25.0%, $p < 0.01$). Patients whose lesions were detected in initial MRIs were 1.3 times less likely to recover consciousness after HE (odds ratios, 1.28; 95% CI, 1.09-1.52; $p < 0.01$). None of the patients recovered consciousness after 320 h. Maximum time spent to recover was 194 in Ppatients without brain lesions and 319 recovered much faster thanin those with lesions. (194 vs. 319 h, $p < 0.01$).

Conclusion

Hypoglycemic brain injury detected in initial MRIs predicted poorer HE prognosis. Nevertheless, treatment should be provided for at least for 14 days after admission.

AP11-578

Survival time of coronavirus disease (COVID-19) patients using mechanical ventilation during first wave pandemi at National Respiratory Referral Hospital, Jakarta

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Background and Aim

The severity of COVID-19 varies from mild to critical. Critically ill COVID-19 patients with ARDS receiving mechanical ventilation have a high mortality rate.¹ More severe the ARDS degrees have worse outcome.^{2,3} This study focus on survival time of COVID-19 patients who use ventilator during the first wave of pandemi.

Methods

This retrospective survival cohort analysis observed critically ill COVID-19 patients receiving mechanical ventilation treated at a national respiratory center in Jakarta, Indonesia, between March and September 2020. Data were obtained from medical records.

Results

51 subjects had complete medical records and met the study criteria. Subjects were predominately male (58.8%), mean age of 55.98 years (+ 11,96) and median BMI of 23.9 kg/m² IQR (17-54). The median duration of mechanical ventilation was 4 days IQR (1-20) with survival rate of 7.8%. The median value of PaO₂/FiO₂ levels was 72 mmHg IQR (31-606) as the most of the subjects suffered from severe ARDS (84.3%). The median survival of critically ill COVID-19 patients with mechanical ventilation was 4 days (95%CI;3.139-4.861) and the mean survival was 5.5 days (95%CI;4.213-6.922). The median survival of subjects with severe ARDS was 4 days (95% CI;3.223-4.777). Median survival of subjects without severe ARDS was 6 days (95%CI; 2.799-9.201) with HR=0.802 (95%CI;0.337-1.911, p=0.619).

Conclusion

The survival rate for critically ill COVID-19 patients with mechanical ventilation at the start of the pandemic was low with a survival period of 4 days. The severity of ARDS before intubation influenced the survival rate.

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AP11-579

A patient with COVID pneumonia presenting with bilateral lower limb weakness

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Introduction

In this, we are reporting about a COVID 19 patient with bilateral arterial thrombosis in lower limbs causing acute limb ischemia while on therapeutic doses of Warfarin.

Case Report

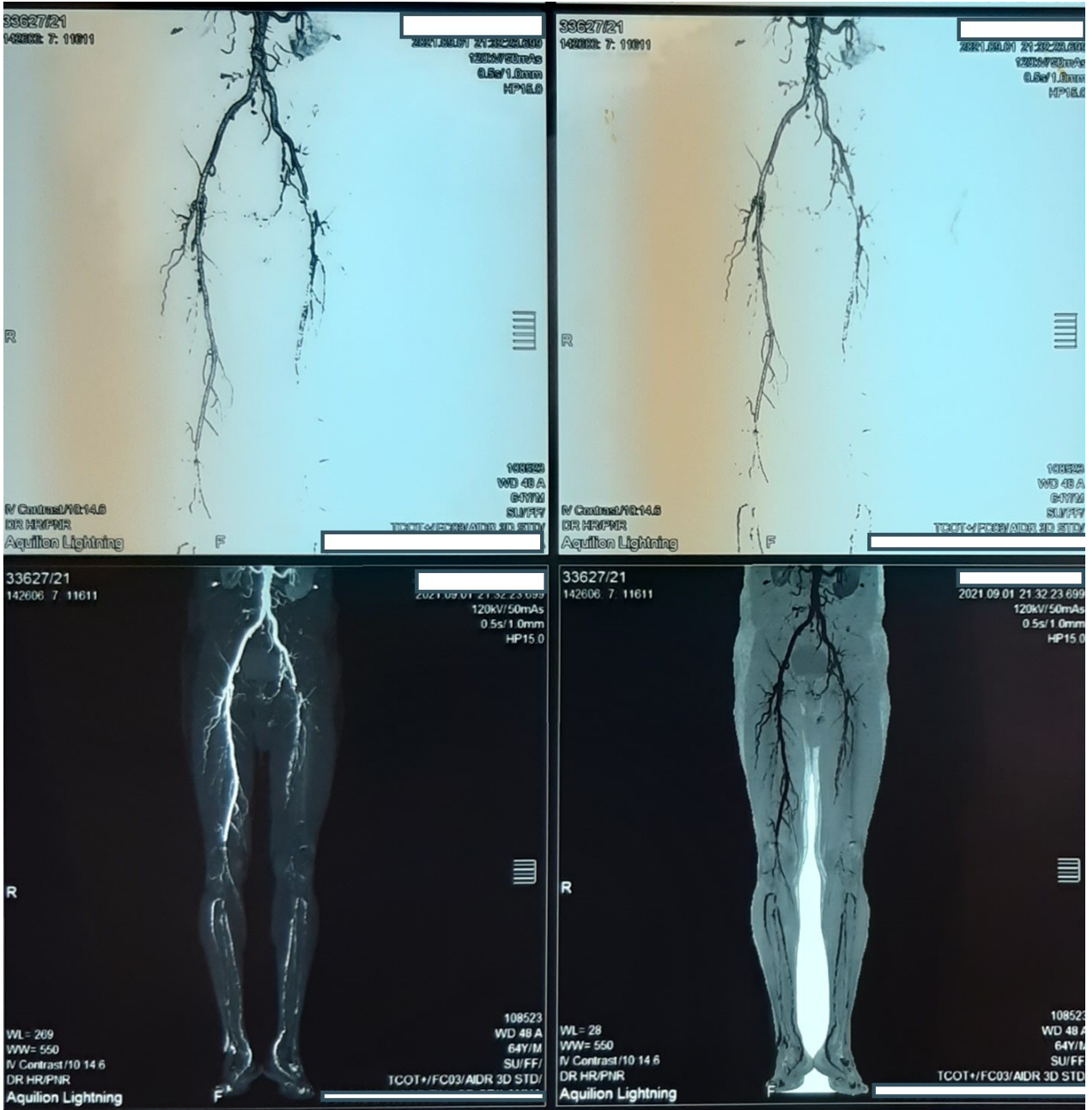
A 64yr old diagnosed patient with Diabetes Mellitus, Hypertension, and Ischemic left ventricular failure with a history of left ventricular thrombus on Warfarin presented to the emergency department with a five days history of cough and shortness of breathing. The Patient was found to be positive for COVID 19 with a rapid antigen test done on admission. His INR was within the therapeutic range and had an elevated D dimer level of >3000ng/mL.

High-resolution CT revealed peripheral ground-glass opacities and CT pulmonary angiogram excluded the possibility of pulmonary embolism. He was managed for severe COVID pneumonia with steroids, intravenous antibiotics, therapeutic doses of Enoxaparin, and High Flow Nasal Oxygen which was weaned off by the 10th day.

On the 11th day, he complained of bilateral lower limb pain and weakness and he was found to have absent pulses beyond the femoral artery. CT angiogram revealed occlusion of bilateral lower limb arteries from the level of the common femoral artery on the left side and the level of origin of the popliteal artery on the right side. The patient was started on a Heparin infusion and decided to manage conservatively as the limb was not viable. Late in the course of his illness patient succumbed to sepsis despite receiving all supportive care.

Discussion

In conclusion, it is important to consider both arterial thrombosis and venous thromboembolism in critically ill patients with COVID 19.



AP11-580

Doege-Potter Syndrome: A Rare Paraneoplastic Syndrome of Solid Fibrous Tumors Reported in Indonesia

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Introduction

Solitary Fibrous Tumors (SFT) are rare groups of tumor; even rarer, it is associated with Doege-Potter syndrome (DPT), a paraneoplastic syndrome that manifests as hypoglycemia. To our best knowledge, this is the first case of DPS in Indonesia.

Case

A 60-year-old woman was admitted to ER with dyspnoea and loss of consciousness. She was sopor, and her glucose level showed 21mg/dL. Her chest X-Ray showed a solid mass on her right lung. Her previous biopsy concluded she had a solid fibrous tumor, and her history showed she had profound hypoglycemia. She underwent tumor resection and showed no sign of hypoglycemia. We concluded she was having a Doege-Potter-Syndrome, a paraneoplastic syndrome associated with her solid fibrous tumor.

Discussion

Hypoglycemia in a patient with SFT caused by a paraneoplastic syndrome called Doege-potter-syndrome is a rare disease that has been reported in less than 2000 cases worldwide. It is caused by IGF-II that is excreted ectopically by the tumor, and had similarity to insulin. Gold standard therapy for SFT and symptoms from DPS is getting radical resection for tumor, and we should perform a CT scan followed up at least in the first two years. We as practitioners should recognize it properly, perform an adequate examination and give prompt treatments to increase the patient's quality of life, even though it is a rare disease and hard to diagnose.

Keywords

Doege-Potter-Syndrome, Solid Fibrous Tumor, Hypoglycemia

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Disclosure Statement: I have nothing to disclose

AP11-581

Case of Re expansion pulmonary edema

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Introduction

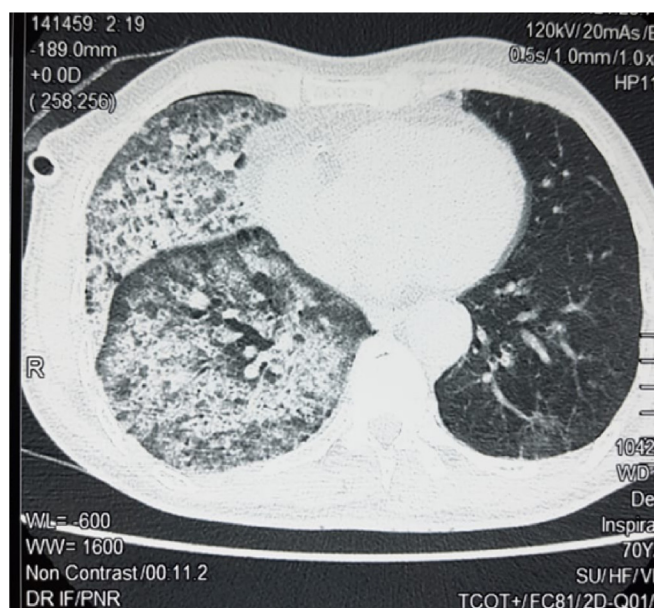
Re expansion of pulmonary edema (RPE) is rare complication that occurs following thoracocentesis for pneumothorax and pleural effusion. Clinical presentation can range from asymptomatic isolated radiological changes to cardiopulmonary insufficiency.

Case report

A 70yr old ex- smoker presented with shortness of breath and pleuritic type chest pain for 1 month. He had right sided pneumothorax with mediastinal shift in his CXR on admission and underwent IC tube insertion to right side. HRCT done on following day revealed right side ground glass opacities, septal ticking with crazy paving suggestive of unilateral pulmonary edema on right side. USS revealed multiple B lines on right lung. Differential diagnosis was re-expansion pulmonary edema, atypical chest infection, pulmonary hemorrhages. Normal inflammatory markers and spontaneous clearance of right-side pulmonary shadows made atypical chest infection less likely. No associated hemoptysis, stable hemoglobin level, made pulmonary hemorrhages unlikely. Repeat CXR following 4 days showed clearance of unilateral pulmonary edema.

Conclusion

RPE can occur immediately after procedure to 24-48 hours later. Most of the patients develop acute shortness of breath, cough, and hypoxia 1-2hrs after IC tube insertion and recover within 5-7 days but rarely it can be fatal. Diagnosis of re-expansion pulmonary edema can be easily missed. Consider re expansion pulmonary edema in any patient who develop unilateral pulmonary edema following insertion of intercostal tube. Treatment is mainly supportive. In severe cases intubation and mechanical ventilation may be required



AP11-582

Development and validation of knowledge, attitudes and practices questionnaire on venous thromboembolism prophylaxis of internists in a tertiary hospital in the Philippines

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Background

The leading cause of hospital-related death is venous thromboembolism (VTE). Venous thromboembolism is a preventable cause of in-hospital death and there are several guidelines that recommend VTE prophylaxis in different specialties. Currently there is no validated questionnaire to assess the knowledge, attitudes and practices (KAP) on VTE prophylaxis that is tailored for Filipino physicians.

AIMS

The researchers aim to develop and validate a questionnaire assessing the knowledge, attitude and practices on venous thromboembolism prophylaxis of internists.

Methods

Phase 1-3 of this study involved the questionnaire formulation that consisted of literature review, focused group discussions, and expert opinion. There were 10 participants in the pilot testing, 10 participants for face validity and five experts for content validity. Content Validity was tested using Good and Scates. Phase 4 involved internal consistencies were tested using Cronbach's alpha coefficient. Phase 5 is full validation based on the findings of the pilot study.

Results

The VTE-KAP questionnaire was considered applicable by the participants from the pilot testing, face validity and content validity. The VTE-KAP questionnaire had 25 items under three domains knowledge, attitude and practices. The KAP sections have 10, 20, and 5 items, respectively. The Cronbach's alpha is 0.813.

Conclusion

The VTE-KAP questionnaire appeared to be applicable, valid and reliable for assessing KAP regarding VTE prophylaxis that can be used by Filipino physicians with potential application in future large-scale surveys. This can provide as a way in the formulation, application and implementation of VTE prophylaxis protocol in the different hospitals.

Table 1. Internal Consistency of the attitude part of the questionnaire using Cronbach's Alpha

Item	Observations	Sign	Cronbach's alpha without the item	Cronbach's alpha (standardized items)
b11	35	+	0.7957	0.813
b12	35	+	0.8013	
b13	35	+	0.8281	
b14	35	+	0.838	
b15	35	+	0.7822	
b16	35	+	0.7809	
b17	35	+	0.7781	
b18	35	+	0.7573	
b19	35	+	0.7666	
b20	35	+	0.8164	

AP11-583

Clinical outcomes and health-related quality of life of patients admitted at the medical intensive care unit of Baguio General Hospital and Medical Center

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Background and Aim

Although the survival of critically ill patients improved in recent years, ICU management still tends to focus less on the mental, social and psychological aspects of critical care, which can lead to worsened morbidity and quality of life. To date, this area of patient care has yet to be explored in the Philippines. This study aimed to determine the clinical outcome and health-related quality of life (HRQOL) of ICU patients in Baguio General Hospital and Medical Center.

Methods

This study included 23 critically ill patients who met the inclusion criteria. The following were assessed on admission: the clinico-demographic profile (age, sex, BMI, length of ICU stay and comorbidities), severity of illness (using SOFA and SAPS II), and HRQOL (using the interview-guided SF-36 form). The HRQOL was again assessed upon discharge and on follow-up at 2 weeks post-discharge, together with the clinical outcome.

Results

The HRQOL scores are divided into the physical component summary (PCS) and mental component summary (MCS). On admission, the PCS was 47.67, declining to 41.84 upon discharge, but then it significantly improved to 50.32 on follow-up. Meanwhile, the MCS significantly decreased from admission to discharge and follow-up, with scores at 76.82, 69.13 and 67.35, respectively (p0.05).

Conclusion

As clinicians, the results showing improvement in PCS but with declining MCS scores emphasize the importance of expanding our focus towards the mental and social aspects of critical care.

AP11-584

Association between ICU outcomes of prior systemic corticosteroids in pneumonia

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Background and Aim

Prior use of steroid may affect the immune state of ICU patients. We investigated the association between prior cumulative dose of systemic steroid and outcomes in the patients with pneumonia who admitted to ICU.

Methods

We retrospectively analyzed 36,965 patients using Korean nationwide data. Adult patients diagnosed with pneumonia from October 2016 to September 2017 who admitted to ICU were included. Prior steroid treatment was defined as prescription of systemic steroid in 90 days before index date. The patients who were prescribed other immunosuppressants were excluded. According to prednisolone-equivalent cumulative dose, patients were divided into three groups: non-user (0mg), low dose (<450mg), and high dose (≥450mg).

Results

Non-user group was the oldest among the three groups. High dose group showed the highest proportion of patients with Charlson comorbidity index score ≥3, and recent antibiotics treatment in 3 months. High dose group showed the longest ICU length of stay (LOS), the highest ICU and 1-month mortality (Table 1). Low dose and high dose group showed association with longer ICU LOS when compared to non-user group (Table 2; OR 7.19, 95% CI 5.53-9.34, $p < 0.001$ and OR 17.67, 95% CI 10.54-29.60, $p < 0.001$, respectively). Low dose and high dose group were also associated with higher mortality than non-user group (Table 3; OR 1.18, 95% CI 1.12-1.24, $p < 0.001$, and OR 1.29, 95% CI 1.18-1.42, $p < 0.001$, respectively).

Conclusion

Prior systemic steroid use was associated with worse outcome, and showed dose-response relationship in ICU-admitted pneumonia patients.

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<Table 1> Baseline characteristics

Variables	Non-user (n=18,973)	Low dose (n=15,465)	High dose (n=2,527)	P-value
Age, mean±SD	75.9±13.6	74.6±13.2	72.6±11.8	< 0.001
<40 yrs, n (%)	374 (2.0)	323 (2.1)	44 (1.7)	< 0.001
40 ~ 60 yrs	2007 (10.6)	1690 (10.9)	278 (11.0)	
60 ~ 80 yrs	7451 (39.3)	6983 (45.2)	1444 (57.1)	
>80 yrs	9141 (48.2)	6469 (41.8)	761 (30.1)	
Male sex, n (%)	10665 (56.2)	9191 (59.4)	1583 (62.6)	< 0.001
Hospital types, n (%)				< 0.001
Hospital	3412 (18.0)	2099 (13.6)	198 (7.8)	
General Hospital	11564 (60.9)	8883 (57.4)	1307 (51.7)	
Tertiary Hospital	3997 (21.1)	4483 (29.0)	1022 (40.4)	
CCI score				< 0.001
0	2876 (15.2)	2806 (18.1)	414 (16.4)	
1	4825 (25.4)	3732 (24.1)	509 (20.1)	
2	4137 (21.8)	3228 (20.9)	552 (21.8)	
≥3	7135 (37.6)	5699 (36.9)	1052 (41.6)	
Recent admission in 3m	8322 (43.9)	7348 (47.5)	1527 (60.4)	< 0.001
Recent antibiotics in 3m	2800 (14.8)	2268 (14.7)	223 (8.8)	< 0.001
Antibiotics regimen				< 0.001
β-lactam or quinolone	8135 (42.9)	5599 (36.2)	776 (30.7)	
β-lactam + quinolone	10838 (57.1)	9866 (63.8)	1751 (69.3)	
Cumulative steroid dose	0.0±0.0	105.5±97.2	1549.1±3287.1	< 0.001
Clinical outcomes				
Hospital utilization days	14.0±12.2	16.2±13.6	17.5±14.6	<0.001
ICU LOS	15.5±11.5	15.9±13.0	17.4±14.0	<0.001
ICU mortality	4881 (25.7)	4532 (29.3)	809 (32.0)	<0.001
Ventilator	4690 (24.7)	6052 (39.1)	1087 (43.0)	<0.001
ECMO	24 (0.1)	82 (0.5)	30 (1.2)	<0.001
Inotropics	9042 (47.7)	8437 (54.6)	1374 (54.4)	<0.001
1-month mortality, n (%)	6018 (31.7)	5246 (33.9)	866 (34.3)	<0.001

<Table 2> Multiple linear regression of ICU LOS

Variables	OR (95% CI)	P-value
Age	Ref	
<40 yrs	Ref	
40 ~ 60 yrs	2.40 (0.92-6.28)	0.0731
60 ~ 80 yrs	4.32 (1.74-10.73)	0.0016
>80 yrs	3.81 (1.53-9.48)	0.004
Male	1.83 (1.42-2.37)	< 0.001
Hospital types	Ref	
Hospital	Ref	
General Hospital	33.92 (23.40-49.16)	< 0.001
Tertiary Hospital	11.30 (7.44-17.18)	< 0.001
Insurance, medial aid	2.74 (1.96-3.84)	< 0.001
CCI score	Ref	
0	Ref	
1	1.68 (1.12-2.50)	0.0117
2	1.62 (1.07-2.46)	0.0220
≥3	1.30 (0.89-1.90)	0.1797
Recent admission in 1m	1.44 (1.07-1.94)	0.015
Recent antibiotics in 3m	4.28 (3.18-5.77)	< 0.001
Antibiotics regimen	Ref	
β-lactam or quinolone	Ref	
β-lactam + quinolone	18.38 (14.18-23.82)	< 0.001
Cumulative steroid dose	Ref	
Non-user	Ref	
Low dose	7.19 (5.53-9.34)	< 0.001
High dose	17.67 (10.54-29.60)	< 0.001

<Table 3> Logistic regression of 1-month mortality

Variables	OR (95% CI)	P-value
Age	Ref	
<40 yrs	Ref	
40 ~ 60 yrs	1.67 (1.32-2.11)	< 0.001
60 ~ 80 yrs	2.61 (2.08-3.26)	< 0.001
>80 yrs	4.72 (3.77-5.91)	< 0.001
Male	1.17 (1.11-1.22)	< 0.001
Hospital types	Ref	
Hospital	Ref	
General Hospital	0.49 (0.46-0.52)	< 0.001
Tertiary Hospital	0.58 (0.54-0.62)	< 0.001
Insurance, medial aid	2.74 (1.96-3.84)	< 0.001
CCI score	Ref	
0	Ref	
1	1.07 (0.99-1.15)	0.0918
2	1.03 (0.95-1.11)	0.4807
≥3	1.04 (0.97-1.11)	0.2893
Recent admission in 1m	1.22 (1.16-1.29)	< 0.001
Recent antibiotics in 3m	1.04 (0.98-1.09)	0.2042
Antibiotics regimen	Ref	
β-lactam or quinolone	Ref	
β-lactam + quinolone	0.86 (0.82-0.90)	< 0.001
Cumulative steroid dose	Ref	
Non-user	Ref	
Low dose	1.18 (1.12-1.24)	< 0.001
High dose	1.29 (1.18-1.42)	< 0.001

AP11-585

Risk of incident atrial fibrillation after a prior critical illness: novel insights into psychocardiology

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Objective

This investigation aimed at assessing the issue of incident atrial fibrillation (AF) associated with acute critical illness.

Methods

The study came from Taiwan and used that nation's Longitudinal Health Insurance Database 2000. Using propensity score matching, multivariable adjustment and competing risk methods, the correlations between the new-onset AF and critical illness (septicemia/septic shock, acute myocardial infarction[AMI], hemorrhagic stroke and ischemic stroke) were investigated.

Results

This study consisted of 46470 patients in the critical illness cohort, 618998 persons in the general population cohort. Additionally, 37,060 critically ill patients were matched with 37060 control patients based on propensity score methods. Compared with general population cohort, patients with septicemia/septic shock were 3.12-fold more likely to develop AF (95% confidence interval [CI] = 2.88-3.39), followed by patients with ischemic stroke (adjusted hazard ratio[aHR] = 1.96, 95% CI = 1.80-2.14), patients with AMI (aHR = 1.62, 95% CI = 1.32-2.00) and patients with hemorrhagic stroke (aHR = 1.46, 95% CI = 1.13-1.88). In addition, after controlling for the confounding factors and the competing risk of death, the critical illness cohort still exhibited a significantly higher risk of AF than the general population cohort (adjusted subhazard ratio [aSHR] = 2.66, 95% CI = 2.49-2.84).

Conclusion

Our study explored incident AF among patients with critical illness in their medical history. Patients with septicemia/septic shock were at the highest risk of developing new-onset AF among these critically ill patients.

Keywords

Atrial Fibrillation; Cohort Study; Competing risk analysis; Critical illness; Propensity matching.

none

AP11-586

Porcine simulation model for training ECMO for severe acute respiratory failure

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Background and Aim

With SARS-CoV-2 outbreak since 2019, the requirement for veno-venous extracorporeal membrane oxygenation (VV-ECMO) in acute respiratory failure (ARF) patients is rising high. This study aimed to evaluate the efficacy of ECMO training program using porcine model for pulmonology fellows.

Methods

Participants completed a questionnaire regarding their knowledge, experience and familiarity about ECMO before the training program begins. Two alive pigs were intubated and prepared for training. All participants attended an hour course of basic ECMO theory and animal rights, followed by hands-on practice on venous cannulation, different ECMO configurations and solutions for troubleshooting. After the training, participants answered the second survey about changes in their understanding and familiarity on handling ECMO.

Results

15 of 20 participants completed both first and second questionnaires. 8 participants had no previous training or clinical experiences. After the 1-day simulation course, 10 participants scored the training course as useful or very useful. 8 increased an improvement in their skills and familiarity with ECMO and 10 felt more confident in handling ECMO. 9 found the training helpful dealing with real-world complications.

Conclusion

Living porcine model was effective in educating pulmonology fellows with ECMO cannulation and offered various configuration experiences. Further studies are needed to clarify if ECMO training with living animals can further improve clinical outcomes.



Fig.1 Two living pigs were intubated and prepared for ECMO training. Participants were divided into two groups and joined 1-day hands-on course.

AP11-587

Impact of Remote Antibiotic Consultations in Critically Ill Patients during COVID-19 Pandemic in Korea

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Background and Aim

Inappropriate antibiotic use is a critical healthcare issue, endangering patient safety. Appropriate antibiotic use is challenging especially in critically ill patients who are already vulnerable to increased risk of adverse events (AE) from comorbidity and polypharmacy. This study was designed to promote effective measures to improve appropriate antibiotic use in ICU patients by implementing remote antibiotic consultation in collaboration with physicians and pharmacists.

Methods

Remote ICU antibiotic consultation service was implemented at a university teaching hospital (Kyung Hee University Hospital at Gangdong, Seoul, Korea) in August 2020. For pre-post analysis, pre-intervention period was classified as August to October 2017 and post-intervention period was classified as August to October 2020. The primary outcome was the number of inappropriate antibiotic prescriptions per 100 patient-days (PD). Secondary outcomes were length of ICU stay, 30-day all-cause mortality, preventable adverse drug events (PADE), and days of therapy (DOT).

Results

Inappropriate antibiotic prescriptions decreased from 83.8 to 20.7 cases per 100 PD after the initiation of remote ICU antibiotic consultations ($P < 0.01$). Remote ICU antibiotic consultations also decreased the length of ICU stay from a median of 14 days to 6 days and the number of PADEs from 4.4 to 2.8 cases per 100 PD ($P < 0.05$). However, 30-day all-cause mortality was similar between pre-and post-intervention periods.

Conclusion

Remote ICU antibiotic consultations between physicians and pharmacists may become a valuable alternative in resource-limited healthcare setting, implied by a substantial improvement of appropriate antibiotic use.

Table. Clinical impacts of remote optimization service of antibiotic therapy

	Pre-Intervention	Post-Intervention	P-value
Number of prescriptions reviewed [n]	709	556	
Number of inappropriate prescriptions [n (%)]	305 (43.0%)	52 (9.4%)	
Inappropriateness/100 PD	83.8	20.7	$p < .001$
30-Day all-cause mortality (n/admission)	8/33	9/37	$p > .05$
Length of ICU stay (median [IQR])	14 [7–24]	6 [4–16]	$p < .05$
Preventable ADE (n/admission)	16/33	7/37	$p < .05$
Preventable ADE/100 PD	4.4	2.8	$p < .001$

AP11-588

Clinical features and outcomes of aspiration pneumonia compared with non-aspiration pneumonia in nosocomial settings

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Background and Aim

Aspiration pneumonia (AP) commonly develops with aging, but the clinical characteristics and outcomes are not well known. The purpose of this study is to compare the clinical features and outcomes of AP with non-AP in nosocomial settings.

Methods

We investigated 883 patients diagnosed with hospital-acquired pneumonia (HAP) in the general ward from the multicenter retrospective cohort study data involving 13 tertiary hospitals in Korea between January 1 and December 31, 2019. It was diagnosed as AP if there were at least one of the following risk factors; impaired swallowing, impaired consciousness, increased chance of gastric contents reaching the lung, and impaired cough reflex.

Results

Among 883 patients, 521 (59%) patients were diagnosed with AP. AP group was older than non-AP group with a median age of 77.0 years (IQR, 66.0-83.0 years). The chronic neurological disease was more common in AP group (43.2% vs 6.6%; $P < 0.001$). There were no significant differences in multi-drug resistance pathogens isolated from respiratory specimens. When comparing the appropriacy of initial empiric antibiotics, inappropriate cases were higher in AP group (39.1% vs 33.3%; $P=0.018$). Clinical response and microbiological response were not different between the two groups. Hospital mortality was not different between the two groups (28.6% vs 27.6%; $P=0.810$), but the discharge rate of survivors to home was lower in AP group (43.5% vs 84.0%; $P < 0.001$).

Conclusion

AP is associated with old age and chronic neurological disease. AP did not differ from non-AP in clinical outcomes, but the discharge rate to home was significantly lower.

AP11-589

Corrosive tracheobronchial tree in an alcohol abuser with neglected drowning-associated-lung injury: a case report

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Introduction

In an alcoholic drowning victim, there is a decreasing cough reflex that increase risk to aspirate chlorinated pool water and gastric content aggravating lung injury.^{1,2} Most victims require noninvasive oxygen administration to restore clinical condition within 6-48 hours in emergency department (ED).²

Case Illustration

A 25-year-old male was brought to ED with severe dyspnea and was unconscious. The patient was an alcoholic and drunk two days before swimming. About 36 hours ago, the patient was reported drowning and succeeded to get out to edge of the pool himself, came out with just mild cough and there were no witnesses. Ten hours later the patient was vomiting, coughing heavily with severe shortness of breath. Patient was seizure two times when arriving at ED. The patient was then intubated. Leucocytosis, lethal acidosis metabolic, hyperkalemia, positive ethanol test were found. Chest X-ray constituents with pulmonary edema, as bilateral perihilar consolidation and peripheral ground glass opacities. The patient was given antidiuretic, antibiotic, steroid, electrolyte and pH correction. On bronchoscopy, all tracheobronchial tree mucosa was corrosive with mucopurulent secretes (figure 1 a-f). Bronchial lavage was performed with neutrophilic cellular pattern results. The patient died after 30 hours of admission.

Discussion

Alcohol abuse impairs lung parenchymal epithelial function thereby susceptible to injury.¹ Aspiration of hypochlorite and ammonia compounds is responsible for mucosal irritation.¹ Acidic gastric content aspiration resulted chemical burn of the tracheobronchial tree and lung parenchyma.¹ Delay treatment of aspiration pneumonitis causes hypoxemia and ischemia-induced other organs damage leading to high mortality.³

Keywords

pulmonary edema, pneumonitis, drowning, bronchoalveolar lavage, corrosive tracheobronchus, lung injury

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Disclosure statement

To best of my knowledge

1. I do not have any conflict of interest.

2. This presentation does not include information about product(s) not labeled for use or investigational.

In submitting the above information, I acknowledge all to be complete to the best of my knowledge and by submitting the statement, this will serve as my signature to same.

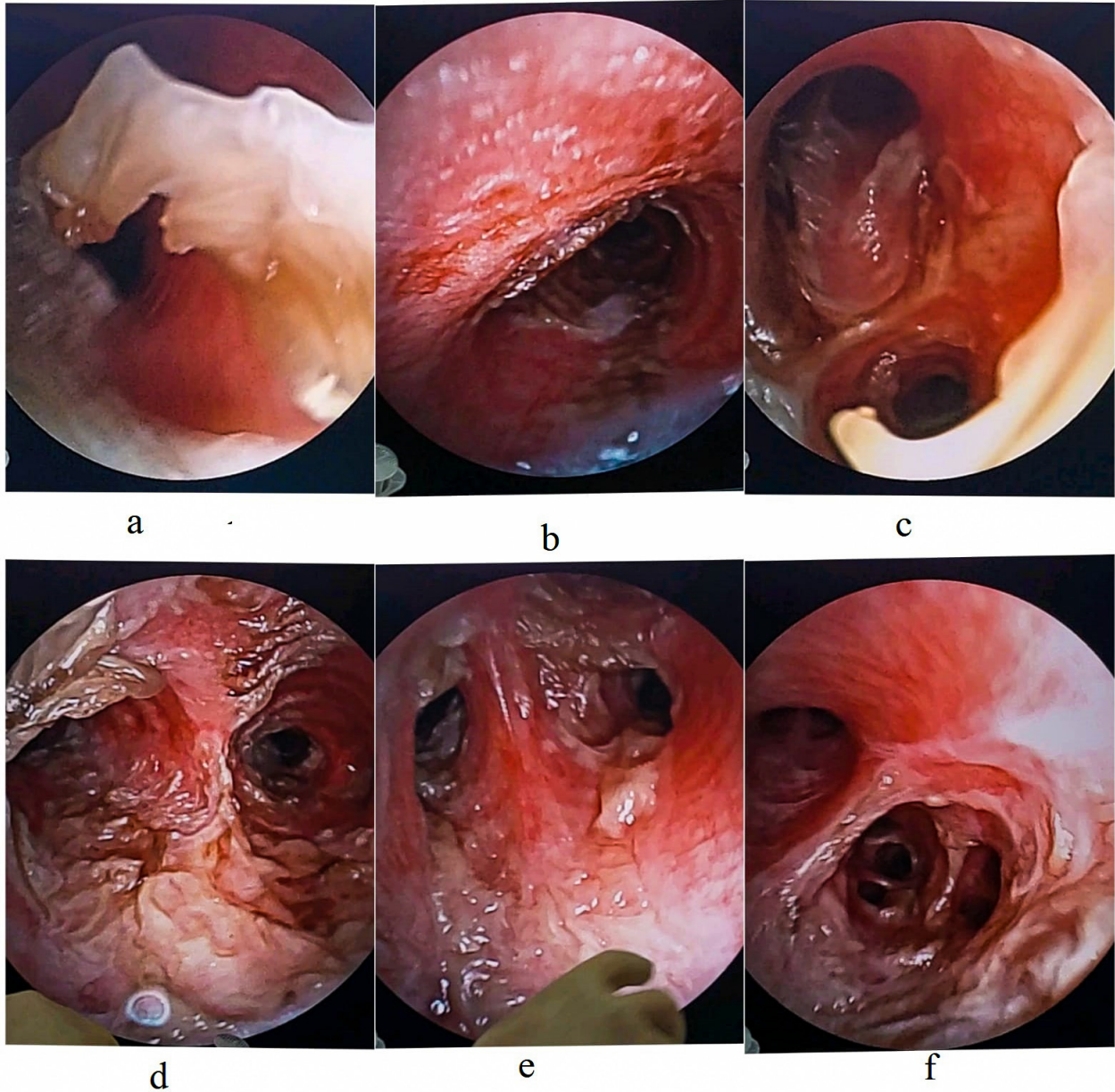


Figure 1a-f

AP11-590

Clinical Profile and Outcomes of COVID19 confirmed cases with Acute Respiratory Distress Syndrome Undergoing Prone Positioning at Lung Center of the Philippines (LCP) from May 1, 2020 to April 30, 2021

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Background

Prone positioning is an emerging tool in the care provided to patients infected with COVID-19 with Acute Respiratory Distress Syndrome (ARDS) at Lung Center of the Philippines (LCP) .

Objectives

This study aimed to characterize the clinical profile of COVID-19 confirmed cases undergoing protocol directed assisted prone positioning.

Methods

This retrospective single-arm cohort study involved 87 eligible patients seen from May 1, 2020 to April 30, 2021 by reviewing their medical records.

Results

Patients were predominantly middle-aged (49.4%) males (69.0%) with normal BMI (56.3%). Hypertension (59.8%) was the most prevalent comorbidity. Patients were admitted because of acute hypoxemic respiratory failure that required respiratory support. Biochemical markers of inflammation and disease severity, such as LDH, D-dimers and ferritin were consistently high in our study population. On average, the duration of symptoms before intubation was 7.7 days (SD=3.7) while the number of days of illness prior to prone positioning was 10.1 (SD=4.9). In terms of clinical outcomes, 94.3% of the patients had no accidental extubation. However, the all-cause mortality accounted for 29.9%. The mean number of days intubated was 14.1 days (SD=9.3) while the average length of hospital stay was 18.1 days (SD=11.4).

Conclusion

This study revealed a broad picture and proportion of COVID-19 with ARDS undergoing protocol directed assisted prone positioning. Prone position is safe and impacts the clinical outcome of patients.

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AP11-591

Epiglottic Retroversion

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Introduction

Epiglottic retroversion is the retroflexion of epiglottic apex and the coverage of rima glottis by epiglottis, which causes obstruction of entrance to the larynx and limitation of upper airway airflow.

Case reports

A 74-year-old man presented with a 1-week history of abnormal breathing sound and tachypnea. The patient has been bedridden for over five years due to Parkinson's disease. On physical examination, respiratory rate was 28 breaths per minute and inspiratory stridor was evident on supine and sitting position. The stridor was absent when the patient was lied on lateral side. Fiber-optic bronchoscopy revealed epiglottic retroflexion that blocks the inspiratory airflow and generates stridor during inspiration. There were no evidences of epiglottitis and vocal cord dysfunction. The patient experienced recurrent episodes of oxygen desaturation and tachypnea during the hospitalization. Tracheostomy was performed to prevent the acute respiratory failure of upper airway obstruction.

Discussion

Epiglottic retroversion rarely occurs in equines and it is extremely rare in human. Herein, we report a case of epiglottic retroversion as a cause of upper airway obstruction.

All authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

AP11-592

AUDIT ON OXYGEN USE IN COVID HDU AND NON-HDU WARDS AT A TERTIARY CARE CENTRE

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Introduction

Respiratory failure is the most concerned complication of Covid 19. Due to the current pandemic situation Oxygen requirement in hospital settings has drastically increased, resulting in concerns about the adequacy of oxygen supplies, potential fall of pressures in the hospital oxygen system and wastage of this medicinal gas.

Objectives

To evaluate current practices of oxygen use in covid non- HDU wards in a tertiary care hospital

Methodology

Data was collected using British Thoracic Society Guideline for oxygen use in adults in healthcare and emergency settings (2017) audit tool. 70 consecutive patients on oxygen were recruited over a period one month

Results

All 70 patients had an oxygen prescription. Only in 68.5% had specified both the device and flow rate; 28.6% had the device specified but no flow rate and 2.8% had not specified mode of oxygen delivery. Target oxygen range was documented only in 8.5%. 51.4% of patients were over oxygenated which implies wastage of this limited resource. Escalating/deescalating plans were documented only in 8.5%.

Conclusion

Current oxygen prescribing practices are not satisfactory with scope for improvement. The likely reason can be lack of a clear understanding among health care workers about oxygen therapy, oxygen prescription and oxygen targets. Education of the medical staff on adjusting FiO₂ and flow rates to maintain SpO₂ within prescribed saturation targets is a clear necessity. Urgent nationwide establishment of proper oxygen therapy practices through educating medical and nursing staff is essential to prevent an oxygen crisis.

AP12-593

Fire and water, the Yin and Yang forces leading to acute pulmonary complications

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Introduction

Philippines is link traditionally by boat. A passenger ferry caught fire May 2022, a disaster that can cause acute pulmonary complications from inhalational injury and drowning.

Case Report

A 52-year-old woman seated one-meter from where the fire started was exposed to smoke for 30-minutes. She jumped into the sea and repeatedly submerged. She develops vomiting, dyspnea and hemoptysis. No cutaneous burn. Radiograph; bilateral lower lung opacities (Figure-A).

She was managed as inhalational injury and aspiration pneumonia. Unremarkable flexible laryngoscopy. Eventually, intubation and mechanical ventilation initiated. Bronchoscopy post 22-hours showed erythema, edema and congestion of the trachea (Figure-C) and right main bronchus. Patchy erythema at right carina-2, opening of right lower lobe (Figure-D), left main bronchus and left carina-2. Right medial bronchus and opening of medial basal segment of lower lobe were narrowed (Figure-D, E). Bronchorrhea with bleeding seen. AIS grade 2 was assigned. Suctioning of secretions done.

Day-five radiograph; resolution of infiltrates (Figure-B), repeat bronchoscopy; worsening of tracheal mucosal inflammation, increase friability and bleeding (Figure-F). Right medial bronchus and medial basal segment of lower lobe remains narrowed (Figure-G, H).

Day-eight bronchoscopy; desquamation of tracheal mucosa (Figure-I), erosion and increase bleeding. Still narrowed right medial bronchus and medial basal segment of lower lobe (Figure-J, K). Day twenty-one, conversion tracheostomy done due to persistent airway narrowing. Eventually wean-off from ventilator and discharge with residual sputum production.

Discussion

Inhalational injury; damage respiratory tract/lung from heat, smoke, chemicals.¹ Drowning; respiratory impairment from liquid submersion/immersion.² Both of which, predispose to severe pulmonary impairment.

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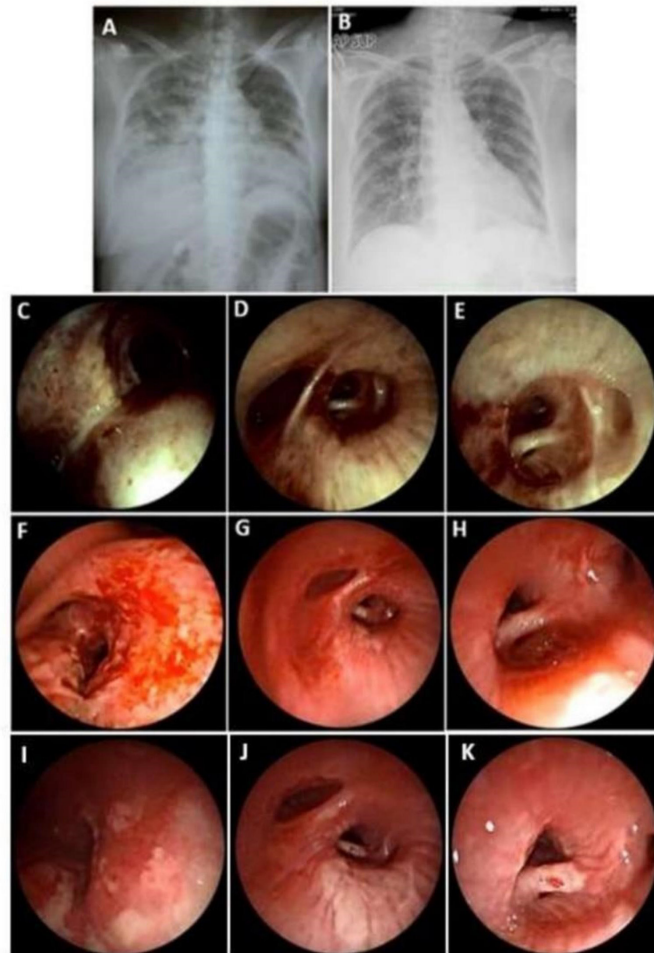
Acknowledgement

East Avenue Medical Center, Department of Internal Medicine, Section of Pulmonary Medicine

Disclosure Statement

None

Figure



AP12-594

Lung collapse secondary to a vegetable particle – A rare case report

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Introduction

Foreign body inhalation is rare and can radiologically mimic malignancy. Foreign body aspiration with vegetable matter is rarely described in literature.

Case report

A 63-year-old lady was referred to the clinic as she was experiencing on going breathlessness for a few months. She was experiencing cough without phlegm. There was no change in her weight or appetite. On examination she was comfortable, however there was reduced air entry in right upper lobe. There was no lymphadenopathy.

Initial CXR showed infective changes and it was decided to treat as for a pneumonia. Follow up images showed almost complete resolution of the consolidation. However, there was a minor residual infiltrate with linear bands. The supplying bronchi are slightly dilated and thick walled, and

there is a linear band lying within the lumen of the posterior segmental bronchus. She could not tolerate the initial bronchoscopy and follow up CT showed collapse of the right upper lobe. She was subjected to a repeat bronchoscopy, and it revealed a necrotic looking lesion at the orifice of the right upper lobe bronchus occluding all 3 segments of the upper lobe. It was noted that there was a vegetable matter around this area which may have led to inflammation. Samples were also taken from enlarged lymph nodes from stations 10R and 4R and they were reactive in nature. Vegetable matter and necrotic material were removed, and she made a complete recovery with resolution of the collapse.

Conclusion

Foreign body aspiration can radiologically mimic malignancy and timely intervention will prevent fatal outcomes.

AP12-595

Successful flexible bronchoscopy technique in patient with foreign body at lower respiration tractus

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Introduction

Foreign bodies aspiration is a form of airway obstruction. Respiratory tract obstruction is a potentially life-threatening emergency. From 2011 to 2021 at the Ulin Hospital Banjarmasin, there was only 1 case before reporting this case report. Flexible bronchoscopy (FB) for foreign body extraction has reported rates of success between 61 and 90%.

Case

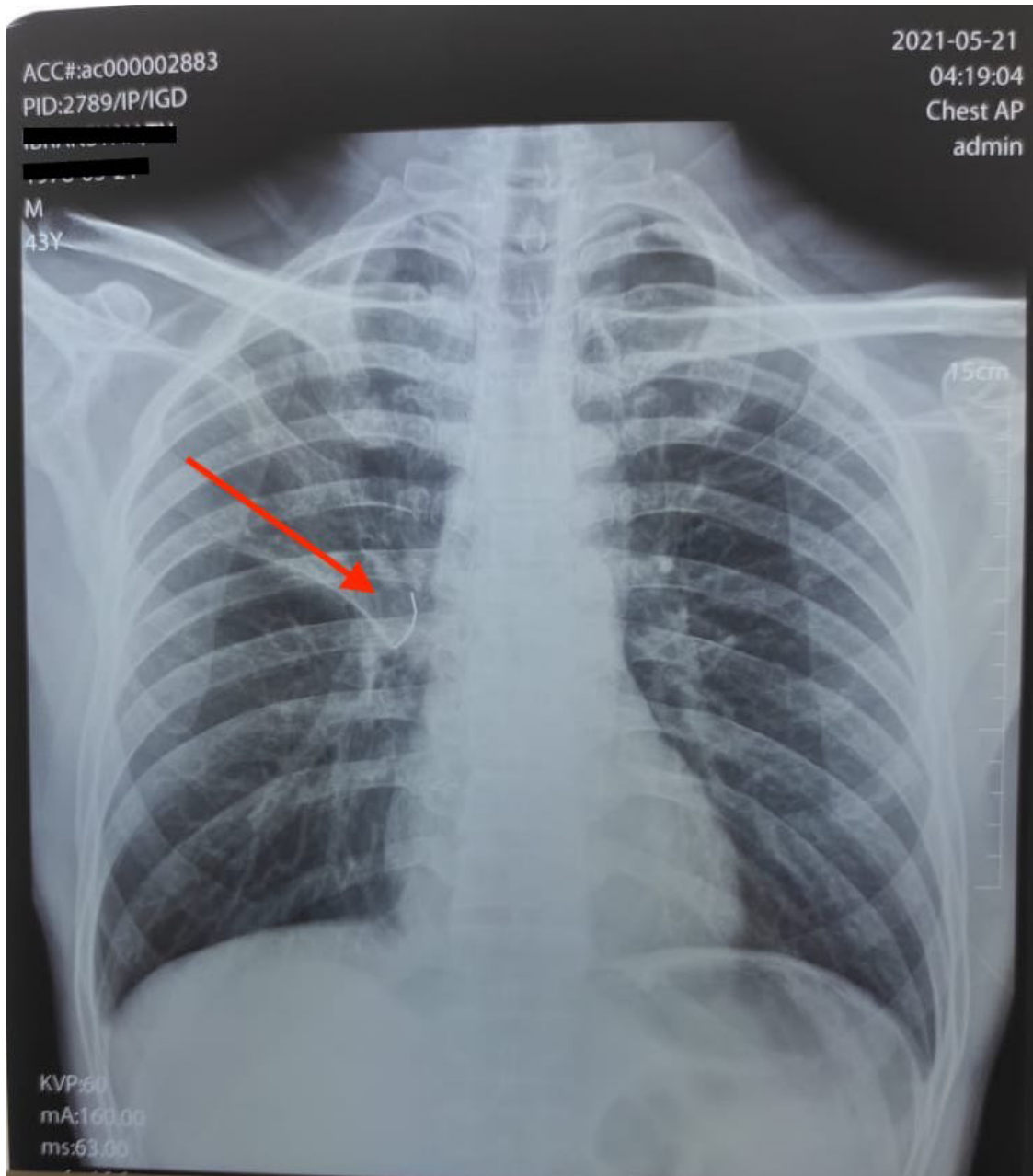
A 42-year-old man with a cough has been felt since the patient swallowed his dentures while sleeping one before admission to the hospital. Chest X-ray shows (figure 1) the density of metal with a shape in the right bronchus at the level of the 8 thoracic vertebrae. The bronchoscopy was performed, and the modalities used are tripod forceps and crocodile grip forceps. The anaesthetic technique used in this patient was lidocaine spray and intravenous midazolam.

Discussion

In this case, a foreign body in the lower respiratory tract was found in a 42-year-old man. The gold standard method for the extraction of foreign body has been rigid bronchoscopy (RB). In adults, however, the FB is frequently applied first to inspect and to try removal, and if it is not possible, then RB is considered. FB has the benefit of being able to be performed with moderate sedation with the ability to remove foreign body from distal airways. Conscious sedation has the advantages of preserving the cough reflex, which might aid successful foreign body removal. Even though in our centre does not have rigid bronchoscopy and has many limitations, this foreign body extraction procedure can be performed successfully.

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AP12-596

Bronchogenic cyst of the tracheo-oesophageal groove: a rare presentation with a diagnostic challenge.

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INTRODUCTION

Bronchogenic cysts are malformations because of abnormal development of foregut¹. The majority of them are found in the mediastinum². These cysts are rare occurrences in trachea-oesophageal groove(TEG)³ and can pose diagnostic challenges.

CASE REPORT

We report a case of 67 year old man, who developed gradual change in voice for 4 months. Evaluation showed a right vocal cord palsy. CT scan of the neck showed a solid cystic lesion which was continuous with the lower pole of right lobe of the thyroid measuring ~ 2.4 x 3.7cm, indenting the posterior tracheal membrane. Endobronchial Ultrasound(EBUS) mapping was challenging, which showed anechoic cystic lesion in postero-lateral wall of mid trachea. About 4ml of yellowish-brown fluid was aspirated with TBNA(Trans-Bronchial Needle Aspiration). Cytology revealed benign bronchial epithelial cells, which proved it to be a bronchogenic cyst. He is planned for elective surgical cyst excision.

Discussion

The appearance of the symptoms in patients with bronchogenic cysts depend on the position and size of the cyst. They produce symptoms by compression of surrounding structures. The recurrent laryngeal nerves(RLN) travel in the TEG. Injury or compression to RLN causes vocal cord paralysis. In this case, the cyst in TEG caused RLN compression leading to voice change.

This anatomic location posed several challenges.

- I. It was inferior to be accessed by an Ultrasonography of the neck.
- II. Being posterior to airways, approach with an EBUS and mapping was challenging.

The case is presented herein highlighting the unusual location of the cyst, clinical presentation and diagnostic challenges that were faced.

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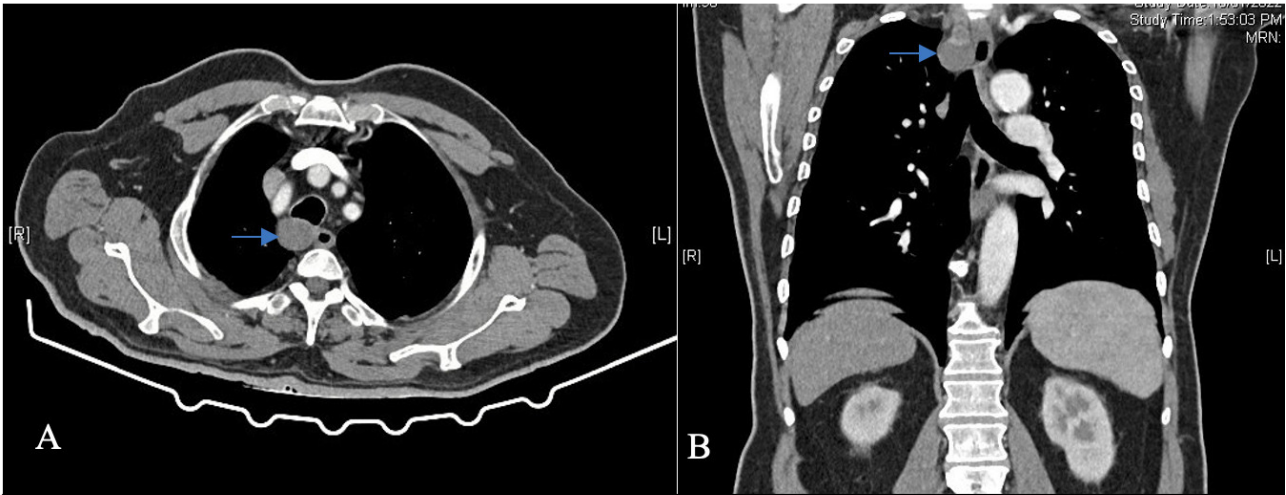


Figure A and B : Axial and Coronal Computed Tomography sections show solid-cystic lesion in Tracheoesophageal groove indenting the posterior tracheal wall respectively.

AP12-597

A Rare case of Endobronchial Leiomyoma

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Introduction

Leiomyoma arises from smooth muscles of the bronchial tree. Leiomyomas accounts for less than 2% of all lung tumors and only 1/3th are endobronchial in location¹.

Case report

A 45 year old lady, non smoker, non alcoholic with no comorbidities presented to us with shortness of breath and cough for one month. There was no history of tuberculosis or loss of weight. On examination breath sound were absent in all lung fields on left side. Chest X-ray showed a left white-out lung. CT imaging of chest showed complete collapse of left lung. Flexible bronchoscopy showed globular lesion occupying left main bronchus. Forceps biopsy was done and sent for frozen section which showed leiomyoma. Rigid bronchoscopy followed by snaring was done and entire tumor was debulked. Patency of lumen was restored. Post procedure chest X-ray was normal.

Discussion

The severity of symptoms in endobronchial tumours depends on severity of obstruction . Surgery is the mainstay of treatment in such tumours, however snaring with rigid bronchoscopy helped us in this case. We are presenting this case in view of rarity of the case and also to demonstrate the success with snaring.

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AP12-598

A rare case of Endobronchial Lipomatous Hamartoma

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Introduction

Lung hamartomas are the most common benign tumors of the lung. Typically, they are located in the peripheral lung, while an endobronchial localisation is rare¹.

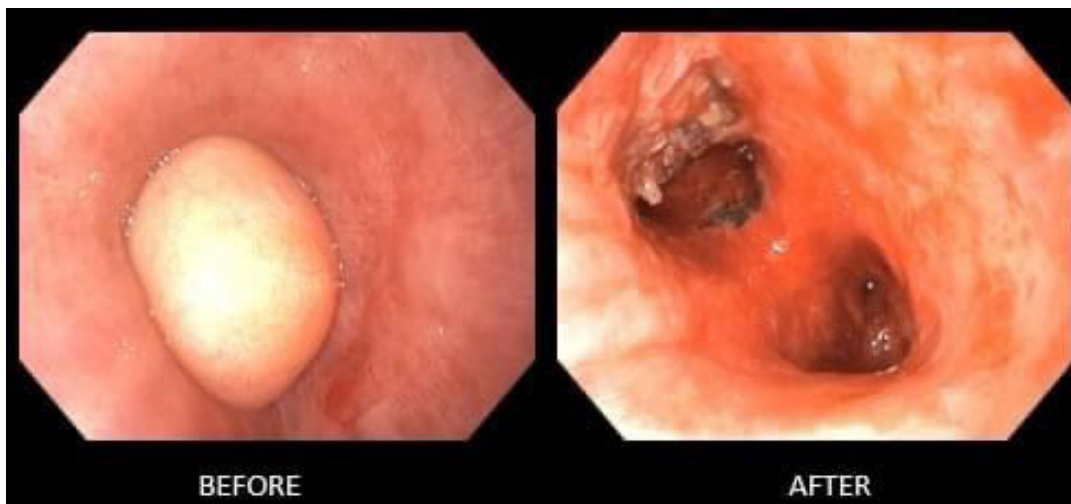
Case Report

A 64-year-old Gentleman patient presented with complaints of shortness of breath. CXR showed complete collapse of the left Lung. He underwent Flexible bronchoscopy and found to have a tumor in the distal left main bronchus causing airway obstruction. Forceps Biopsy was taken which showed Hamartoma on frozen section. Rigid bronchoscopy was done and tumor was debulked using Electrosurgical Snare. Patency of lumen was restored. Post Procedure Xray was Normal.

Discussion

Though Hamartoma is a benign tumour, Endobronchial obstruction can produce significant symptoms. If undiagnosed long standing Endobronchial Hamartoma can cause post obstructive sequela. This case report is presented in view of rare presentation of Hamartoma as well as use of electrosurgical snare.

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AP12-599

When Two Is Not Better Than One: A case story of Two Hijab Pins

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Introduction

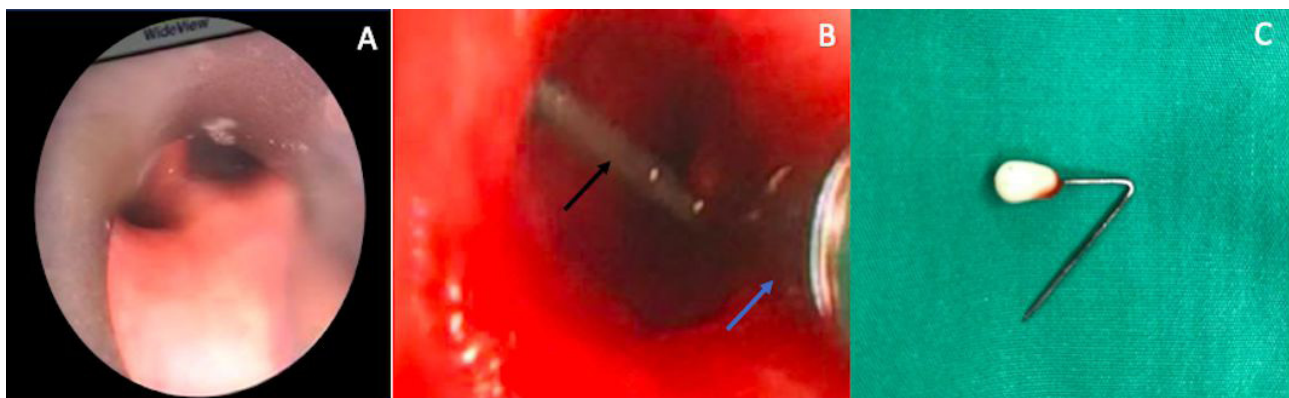
Hijab pin aspiration is seen in Muslim women who wear hijabs with the habit of holding it between their lips with any careless movement may result in aspiration or ingestion of the pin. We report a 22-year-old woman simultaneously ingested and aspirated two separate pins and successful retrieval of the pin with a combination of rigid and flexible bronchoscopy despite her late presentation.

Case report

A 22-year-old woman accidentally ingested 1 pin and aspirated the other pin after she answered a phone call while holding 2 pins between teeth simultaneously 16 days prior to presentation. The swallowed pin passed spontaneously through the gastrointestinal tract. She developed throat discomfort and minimal hemoptysis lasted for the first 5 days. Clinically, vital signs were stable and respiratory systems examination were unremarkable. Chest radiograph showed a linear opacity in the left lower zone. Computed tomography (CT) scan of thorax confirmed the location of the pin. A flexible fiberoptic bronchoscopy (olympus BF - IT260; EVIS LUCERA ELITE bronchovideoscope system) with a working channel of 2.8 mm via a rigid scope (Karl Storz Endoskope system) was performed under general anaesthesia. The sharp end pin embedded at the lateral segment of the left lower bronchus (LB9) with surrounding granulation tissue. Olympus-V-Shape (FG-25C-1) grasping forceps was used to retrieve 4 cm in length pin and bent at 120 degrees. The procedure was uneventful.

Discussion

This highlights a combination of flexible and rigid bronchoscopy are good therapeutic option in retrieval a hijab pin despite of more than 2 weeks from the event.



AP12-600

Missed betel nut aspiration presenting as pneumomediastinum and subcutaneous emphysema in an excessive dynamic airway collapse patient.

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Introduction

Foreign body aspiration with organic materials such as nuts poses a delay in diagnosis with increased risk of complications. Here, we report an unusual presentation of betel nut aspiration in an excessive dynamic airway collapse (EDAC) patient.

Case report

A 26 year old Bangladeshi man who was an occasional betel nut chewer presented to Emergency Department of a district hospital with cough, shortness of breath, dysphagia and odynophagia for 3 days. On presentation he was afebrile and had generalized ronchi. Contrast scan of the thorax showed an enhancing soft tissue density at the left main bronchus measuring 0.9 x 1.1 cm, extensive subcutaneous emphysema and pneumomediastinum. He was initially treated for pneumonia with bronchospasm. Due to non-resolving pneumonia he was referred to tertiary centre for flexible bronchoscopy. Further history revealed that he fell asleep while chewing on betel nut. Flexible bronchoscopy showed a betel nut at the left main bronchus, 3 cm from the main carina surrounded by slough and granulation tissue. He subsequently underwent removal of the foreign body via rigid bronchoscopy after an initial attempt via flexible bronchoscopy wasn't successful. The betel nut measuring 1.9 cm with sharp edge embedded in the left main bronchus was removed via dormie basket. Further inspection showed presence of excessive dynamic airway collapse (EDAC) over the left main bronchus, 3 cm from the main carina.

Discussion

This case emphasizes the importance of excluding foreign body aspiration in an EDAC patient presenting with pneumomediastinum and subcutaneous emphysema

AP12-601

A rare case of pleural sarcoma

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Introduction

Synovial sarcoma is a malignant neoplasm of soft tissue which mainly occur in extremities and is closely related to tendons, tendon sheaths and bursal structures. Primary synovial sarcoma of pleural is a rare entity.

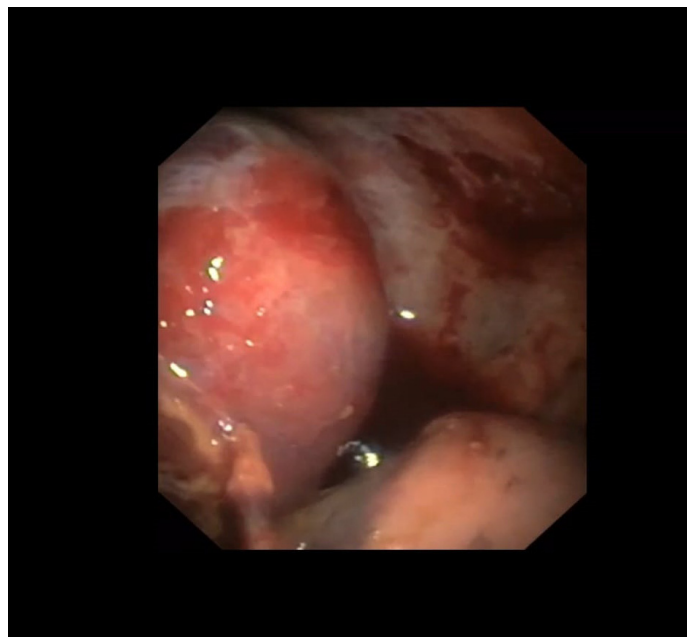
Case report

We present a case of 52 year old gentleman, who presented with dry cough, progressive breathlessness and significant loss of weight since one month. He was a diabetic, hypertensive, non-smoker and non-alcoholic. On examination he had grade 2 clubbing and breath sound were reduced in right infrascapular area. Chest imaging showed mild pleural effusion. Pleural fluid analysis was inconclusive. CT thorax showed pleural based mass lesion on right side. Thoracoscopy was performed which showed a large mass arising from right diaphragmatic pleura with multiple nodules. Biopsy from nodules and mass confirmed sarcoma based on morphology of Immunohistochemistry. Patient was referred to oncology department for further management.

Discussion

Synovial sarcoma of pleura is a rare entity. Treatment is multimodal involving surgery chemotherapy and radiotherapy. A great clinical suspicion is required for early diagnosis and favourable outcome.

No disclosure



AP12-602

Lung adenocarcinoma diagnosed by pleuroscopy with flexible bronchoscopy in patient massive pleural effusion

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Introduction

The accuracy of histological analysis of pleural fluid for diagnostic cancer cells in malignant pleural effusion remains low. Pleuroscopy using flexible bronchoscopy can be an alternate procedure to the other pleuroscopy method

Case report

A 53-year-old woman was admitted with symptoms shortness of breath, chest pain, cough, anorexia since 2 months, no smoking history. Laboratory showed Hemoglobin normal; Leucocytosis; hypalbuminemia; hypercalcemia. Cytology pleural effusion is negative. An x-ray revealed right-sided inhomogeneity. Chest ultrasound pleural effusion. Computerized tomography (CT) scan right lung mass in the superior lobe, massive right pleural effusion, multiple metastatic nodule both of lung. Flexible bronchoscopy was performed with local anesthesia. At the pleuroscope entry point, a 28FR chest drain was placed. Patient was monitored for complications. Pleuroscopic view showed multiple nodules on parietal pleura. Histopathological examination confirmed the patient's diagnosis as adenocarcinoma.

Discussion

Pleuroscopy is a safe and effective treatment with good diagnostic accuracy, therapy and management. Complication rates are modest (2-5%), mild (subcutaneous, emphysema, haemorrhage, infection), fatal (0.1%).¹ Flexible pleuroscopy is a very important method for diagnosing previously undiscovered exudative pleural effusions when thoracentesis failed to provide an appropriate diagnosis.² It is a straightforward and safe procedure that may be performed under local anaesthetic with a high degree of diagnostic accuracy and a low risk of complication.³ We performed pleuroscopy with flexible bronchoscopy. This is rarely done and a biopsy can be done, if the hospital facility does not have complete equipment for pleuroscopy.

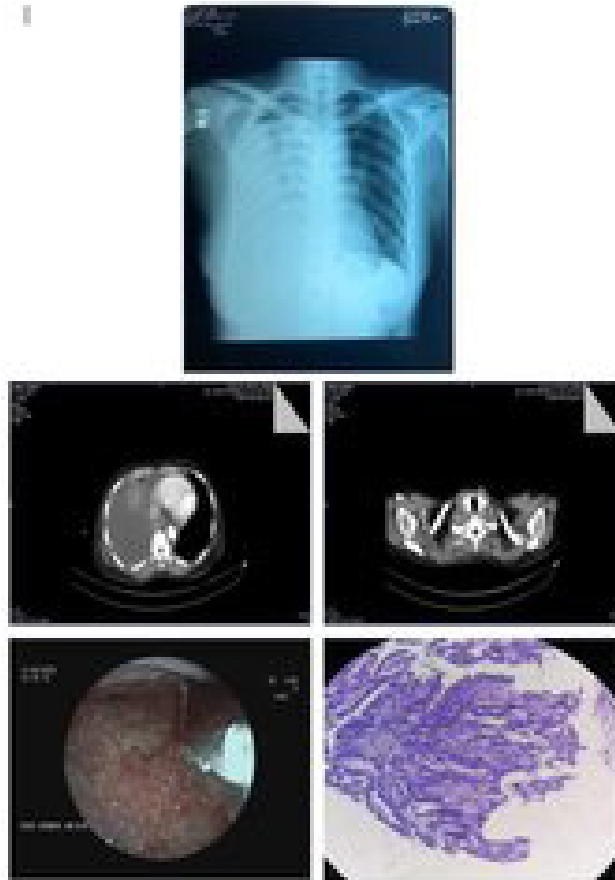
Keyword

pleuroscopy, flexible bronchoscopy, malignant pleural effusions

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AP12-603

Rare Foreign Body in The Lung

Roshan kumar Manoharlal¹, Harikishan Gonuguntla¹, Don Gregory Mascarenhas¹, Sravani Reddy Munagala¹, Harshini Errabelli¹, Kishan Srikanth Juvva¹, Preethi Vidyasagar¹

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Introduction

Foreign body in lungs usually occurs due to aspiration of contents into respiratory system leads to respiratory distress to the patient. We present a operated patient who suture material presented as a foreign body.

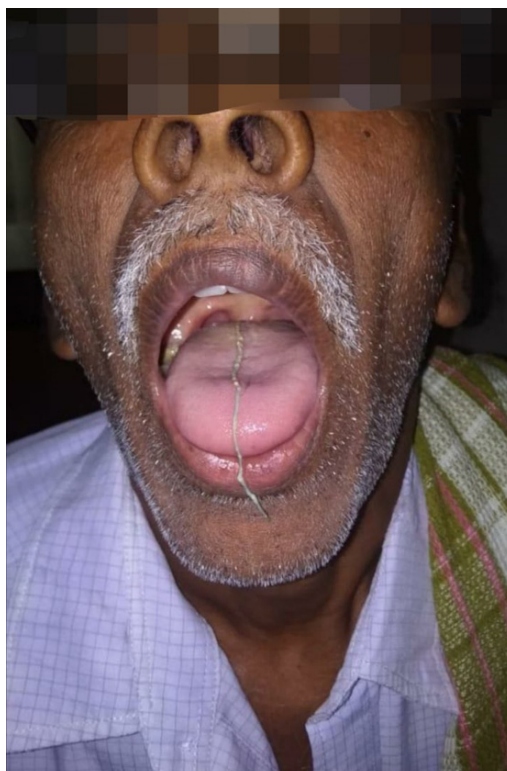
Case Report

A 53 year old gentleman who had undergone right upper lobectomy with Right Lower Lobe Wedge Resection for post Tb sequelae presented to our OPD with severe cough. He noticed some thread coming out of mouth while coughing. Flexible bronchoscope showed suture arising from posterior segment of right lower lobe. Bronchoscopic interventional was done using endobronchial scissors and a thread measuring 30 cm was removed. Procedure was uneventful. Patient was symptom free post procedure.

Discussion

Foreign body in the lungs usually occurs by aspiration and can be life threatening. The commonly aspirated foreign bodies we encountered seeds, nuts, nails, pins and coins. However, owing to rarity of this iatrogenic foreign body we are compelled to present this case report.

No disclosure



AP12-604

Hemothorax: A Limited Presentation of COVID-19

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Background

The novel coronavirus disease 2019 (COVID-19) has been associated with many different deformities from other respiratory viruses. In addition, abnormalities in coagulation function are one of the unique characteristics of this virus that can cause bleeding and clotting disorders.¹ Hence, it causes the risk of bleeding complications in the lungs or pleura and other organs.

Case

A 51-year-old woman presented the right chest pain three days before admission, weakness, fatigue, and occasional cough. The patient denied any recent trauma and was without comorbidity. Real-Time Polymerase Chain Reaction (RT-PCR) showed positive for SARS CoV2, and the laboratory showed normochromic normocytic anemia, hypoalbuminemia, D-dimer 1820, with Prothrombin Time (PT) 16.30 and Activated Partial Thromboplastin Time (APTT) 42.50. Chest X-ray showed homogeneous opacity in the right hemithorax and infiltrated in the left hemithorax. Thoracic ultrasonography showed an echo-free field without mass. A proof puncture showed the hemorrhagic fluid accompanied by a blood clot. This patient was diagnosed with COVID 19 confirmed case and right hemothorax at the time of hospital admission. The patient was treated with a tube thoracostomy, adequate oxygenation, and antiviral drugs such as Remdesivir. Hypoalbumin and anemia were corrected by intravenous albumin and Packed red cells (PRC) transfusion.

Discussion

Hemothorax in COVID 19 should be evaluated, especially if coagulopathy or vascular disorders were seen. There is a limited report on COVID 19 hospitalized with the acute infection without other predisposing factors. COVID-19 is also associated with alveolar hemorrhage, endothelial injury, and vascular microthrombi without pleural abnormalities.²

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AP12-605

Individualised management of bronchopleural fistula : a case series

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INTRODUCTION

Bronchopleural Fistula is the sinus tract between the main stem, lobar or segmental bronchus and the pleural space¹. Most common risk factors include postoperative conditions including lobectomy and pneumonectomy, respiratory infections such as Tuberculosis, chemotherapy and radiation therapy, positive pressure ventilation and poor nutritional status¹. In this case series, we are describing 5 BPF cases of different etiology which were managed by individualized approach.

CASE REPORT

Three of our BPF patients aged between 10-30 years was managed successfully. Etiology were traumatic, pyogenic empyema and post COVID superadded infection. One patient managed with VATS thoracotomy and BPF repair while other patient required open thoracotomy with sleeve resection. BPF persisted for both patients post procedure. Long term conservative management helped in closure of BPF.

Two of the older patients succumbed to death eventually. One was post COVID bilateral pneumothorax with BPF. Autologous blood patch attempted for BPF closure but failed. Other patient was 50 year old male with lobar pneumonia with pyopneumothorax and BPF. Despite higher antibiotics, patient deteriorated rapidly.

DISCUSSION

Mortality rate of BPF varies from 21-71%². Medical management include tailored antibiotics, proper nutrition and rehabilitation. Bronchoscopic management include placement of endobronchial valves, spigots, tissue adhesives and sealants. It is more effective in proximal BPF. Surgical management of BPF include direct closure, decortication, thoracoplasty, omental or muscle transposition, and completion pneumonectomy¹. 2 out of 4 patients not fit for surgery due to general condition and rapid deterioration. Proper nutrition and prevention of superadded infection is the cornerstone in managing BPF patients.

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AP12-606

Through the looking glass: a case report of exogenous lipoid pneumonia in a 4-month old infant

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Introduction

Exogenous lipoid pneumonia (ELP) results from accumulation of lipids in the lungs after aspiration triggering a cascade of host-tissue reactions. Diagnosing the disease proves to be difficult as it mimics other more common respiratory disorders leading to delays in treatment and prevention of complications.

Case Report

A 4-month old Filipino male was managed as a case of ELP after presenting with respiratory distress on a background of prolonged virgin coconut oil (VCO) administration. 12 to 15 milliliters of pure VCO was given daily as nutritional supplement to augment weight since two months old. Plain films showed bilateral multifocal opacities suggestive of aspiration. The diagnosis of ELP became more apparent after bronchoscopy and segmental lavage, as copious amounts of creamy, thick, flocculent fluid were obtained (Figure 1). An incidental finding of a tracheal bronchus above the carina was also seen partly contributing to the increased risk of aspiration. The patient was given supplemental oxygen, intravenous antibiotics, and steroids. Subsequently, he showed signs of remarkable improvement. The bronchoscopy and segmental lavage played a key role in the diagnosis and management of the patient's condition.

Discussion

ELP has been reported globally but remains underdiagnosed in children. A high-index of suspicion is necessary especially in settings where oil is commonly used for cultural and medical purposes. This case showed that early recognition and prompt intervention with therapeutic bronchial lavage is pivotal to the significant resolution of clinical and radiological manifestations of patients with ELP.



AP12-607

Pneumonitis, Thoracic Lymphadenopathy and Black Bronchoalveolar Lavage in a Young Lady with Heavy Marijuana Smoking History

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Introduction

We present an unusual case of pneumonitis, thoracic lymphadenopathy and soot-like blackish bronchoalveolar lavage in a young lady with heavy marijuana smoking history.

Case report

A 31-year-old lady presented with a 2-month history of worsening dyspnoea, cough, and pleuritic chest pains. Physical examination was unremarkable. Computed tomography (CT) of the chest showed: (1) features of pneumonitis seen as heterogenous ground glass opacities bilaterally (figure-A), (2) evidence of airway disease seen as mosaic appearance and bronchial wall thickening (figure-B), and (3) multiple bilateral thoracic lymphadenopathy (figure-C). Pulmonary function test is consistent with moderate airflow limitation with gas trapping and corrected DLCO of 63%.

Infective screening, autoimmune workup and vasculitis screening were unremarkable. She subsequently underwent bronchoscopy which revealed patent airways, but interestingly, progressively darker soot-like blackish fluid was retrieved during bronchoalveolar lavage (figure-D). Fluid analysis showed large numbers of pigment-laden macrophages. Histopathology from endobronchial ultrasound guided biopsy of mediastinal nodes demonstrated benign lymphoid population without granulomas but with numerous hemosiderin-laden macrophages. Similar findings of normal lung parenchyma without fibrosis but with numerous pigmented macrophages were seen from transbronchial lung biopsies. A diagnosis of respiratory bronchiolitis-interstitial lung disease (RB-ILD) was made. She fortunately responded well clinically to smoking cessation.

Discussion

RB-ILD represents a subtype of idiopathic interstitial pneumonia that is associated with heavy smoking history. Often seen in young to middle-aged patients, diagnosis of RB-ILD depends on a combination of: (1) clinical features of cough and progressive dyspnoea among current smokers, (2) pulmonary function abnormalities, (3) CT chest findings of ground glass attenuation and centrilobular nodularity, and (4) histopathological evidence of respiratory bronchiolitis. Massive thoracic lymphadenopathy is not a common feature. Treatment is smoking cessation.

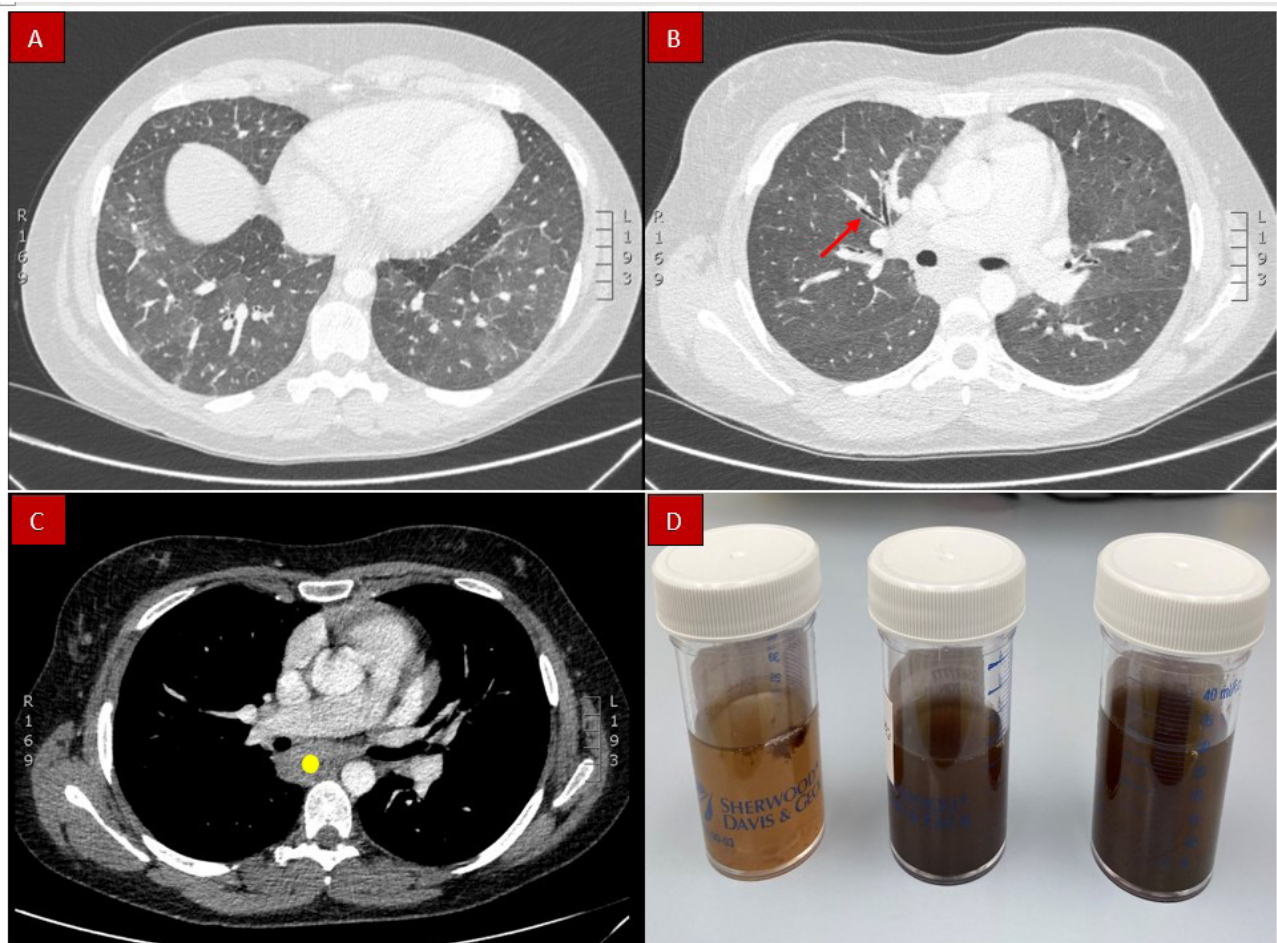


Figure: Respiratory bronchiolitis-interstitial lung disease (RB-ILD)

A: CT showed areas of heterogenous ground glass opacities bilaterally, most pronounced over lung bases.

B: CT demonstrated bilateral bronchial wall thickening, most pronounced on the right side (red arrow)

C: Massive mediastinal lymphadenopathy on CT chest, especially at the subcarinal region (yellow dot)

D: Progressively darker soot-like blackish fluid was retrieved during bronchoalveolar lavage

AP12-608

Retrograde Dilatation - a novel technique for complete tracheal stenosis management

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Background

Tracheal stenosis with no detectable lumen is called Complete or Grade IV tracheal stenosis. When there is a long segment involvement of trachea, it becomes a challenge for curative surgical reconstruction. We present a novel technique of retrograde dilatation for complete tracheal stenosis by retrograde illumination and dilatation. Following dilatation, a silicon stent placement with a new technique of external fixation of silicon stent to prevent migration is also described.

Methods

Case 1: 18-year-old student who had sustained road traffic accident 9 months back was tracheostomized in view of prolonged ventilatory support. He was referred to us due to multiple failed tracheostomy decannulation attempts.

Case 2: A Nigerian lady with history of thyroidectomy for goitre was tracheostomized due to weaning failure and was referred to us due failure of decannulation.

Case 3: 32-year-old male sustained road traffic accident requiring mechanical ventilatory support one year back. Montgomery tube was placed which caused complete stenosis of proximal end of T-tube and the second level of stenosis at the distal end of T-tube. The T-tube was replaced by long tracheostomy tube which he was on for 8-9 months. He was referred to us for bronchoscopic management.

Conclusion

Retrograde dilatation is a safe and effective technique for complete tracheal stenosis management, especially when the stenosis involves a long segment, making the candidates not suitable for surgical reanastomosis

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AP12-609

The Triple Terrific - The successful combination of blood patch, ambulatory pneumothorax device and talc pleurodesis in treating complex pneumothorax in a patient with underlying Systemic Sclerosis – Interstitial Lung Disease (SSc-ILD).

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Introduction

Autologous blood patch pleurodesis (ABPP) is relatively safe, cost-effective and readily available treatment for pneumothoraces with persistent air leak. We report a patient with underlying SSc-ILD, developed secondary left pneumothorax and persistent air leak, successfully treated with the combination of blood patch, ambulatory pneumothorax device and talc pleurodesis.

Case report

A 56-year-old lady, non-smoker, with underlying SSc-ILD, on Nintedanib 150mg b.i.d and MMF 1g b.i.d, presented with acute left pleuritic chest pain and dyspnoea. She was afebrile, tachypnoeic with respiratory rate of 25/min, and oxygen saturation of 96% under 3L/min. Chest radiograph showed left pneumothorax and proceeded with chest drain insertion (size 24F). There was persistent bubbling from the chest drain after 5 days with persistent left pneumothorax as per CT image (Figure 1). After excluding active systemic infection, the first cycle of ABPP was performed using 1.5cc of autologous blood / kg followed by another cycle of ABPP 48 hours later. Repeated chest radiograph showed improving residual left pneumothorax. She was discharge with ambulatory pneumothorax device (pneumostat) while waiting for the 3rd cycle of ABPP. Upon clinic review, the repeated chest radiograph showed resolved left pneumothorax and hence proceeded with talc pleurodesis and chest drain was removed.

Discussion

In selected cases of pneumothorax, combination of blood patch and ambulatory pneumothorax device (for persistent air leak) with talc pleurodesis (for prevention of recurrence) can be applied. This method is safe, cost-effective and can be used as an alternative for those who are not fit for surgical intervention.



Endobronchial dieulafoy

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Introduction

Endobronchial dieulafoy is often found in recurrent hemoptysis. This is a case in which a young man with no specific medical history visited the hospital for recurrent hemoptysis, diagnosed endobronchial dieulafoy, and stopped hemostasis with laser treatment.

Case report

A 26-year-old man presented with hemoptysis. This male patient had no specific medical history and no medication. He was admitted to another hospital with hemoptysis, and bronchial artery embolization was performed 3 times, but it recurred. At that time, bronchoscopy was performed, and there was a small nodule at the entrance of right lower lobe superior segment, so a biopsy was performed. The nodule was a protruding nodule and had pulsation. The nodule was removed with biopsy forceps, and arterial blood pumping was observed. The diagnosis was not clear at the time.

After 10 days, hemoptysis recurred and he was admitted to our hospital. A contrast-enhanced computed tomography of the thorax showed a suspicious lesion of a tiny endobronchial nodule in the RLL superior segmental bronchus opening site region. We presumed the diagnosis based on previous medical history and previous bronchoscopy findings, and considered it to be endobronchial dieulafoy. We immediately performed rigid bronchoscopy for diagnosis and treatment. As shown in the CT findings, a 1 cm-sized protruding vessel was found in the RLL superior segment on rigid bronchoscopy. The endobronchial dieulafoy was ablated using a diode laser. A total of 2063J was used. After that, the patient did not recur hemoptysis.

Discussion

Endobronchial dieulafoy may be misdiagnosed as other lesions and may not be properly diagnosed, leading to missed time for appropriate treatment. Then it can have fatal consequences. There is a risk of massive bleeding when a biopsy is performed because it is misunderstood as a tumor. Endobronchial dieulafoy can be treated with surgical treatment and bronchoscopy such as APC and laser procedures.

AP12-611

Utility of Bronchoscopy with Bronchoalveolar Lavage in Post Renal Transplant Patients Admitted at The National Kidney and Transplant Institute from January 2008 to December 2018

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Background and Aims

To determine the incidence of bronchoscopy in post renal transplant patients with pneumonia in our institution. To document the patients' clinical profile, the indications, onset and outcomes of the bronchoscopy. To compare the outcomes of those who underwent early bronchoscopy (within 4 days of presentation) versus late bronchoscopy

Methods

A total of 119 patients underwent bronchoscopy in our institution from January 2008 to December 2018. From this population, a total of 24 post renal transplant patients aged 37-61 years old with pneumonia were included. Review of inpatient charts was done – the indications, the onset and outcomes of the bronchoscopy were reviewed.

Results

It was found that the most common indication for bronchoscopy was nonresolving pneumonia in a post renal transplant patient. The median duration post-renal transplantation was 6 years. The most common positive outcome was cytomegalovirus (CMV). Most of the sample had late bronchoscopy, bronchoscopy was found to be usually done on the 6th hospital day. 25% (4 out of 16) of those who had late bronchoscopy expired compared to none in the early bronchoscopy.

Conclusion

Among post renal transplant patients with pneumonia, early bronchoscopy is a tool in the early diagnosis of the pathogen, leading to timely targeted treatment (1). Late bronchoscopy is associated with increased morbidity and mortality (2). Note that while the trends are distinct, there is no statistical evidence that the characteristics are dependent to the onset of bronchoscopy.

Keywords: bronchoscopy, CMV, kidney transplantation, pneumonia

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AP12-612

Airway foreign body - a preliminary report from a tertiary care referral hospital in Bangladesh

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Background and Aims

Foreign body (FB) aspiration is a serious problem and the diversity of clinical presentation in each geographic region has its own characteristics. It exhibits bimodal age distribution and poses significant mortality and morbidity. This study aims to focus on the socio-demographic pattern and clinical presentation of FB aspiration, types of FB aspirated, management, and treatment outcome.

Methods

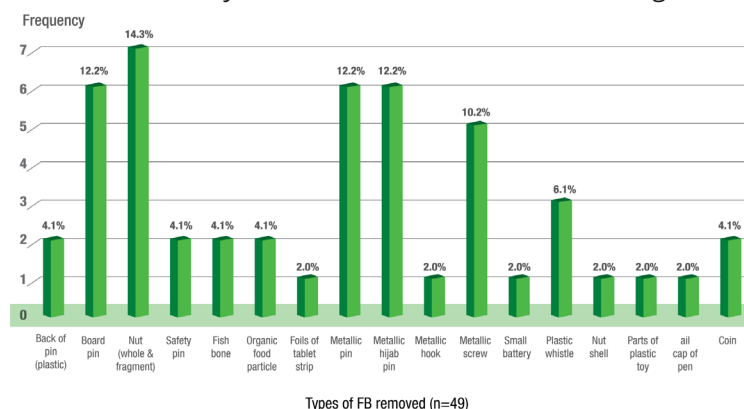
This prospective, cross-sectional study was conducted at the National Institute of Diseases of the Chest & Hospital, Dhaka, Bangladesh between February 2021 and December 2021. Total 49 patients with confirmed and suspected history of FB aspiration were enrolled. Emergency and elective bronchoscopy was performed as per clinical scenario. Outcome was measured as FB removal in single or multiple procedures.

Results

Foreign body aspiration was most common below 5 years age group (65.3%). Majority of the patients (73.5%) were male and came from rural area (67.3%). In 98% cases, there was eye witness of foreign body aspiration. Cough was the most common presentation (96%), followed by wheeze (44.9%) and chest pain (42.9%). Radio-opaque shadow in chest X-ray was found in 55.1% patients. We extracted 17 different types of FB from the airway, the most common was nut (14.2%), board pin (12.2%), metallic pin (12.2%) and metallic Hijab pin (12.2%). The commonest site of FB impaction was right main bronchus (49%), followed by left main bronchus (18.4%). In 93.9% cases, FB was removed in single attempt by rigid bronchoscope. There was no mortality.

Conclusion

This preliminary report of ongoing study shows that FB aspiration is most common below five-year age group with male predominance. Patients commonly present with cough, wheeze and chest pain. Seventeen different types of foreign body were extracted from airway. Most of the FB were removed in single bronchoscopic procedure.



AP12-613

A Novel Technique For Tracheoesophageal Fistula Closure

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Introduction

A tracheoesophageal fistula (TEF) is a congenital or acquired communication between trachea and oesophagus. TEF often leads to serious and fatal complications. We present a case report of TEF which was closed with novel technique using Amplatzer device.

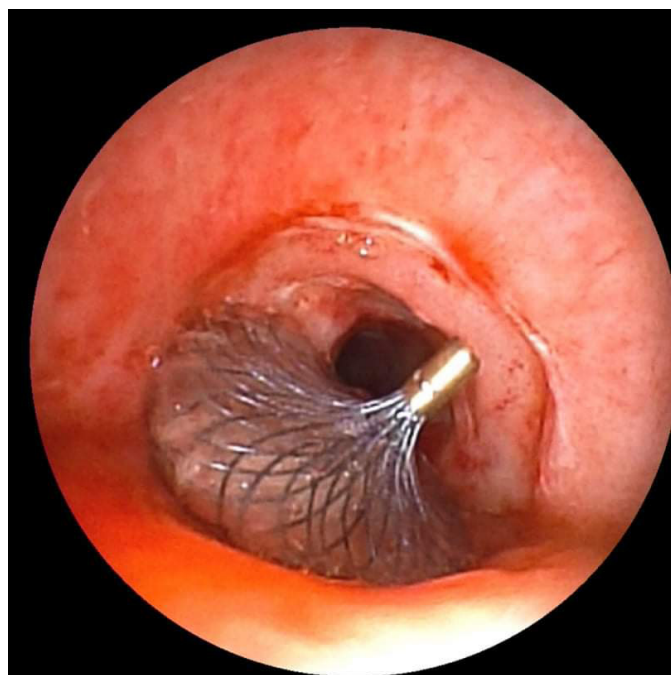
Case reports

A 55-year-old lady with history of esophageal carcinoma and radiation treatment presented with dysphagia and coughing up of food particles for 1 month. On endoscopic evaluation, a stricture was seen in the post cricoid area. Following endoscopic dilatation, a fistula was visualised which was communicating with the trachea. The tracheo esophageal fistula was closed using a novel technique- Amplatzer device. Procedure was uneventful. Patient symptomatically improved post procedure.

Discussion

TEF represents one of most common congenital complication seen in major paediatric surgical centre. Among adults, the most common causes of TEF include esophageal malignancy and surgical complications. Treatment usually involves surgical repair of the fistula. In our case we tried a novel technique of closure using amplatzer device which is usually used for ASD closure and hence this case report.

No disclosure



AP12-614

Interventional bronchoscopy for stent placement by rigid bronchoscopy through tracheostomy. A case reports

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Introduction

Benign tracheal stenosis that is a debilitating and potentially life-threatening condition. Main causes including: long term of endotracheal intubation and/or tracheostomy; tuberculosis; burn injuries;...

Case report

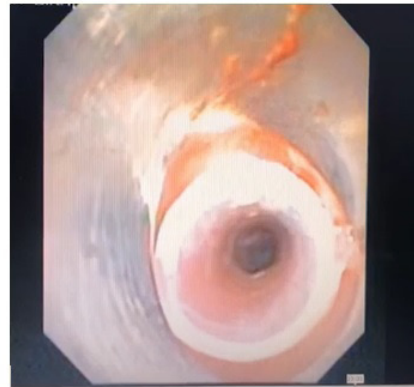
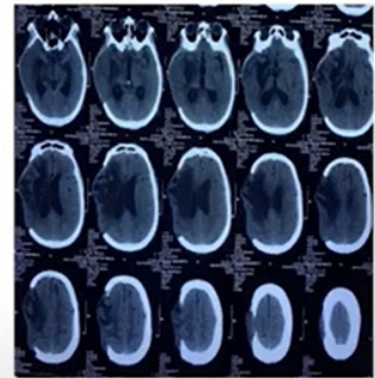
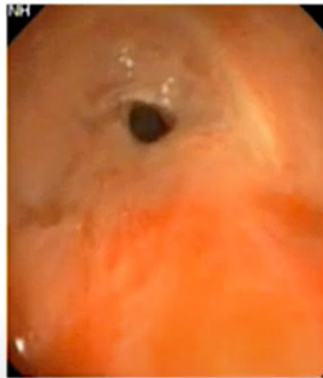
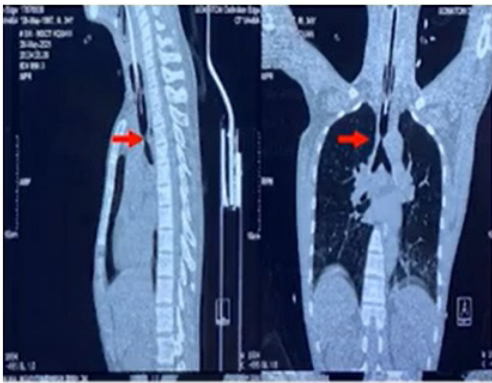
A 34 year-old man admitted to the hospital because of dysapnea. Past medical history: Underwent a surgery to treat traumatic brain injury due to traffic accident 2 months ago. He was intubated and had a tracheostomy for 1 month in the postoperative period. After removing the tracheostomy cannula, the patient often had shortness of breath and stridor.

One day before admission, he had severe shortness of breath which led him to be intubated. The patient has been diagnosed: Scaring tracheal stenosis due to prolonged intubation with post-craniectomy for traumatic brain injury.

We decided to put the rigid bronchoscope through the tracheostomy with the collaboration of otolaryngologists. Finally, the silicone stent was put exactly in the tracheal through the rigid bronchoscope. After the procedure, the patient showed clinical improvement and extubation.

Discussion

The patient had a tracheal stenosis with acute complications of respiratory failure requiring endotracheal intubation to maintain ventilation. In addition, the patient also had brain damage that required surgery. Placing a rigid bronchoscope through the mouth will require head movement leading to the risk of brain damage. Placing a rigid bronchoscope through the tracheostomy avoids the need to move the patient's head and reduces the patient's risk of brain damage. In conclusion, interventional bronchoscopy is an efficient and safe modality in post-intubation tracheal stenosis management and in addition to the traditional oral approach.



AP12-615

Balloon Bronchoplasty under conscious sedation and flexible bronchoscope: A feasible approach from initial experience of Malaysia

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Introduction

Endobronchial tuberculosis (EBTB) is a common consequence of tuberculosis. Prevalence of EBTB in patients with pulmonary tuberculosis (PTB) ranged from 5.8% to 36.8%, with the real incidence likely to be higher because bronchoscopy was not regularly conducted in all PTB patients. Bronchial stenosis is the most prevalent EBTB problem that can occur even with proper medical treatment. It has a negative impact on patients' quality of life and can lead to invasive treatment options.

Aims & Method

Interventional pulmonologists prefer rigid bronchoscopy with balloon dilatation to certain other methods. The feasibility of balloon bronchoscopy using a flexible bronchoscope has not been thoroughly examined. We report the first prospective case series from Malaysia as three of our patients underwent balloon bronchoplasty using flexible bronchoscope under conscious anaesthesia.

Results

Patient demography, CT Thorax findings, procedure information summarised in Table 1. Procedure done via Therapeutic Bronchoscope (Olympus BF 1T180) and utilises CRE balloon (Boston). All 3 of them underwent the procedure without any complication and it took average of 25 minutes in total for all procedures. All of them are symptoms free currently.

Conclusion

Balloon bronchoplasty under conscious sedation is a viable alternative, according to this study. It can be done effectively under conscious sedation with a flexible bronchoscope and has demonstrated the capacity to maintain airway patency for an extended period of time. It will be critical during a pandemic when operating rooms and ICU beds are scarce, and it will be a less invasive technique with a lower risk of complications.

Age	Sex	CT Scan findings	Number of Bronchoplasty done	Post bronchoplasty findings
69	Male	critical narrowing of left main bronchus which is only 2 mm	1	Patent LMB 8mm , symptoms free for 15 months (till date)
20	Female	Critical narrowing of RMB 1-2mm	2 (staged procedure)	Symptoms free for 3 months, Patent RMB 7mm
25	Female	Critical narrowing of LMB 2mm	2 (staged procedure)	Symptoms free for 2 months, Patent LMB 6mm

AP12-616

Endobronchial removal of the peripherally located foreign body with the ultrathin bronchoscopy and ultrathin cryoprobe guided by a manual navigating method

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Introduction

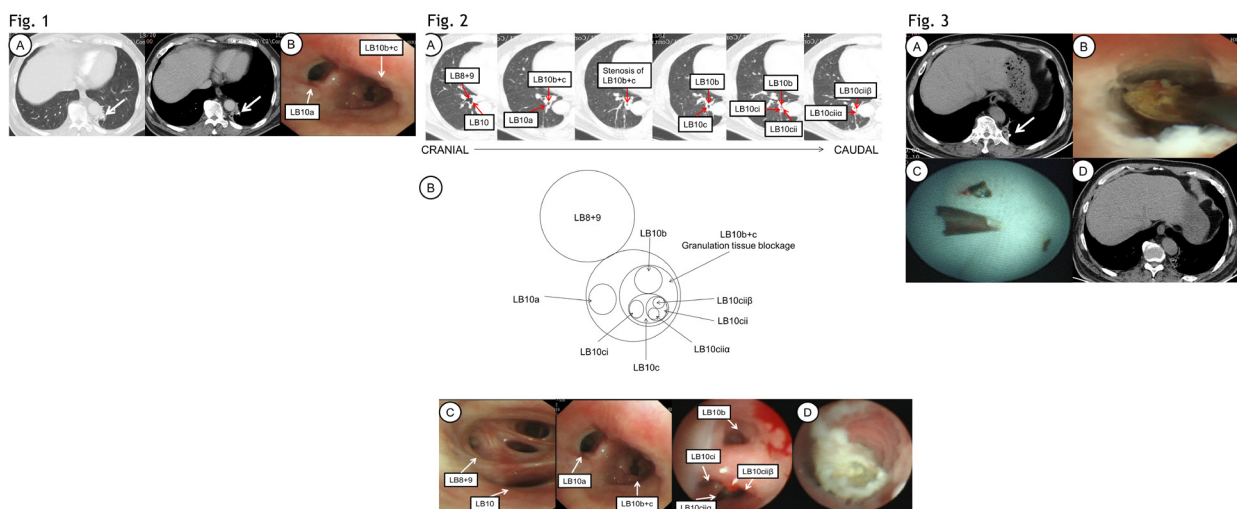
Bronchoscope is a preferential method used to diagnose and remove airway foreign bodies, while for peripherally located foreign bodies, how to locate and remove them remains an intractable problem.

Case report

A 57-year old male presented with 2-week history of intermittent hemoptysis. CT revealed a high-density opacity in the distal basal segment of the left lower lobe (Fig. 1A). The therapeutic bronchoscope couldn't find the foreign body (Fig. 1B). Before another bronchoscopy, we used a manual navigating method to locate the lesion at LB10cii β (Fig. 2A and 2B), while ultrathin bronchoscope successfully found the foreign body in the target bronchus (Fig. 2C and 2D). But the foreign body was too tender to be extracted completely by forceps, and it was even pushed further away (Fig. 3A). Then 1.1 mm ultrathin cryoprobe was used, with an activation time of 4s, and the foreign body, which turned out to be a chili, was frozen and completely removed (Fig. 3C and 3D).

Discussion

Combined use of manual navigating method, ultrathin bronchoscope and ultrathin cryoprobe, which can easily bend and extend to the distal bronchus, and harvest large specimens by the movement of freezing and pulling out the probe, could successfully extract foreign bodies lodged in the distal airways and avoid thoracic surgery.



AP12-617

Efficacy and safety of the transbronchial lung cryobiopsy: a single-center retrospective study in Japan.

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Background and Aims

Transbronchial lung cryobiopsy (TBLC) has been using for diagnosing diffuse lung diseases and malignant diseases because it provides a larger, less contused sample than conventional transbronchial lung biopsy. However, increased complications have also been reported. In this study, we report the efficacy and safety of TBLC in our hospital.

Methods

We retrospectively evaluated in 102 TBLC cases performed with the Elbe cryoprobe (1.9 mm) in our hospital from January 2020 to April 2022.

Results

Cases with eight malignant diseases and ninety-four diffuse lung diseases were enrolled in this study, 51% were male and the median age was 71 (31-86) years. The median number of biopsies performed was 2 (1-3), and the biopsy sites were 43 right / 59 left (18: upper lobe, 6: middle lobe, 59: lower lobe). A definitive diagnosis of malignancy was obtained in 87% of specimens. In the patients with diffuse lung diseases, useful specimens for the diagnosis and treatment decision were obtained in 83% of patients. Complications included 4 cases of pneumothorax (3.9%), 2 of which required invasive treatment. In all cases, hemostasis was achieved using a Fogarty catheter, and there was no bleeding requiring additional treatment. In diffuse lung diseases, the probability of obtaining useful diagnostic information was significantly increased in patients who underwent two or more biopsies ($p < 0.001$).

Conclusion

TBLC is a useful and relatively safe method for the pathological diagnosis of lung disease. The results also suggest that multiple biopsies may be useful for diagnosis, especially in diffuse lung diseases.

AP12-618

The diagnostic yield of transbronchial lung biopsy (TBLB) using both radial endobronchial ultrasound (radial EBUS) and fluoroscopy in peripheral small lung nodule below 20mm.

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Background and Aims

Radial EBUS is a new technology introduced to enhance peripheral lung lesions' diagnostic accuracy. This study aimed to show the possibility that improves diagnostic accuracy using radial EBUS combined with fluoroscopy for stereotactic positioning purpose in small size lung nodules.

Methods

A retrospective analysis of the diagnostic yield of malignancy suspected small peripheral lung nodule (≤ 20 mm) biopsy under fluoroscopy combined with radial EBUS with or without guide sheath (GS) was conducted. Data included all biopsies from March 2020 to February 2022 at a single center by a single operator.

Results

A total of 83 patients confirmed definitive diagnoses were included in this study. Overall diagnostic accuracy using radial EBUS with fluoroscopy was 63/83 (75.90%). The diagnosis was established by radial EBUS 32/43 (74.42%), radial EBUS totally with GS 15/22 (68.18%) and radial EBUS partly with GS 16/18 (88.89%). And there was no statistically significant difference in diagnostic accuracy among these three methods (Pearson chi-square test, $p=0.699$). Considering sonographic features, within showed the most accurate diagnostic result 38/43 (88.37%) followed by adjacent 23/28 (82.14%) and marginal 2/7 (28.57%).

Conclusion

This investigation reviewed the utility of fluoroscopy-guided peripheral lung biopsy accompanied with radial EBUS on small lung nodules (≤ 20 mm). It showed superior diagnostic yields compared to previous studies that using only radial EBUS with or without GS. Further studies are required on radiation exposure level and fluoroscopy using time, total procedure time, and patient safety to determine radial EBUS combined with fluoroscopy can achieve good diagnostic yield while simultaneously achieving patient and operator safety.

AP12-619

Tracheopathia osteochondroplastica – to biopsy or not to biopsy? A relook at the rare disease

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Background and aims

Tracheobronchopathia osteochondroplastica (TPO) is a rare disease, which involves the airway. It is mostly an incidental finding with nonspecific clinical manifestations. It has typical bronchoscopic and radiological features and biopsy is considered non-essential due to hard to biopsy nodules. The aim of this series is to look at whether biopsy makes a difference in management of patients.

Methods

All the cases of TPO in our institution from 2005 to 2020 were included. Their medical records were retrospectively reviewed, and data was analyzed. All the CT images were reviewed by a senior thoracic radiologist.

Results

28 cases were diagnosed as TPO based on either bronchoscopy or radiology or both. Among the 19 cases diagnosed with bronchoscopy, 16 had biopsy. Apart from TPO features, it showed additional diagnosis of malignancy, tuberculosis, Allergic bronchopulmonary aspergillosis and Nocardiosis in 6 cases. Biopsy of TPO lesions changed the management in these cases. In 9 cases, CT initially was not reported as TPO and the diagnosis was captured first by bronchoscopy. Also, we had 8 cases which showed features of TPO in CT done for other indications who never underwent bronchoscopy. On follow up with treatment of underlying concomitant etiology, clinical improvement was noted in all patients.

Conclusion

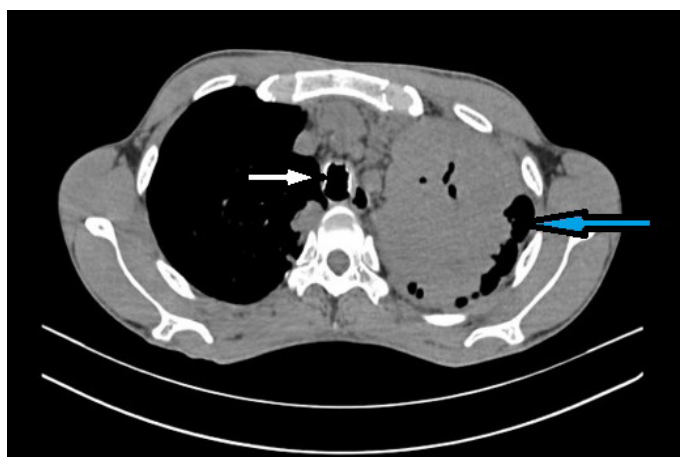
Among patients who underwent bronchoscopic biopsy of TPO lesions in our series, 38% of biopsy results showed an alternative etiology, which led to change in treatment plan for all these patients. So bronchoscopic biopsy of TPO lesions should be done to rule out other etiologies.

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Disclosure statement : None to declare



AP12-620

Effects of patient-selected music and breathing control during bronchoscopy

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Background and Aims

There is little research on the effects of music therapy and breathing control during bronchoscopy. Our objective was to determine how patient-selected music and breathing control affected patient cooperation, vital sign changes, pain, and psychological stress during bronchoscopy.

Methods

We conducted a study on bronchoscopy patients. The patients listened to pre-selected music from one hour before bronchoscopy until the procedure was completed. During the procedure, we recorded baseline characteristics, hemodynamics, respiratory parameters, and oxygen saturation (SpO₂). Patient cooperation was assessed using an against-procedure score, consisting of limb movement, agitation, restlessness, and breath-holding. Pain and anxiety scores, and sedative doses were determined. Additionally, a procedural difficulty score was rated by bronchoscopists. We compared the results to data from our previous study on breathing control during bronchoscopy(1). Patient cooperation and the amount of sedatives prescribed were the primary outcomes.

Results

There were 82 patients in each group. Except for the fact that the breathing control group had less pre-endoscopic anxiety, baseline characteristics were similar. The music group tended to be more cooperative and required significantly lower sedative doses. The oxygen desaturation event was also lower in the music group, which had a higher minimal SpO₂. Furthermore, the music significantly reduced anxiety and made the procedure easier (table1).

Conclusion

Compared to breathing control, the patient-selected music probably improved patient cooperation while requiring less sedatives.

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Table 1 Effects of music therapy and breathing control in the patients undergoing bronchoscopy

Characteristics	Patient-selected music (n= 82)	Breathing control (n= 82)	p-value
Against-procedure scale, median [Q1, Q3]	1 [0, 3]	2 [1, 4]	0.055
Sedation, median [Q1, Q3]			
-Midazolam (milligram)	3 [2, 4]	3.5 [3, 5]	0.035
-Fentanyl (microgram)	75 [50,100]	75 [75,100]	0.044
-1% lidocaine local (milligram)	15 [12, 20]	19.50 [12.75, 140.00]	0.045
No. of patients without oxygen desaturation, n (%)	59 (72)	42 (51.2)	0.006
Oxygenation desaturation (events), median [Q1, Q3]	0 [0, 1]	0 [0, 3]	0.002
Minimal SpO ₂ (%), median [Q1, Q3]	90 [83, 94]	85.00 [79.50, 91.00]	0.012
Physiological status changes			
-Systolic blood pressure (mmHg), median [Q1, Q3]	2.0 [-8.00,16.75]	4.0 [-14.25, 24.00]	0.837
-Diastolic blood pressure (mmHg), median [Q1, Q3]	1.5 [-10.00, 7.50]	1.0 [-9.25, 12.00]	0.895
-Respiratory rate (per minute), median [Q1, Q3]	0.0 [-3.00, 3.25]	0.0 [-4.00, 2.00]	0.237
-Heart rate (per minute), median [Q1, Q3]	-4.0 [-13.25, 5.00]	-8.0 [-20.25, 0.00]	0.021
Average pulse rate during procedure (/min), mean (SD)	86.90 (17.33)	83.19 (16.27)	0.160
Visual analogue scale 0-100*, median [Q1, Q3]			
-Pain and discomfort	10 [10, 10]	10 [10, 20]	0.414
-Change of anxiety score#	30 [10, 50]	22.50 [-10.00, 40.00]	0.002
-Procedural difficulty	10.00 [3.75, 30.00]	20.00 [10.00, 42.50]	0.001
Duration bronchoscope minute, mean (SD)	29.06 (15.90)	35.76 (16.46)	0.009

* the lower score is the better, # the difference between pre and post procedure (pre-VAS minus post-VAS)

AP12-621

Feasibility and safety of electromagnetic navigation transthoracic needle aspiration under moderate sedation for the diagnosis of pulmonary nodules

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Background and Aims

Novel approaches using virtual CT guidance, electromagnetic navigation transthoracic needle aspiration (EMN-TTNA) allows physician to perform percutaneous lung biopsies. However, in previous studies, the procedure was performed under general anesthesia. The purpose of this study is to demonstrate the feasibility and safety performing EMN-TTNA under moderate sedation.

Methods

We conducted a retrospective analysis of patients who underwent EMN-TTNA under moderate sedation between May 2021 and November 2021 at Hallym University Dongtan Sacred Heart Hospital in South Korea. Feasibility and safety were evaluated under moderate sedation through midazolam injection in the bronchoscopy room. All procedures were performed using the Veran SPiNperc EM guidance system (Veran Medical, St Louis, MO, USA).

Results

A total of 26 patients were enrolled. The average age of the participants was 71.1 years, 53.8% were male and 53.8% were never smokers. The mean size of the nodules was 36.6mm and the average distance from the pleura was 14.9mm. The diagnostic yield of EMN-TTNA was 82.7% (19/23), excluding three indeterminate cases. Eleven patients were true positive and eight patients were true negative. There was no pneumothorax, respiratory failure, or death. However, there was hemoptysis in one case, which was stabilized after transfusion.

Conclusions

EMN-TTNA under moderate sedation demonstrated an acceptable feasibility and good safety profile. New technology allows physician to perform percutaneous lung biopsies using electromagnetic guided technology without the intervention of radiologist and anesthesiologist.

AP12-622

Intrapleural Streptokinase and DNase: A cheaper alternative?

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Background and Aims

Intrapleural fibrinolytics is a recognised treatment for complicated pleural effusion and empyema. The Multicentre Intrapleural Sepsis Trial-2 trial shows that combination intrapleural tissue plasminogen activator (tPA) and deoxyribonuclease (DNase) improves drainage of pleural fluid and the need for surgery. tPA may not be widely available in resource limited settings. To date, only isolated reports have described combination therapy of Streptokinase and DNase (STK/DNase). Aim of this study is to analyse our experience in using intrapleural STK/DNase.

Methods

A retrospective review was performed of all patients with empyema and complicated pleural effusion who received intrapleural STK/DNase in Queen Elizabeth Hospital, Malaysia (June 2020-April 2022). Demographics, outcomes (volume of pleural fluid drained, improvement in inflammatory markers, need for surgical intervention) and adverse events were recorded.

Results

21 patients (males 18; age 60[IQR 47-64]) were treated with intrapleural Streptokinase/DNase. Most common symptoms were cough (n=14), dyspnoea (n= 14) and fever (n=13). Median CRP pre-procedure was 72.4mg/L [IQR 36.2-160.6] and at day 7 post intrapleural therapy was 24mg/L [IQR 12.5-35.1]. Median amount of fluid drained was 1262.5 ml. 16 patients (76.2%) were successfully managed without the need for surgical intervention. Most common complication was pain (n=5, 23.8%). 2 patients developed allergic reaction to Streptokinase leading to discontinuation of treatment.

Conclusion

Intrapleural STK/DNase improved pleural drainage, reduced inflammatory markers and reduced the need for surgical intervention in our study. Larger randomised controlled trials are needed to compare the efficacy of STK/DNase (Cost=USD 100.48 per dose) versus tPA/DNase (Cost=USD 256 per dose).

AP12-623

Effects of patient-selected music and deep meditation music during bronchoscopy

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Background and Aims

There is limited evidence of music therapy during bronchoscopy. We aimed to compare the effects of patient-selected music and deep meditation music on patient-cooperation, changes in vital signs, pain, and psychological stress during bronchoscopy.

Methods

We conducted a RCT on patients undergoing bronchoscopy in a university hospital. The eligible patients were assigned to either a patient-selected music group or a deep meditation music group at random. Patients in both groups received the same treatment and listened to music from one hour before the bronchoscopy to the end of the procedure. Baseline characteristics were recorded. We measured oxygen saturation and hemodynamics during the bronchoscopy. Furthermore, we recorded total sedative doses and evaluated patient-cooperation using an against-procedure score that included limb movement, agitation, restlessness, and breath-holding. We evaluated pain and anxiety levels following bronchoscopy. Furthermore, we asked bronchoscopists to rate procedure's difficulty on a scale. The primary outcomes were patient-cooperation and the number of sedatives prescribed.

Results

Each group consisted of 82 patients. Except for the less pre-endoscopic anxiety in the deep meditation music group, baseline characteristics were similar. The patient-cooperation, pain and procedural difficulty scores, hemodynamic and respiratory changes during bronchoscopy were not different between both groups. Nevertheless, the patient-selected music group required significantly less topical lidocaine with the same amount of sedatives and had lower oxygen desaturation events. Furthermore, the patients' preferred music significantly reduced anxiety (table1).

Conclusion

The patient-selected music group had comparable cooperation while requiring less local lidocaine than the deep meditation music group.

Table 1 Effects of music therapy in the patients undergoing bronchoscopy

Characteristics	Deep meditation music (n= 82)	Patient-selected music (n= 82)	p-value
Against-procedure scale*, median [Q1, Q3]	1 [0, 3]	1 [0, 3]	0.652
Sedation, median [Q1, Q3]			
-Midazolam (milligram)	3 [2, 4]	3 [2, 4]	0.958
-Fentanyl (microgram)	75 [50,100]	75 [50,100]	0.809
-1% lidocaine local (milligram)	150.00 [95.00, 180.00]	15 [12, 20]	0.001
No. of patients without oxygen desaturation, n (%)	38 (46.3)	59 (72)	< 0.001
Oxygenation desaturation (events), median [Q1, Q3]	0.75 [0.00, 1.25]	0 [0, 1]	0.002
Minimal SpO2 (%), median [Q1, Q3]	87.50 [83.00, 93.00]	90 [83, 94]	0.485
Physiological status changes			
-Systolic blood pressure (mmHg), median [Q1, Q3]	1.00 [-13.75, 12.25]	2.0 [-8.00,16.75]	0.286
-Diastolic blood pressure (mmHg), median [Q1, Q3]	-1.00 [-11.25, 10.00]	1.5 [-10.00, 7.50]	0.377
-Respiratory rate (per minute), median [Q1, Q3]	0.00 [-4.00, 3.00]	0.0 [-3.00, 3.25]	0.656
-Heart rate (per minute), median [Q1, Q3]	-7.00 [-15.50, -0.75]	-4.0 [-13.25, 5.00]	0.117
Average pulse rate during procedure (/min), mean (SD)	83.62 (15.67)	86.90 (17.33)	0.206
Visual analogue scale 0-100*, median [Q1, Q3]			
-Pain and discomfort	10 [10, 10]	10 [10, 10]	0.841
-Change of anxiety score#	20 [0, 40]	30 [10, 50]	0.002
-Procedural difficulty	15.00 [10.00, 30.00]	10.00 [3.75, 30.00]	0.135
Duration bronchoscope minute, median [Q1, Q3]	30.00 [20.00, 43.25]	27.50 [19.00, 37.00]	0.069

* the lower score is the better, # the difference between pre and post procedure (pre-VAS minus post-VAS)

AP12-624

Study on the application of hybrid operation “one stapler plus one needle” to reduce the volume of giant emphysematous bulla

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Background and Aims

Our innovative treatment for giant emphysematous bulla (GEB) by puncture needle under medical thoracoscope (PNUMT)^[1] has achieved satisfactory results. But the limitations of currently used medical glue reduced the treatment's robustness when GEB was oversized and increased risk due to excessive use of medical glue. And the treatment's application was limited when pleural adhesions was severe because pleural adhesiolysis may lead to tear of the GEB's wall. Therefore, a hybrid operation, namely one stapler plus one needle (OSPON), was developed. ① Adding a 2 ~ 4 cm incision for entering stapler to partly reduce oversized GEB (including patients with concomitant pneumoconiosis or pulmonary fibrosis who need to strictly control medical glue usage) or close the teared GEB wall. ② PNUMT was used to complete volume reduction and block air leakage from inside. OSPON was expected to improve the robustness and safety of volume reduction, reduce postoperative persistent air leakage.

Methods

GEB patients treated with OSPON from January 2022 to May 2022 were retrospectively reviewed. The medical glue usage, stapler usage, GEB reduction degree, duration of postoperative air leakage and complications were assessed. Arterial blood gas analysis, 6-minute walking test (6MWT) and dyspnea score before and after operation were compared.

Results

Eight cases with a total of 11 GEB were included. Some of them could not tolerate VATS. They all received rigid medical thoracoscopy. The maximum diameter of GEB was 9~22 cm, with an average of (13.36±4.41) cm. (14.31±4.08) ml medical glue and (2.75±1.98) staplers were used meanly. Chest CT before discharge showed GEB were all closed. The postoperative air leakage lasted (2.25±2.12) days. Chest drainage lasted (5.13±2.75) days. PaCO₂, oxygenation index, 6MWT, the degree of dyspnea were all improved. No severe complications occurred.

Conclusion

OSPON is effective, safe and reliable in the treatment of GEB.

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AP12-625

Transbronchial lung cryobiopsy for diffuse and localized peripheral pulmonary lesions: A retrospective review of our early experience

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Background

Transbronchial lung cryobiopsy (TBLC) is an emerging technique for obtaining lung biopsies. This retrospective study aimed to evaluate the performance and safety of TBLC performed on diffuse peripheral pulmonary lesions (DPPL) and localized peripheral pulmonary lesions (LPPL).

Methods

A total of 58 patients underwent TBLC. They were divided into two groups (DPPL and LPPL) based on radiological findings. Patients' demographic data, procedural details, complications, and radiological and pathologic diagnostic results were analyzed.

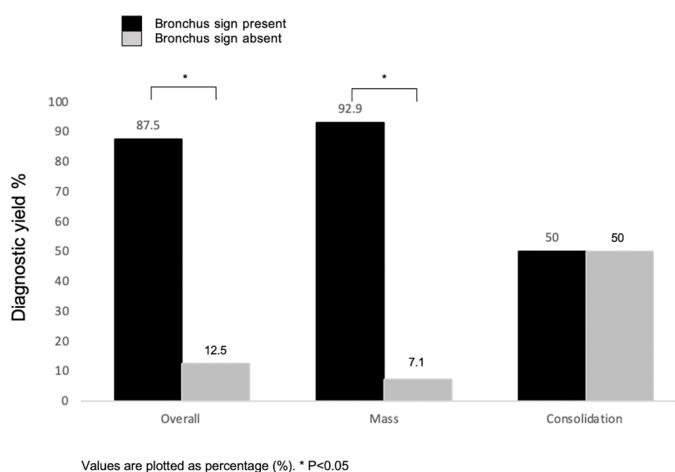
Results

The overall diagnostic yield for TBLC was 72.4%. In the subgroup analysis, the diagnostic yield was 74.3% for DPPL and 69.6% for LPPL. For LPPL, the overall diagnostic yield was 87.5% and 12.5% for positive and negative bronchus signs, respectively ($P = 0.01$). In both groups, the success of TBLC was not influenced by the size, number, or location of the biopsy. Thirty-two (82%) patients had mild bleeding, while six (15.4%) had moderate bleeding. Pneumothorax occurred in four (6.9%) patients, with three patients requiring drainage. The mean duration of hospital stay was longer for patients who bled or who had pneumothorax compared to those who did not (5.64 days vs. 3.47 days; $P = 0.014$) and (14.25 days vs. 4.24 days; $P = 0.035$) respectively.

Conclusion

TBLC provided an acceptable diagnostic yield for DPPL and LPPL under fluoroscopy guidance and without the use of a radial endobronchial ultrasound or guide sheath. The safety profile of TBLC corresponded with a low incidence of pneumothorax and manageable bleeding complications with the routine use of an endobronchial balloon.

All authors declared no conflicts of interest.



AP12-626

Ultrasound Guided Transthoracic Needle Biopsy : A Pulmonologist Perspective

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Introduction

Lung and mediastinal masses are common referral to pulmonologist. Patients would normally be subjected to CT guided biopsy by radiologist if these lesions are peripherally located or abutting the pleura. Ultrasound guided biopsy however now gaining its popularity as its yield has a comparable diagnostic accuracy with less complication compared to CT guided biopsy.

Objective

To assess the yield and safety of ultrasound guided biopsy by pulmonologist.

Methodology

Retrospective analysis of patients who underwent ultrasound guided lung biopsy from July 2019 to December 2021 in HTAA. CECT thorax of patients who were referred for lung or mediastinal mass were reviewed. Patients with peripheral lung mass, mediastinal mass or mass abutting the pleura were planned for the procedure. Informed consent and pre procedural baseline Full blood count and coagulation profile were done. Antiplatelet and anticoagulant were withheld. Transthoracic ultrasounds were done and area was marked. Biopsy done with core biopsy needle size 18G under aseptic technique. Immediate and delayed complications were observed. Post procedure chest X-ray was done for each patient. Patients were discharged on the same day of procedure if no complication arised.

Results

Total 74 patients subjected to ultrasound guided transthoracic biopsy. Patient's age ranging from 16 to 86 years old. 23 patients had mediastinal mass where the rest had lung mass. Adequate sample for histology evaluation is 93.25% (69/74).Yield for malignancy is 95.65% (66/69) .Minimal complication observed. 1 patient had bleeding from the biopsy site which secured by adrenaline pack application. No pneumothorax or death observed.

Conclusion

Ultrasound guided biopsy performed by trained pulmonologist is safe and has excellent yield. It expedites patient's diagnosis by cutting down the waiting time for radiologist performed percutaneous lung/ mediastinal mass biopsy. However, patients with hypodense lesion in CT thorax representing necrotic tissue will need extra consideration and CT guided biopsy may be a better option.

•Tsaknis et al. 2016 'safety and efficacy of ultrasound guided lung biopsies in an outpatient physician-led service', European Respiratory Journal, 48: PA3858.

•Rahul Patel et al. 2019 'Safety and yield of physician led ultrasound guided transthoracic lung/pleural biopsies"', European Respiratory Journal, 54: PA3393.

- Debajyoti Bhattacharyya et al.2013 'Transthoracic ultrasound (USG) guided biopsy of lung lesions: Experience from a tertiary care centre in India", European Respiratory Journal, 42: P2319.
- Min De Huang et al.2019 'Accuracy and complications of CT-guided pulmonary core biopsy in small nodules: a single-center experience' Cancer Imaging 19, 51.
- David Lang et al.2018 ' CT-guided transthoracic lung biopsy : A short report on current literature and a case of systemic air embolism' , Wien Klin Wochenschr. 130(7): 288–292.

AP12-627

Clinical outcomes of cryobiopsy for peripheral pulmonary lesions - a prospective pilot study

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Background and Aims

Transbronchial cryobiopsy (TBCB) is a novel technique for diagnosis of peripheral pulmonary lesion (PPL) which yields large tissue samples. We aim to evaluate the efficacy of TBCB using 1.1mm cryoprobe for PPL.

Methods

We performed a prospective single-arm study on diagnosis of PPL (diameter, ≤ 30 mm) by TBCB using 1.1mm cryoprobe with radial endobronchial ultrasound (R-EBUS), virtual bronchoscopic navigation, and fluoroscopy from December 1, 2021. Primary outcome was the diagnostic yield of TBCB based on pathologic diagnosis, and secondary outcome based on clinical diagnosis (pathologic confirmation with suspicious results).

Results

At this interim analysis (data cut off, May 30, 2022), a total of 39 patients (27 solid, 9 sub-solid, 3 cavity lesions) was enrolled. The mean lesion size was 20.7mm. On R-EBUS scan, 'within lesion' and 'adjacent to' images were found in 69.2% (n=27) and 30.8% (n=12), respectively. The mean number of TBCB samples was 2.3. The primary outcome was 79.5% (n=31 [malignancy, n=27; benign, n=4]). The diagnostic yield was 74.1% (n=20), 88.9% (n=8), and 100% (n=3) in solid, sub-solid, and cavity lesion, whereas 88.9% (n=24) and 58.3% (n=7) in 'within' and 'adjacent to' lesion, respectively. The secondary outcome was 88% (n=35). The mean tissue surface area of TBCB was 19.4mm². Moderate bleeding occurred in 20.5% (n=8).

Conclusion

TBCB is an effective modality for diagnosis of PPL allowing high diagnostic yield with adequate sample size, especially in subsolid and cavity lesions. However, caution should be paid for the possibility of bleeding.

Trial registration

ClinicalTrials.gov, NCT05046093

AP12-628

Virtual bronchoscopy navigation combined with thin bronchoscope to diagnose pulmonary tuberculosis: A randomised trial

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Background

This study was conducted to evaluate the efficacy of virtual bronchoscopy navigation (VBN) combined with thin bronchoscope for diagnosis of pulmonary tuberculosis (PTB).

Methods

Between March 2019 and November 2021, we prospectively enrolled participants with suspected PTB whose sputum acid-fast bacilli (AFB) smear and TB-polymerase chain reaction (PCR) are negative or who cannot produce self-expectorated sputum. Participants were randomised to control group (bronchial washing [BW] using 5.9mm-conventional bronchoscope with reference to chest computed tomography scan image) or investigational group (BW using 4.0mm-thin bronchoscope with VBN guidance). The primary outcome was the TB detection in BW fluid, defined as positive TB-PCR result of the Xpert MTB/RIF assay. The secondary outcomes included AFB smear and Mycobacterium tuberculosis culture positivity, time to treatment initiation, and bronchoscopy-related complications.

Results

A total of 85 participants were included in the final analysis (43 were allocated in control group and 42 in the investigational group). Twenty-three and 29 participants had a final diagnosis of PTB in control and investigational group, respectively. TB detection rate of BW fluid was higher in the investigational group (72.4 vs. 43.5%, $P = 0.035$). *M. tuberculosis* culture positivity was also higher in the investigational group (79.3 vs. 52.2%, $P = 0.038$). One participant in the control group experienced endobronchial bleeding during the bronchoscopy. No participant terminated bronchoscopy prematurely due to complications. Among participants with PTB, time to treatment initiation was faster in the investigational group (median of 2.0 days vs. 4.0 days; $P = 0.001$).

Conclusion

BW using VBN combined with thin bronchoscope increases TB detection in patients with PTB comparing conventional bronchoscopy.

AP12-629

Utility of endobronchial ultrasound guided re-biopsy of non-small cell lung cancer with acquired resistance after EGFR tyrosine kinase inhibitor

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Background

In non-small cell lung cancer (NSCLC), the presence of T790M mutation is associated with favorable prognosis after epidermal growth factor receptor-tyrosine kinase inhibitor (EGFR-TKI) failure. Few studies are performed about the utility of endobronchial ultrasound (EBUS)-guided re-biopsy for detection of T790M mutation. We investigated the utility of EBUS guided re-biopsy of non-small cell lung cancer for detecting acquired resistance after EGFR-TKI treatment.

Methods

44 consecutive patients with 56 EBUS procedures, who underwent EBUS-guided re-biopsy for detection of T790M mutation were analyzed. EBUS with a guide sheath (EBUS-GS) was performed for patients with peripheral pulmonary lesions, and EBUS-guided transbronchial needle aspiration (EBUS-TBNA) was performed in patients with mediastinal lymphadenopathy. Success rates and T790M mutation frequencies according to the site of re-biopsy and EBUS methods were analyzed. Multivariable logistic regression analyses were used to assess factors affecting occurrence of T790M mutation.

Results

Thirty six patients underwent EBUS-GS, 15 patients underwent EBUS-TBNA, and 5 patients underwent EBUS-GS with EBUS-TBNA for re-biopsy. Success rates for mutation analyses using EBUS-GS, EBUS-TBNA, EBUS-GS with EBUS-TBNA for re-biopsy were 80.6% (29/36), 93.3% (14/15), and 100% (5/5), respectively. Patients who underwent lymph node biopsy using EBUS-TBNA was associated with increased rates of T790M mutation compared with lung biopsy using EBUS-GS (EBUS-TBNA, 60.0%; EBUS-GS with EBUS-TBNA, 40.0%; EBUS-GS, 11.1%; $p < 0.001$). In multivariable analysis, first generation EGFR-TKI usage (Odds ratio [OR], 4.29; 95% confidence interval [CI], 1.05-17.58; $p = 0.043$) was associated with occurrence of T790M mutation. Re-biopsy of metastatic site (OR, 4.10; 95% CI, 0.98-17.11; $p = 0.053$) tended to have a higher T790M mutation rate, but it was not statistically significant. Mild hemoptysis occurred in 3.6% (2/56) of the patients.

Conclusions

EBUS-guided re-biopsy for detection of T790M mutation can be considered as a diagnostic method in patients with EGFR-TKI failure. Success rates and T790M mutation frequencies were different according to the site of re-biopsy and EBUS methods. First generation EGFR-TKI usage was an independent factor for T790M mutation.

AP13-630

A case report of an infant with congenital lobar emphysema at Angkor Hospital for Children

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Introduction

Congenital lobar emphysema (CLE) is an anomaly of fetal lung development in which abnormal airway development in the affected lobe causes partial obstruction of the bronchus and an enlarged, overinflated lobe. CLE may cause of neonatal respiratory distress related to compression of other lobes, although milder cases may present later in childhood. Chest x-ray will show an overinflated lobe often with atelectasis in ipsilateral and contralateral lobes. The diagnosis can be confirmed by chest CT scan.

Case presentation

A 6-month-old boy was referred to the Chest Clinic at Angkor Hospital for Children after being admitted to the PICU twice, first for bronchiolitis and then for pneumonia associated with coronavirus infection. His chest x-ray showed over-inflation of the left upper lobe with mild shift of the mediastinal structures to the right. The chest CT showed over distension of the left upper lobe, some compression of the left lower lobe, and some loss of volume in the entire contralateral lung. The child is currently doing well.

Discussion

Traditionally, lobectomy was recommended for infants diagnosed with CLE. However, it has been recognized that some patients may be followed conservatively if they do not initially present with respiratory distress. Even in this subset, however, surgery may eventually be required. We will continue to follow this child closely in Chest Clinic, especially since Cambodia currently lacks surgeons with experience operating on infants with this rare anomaly.

I have no disclosure.



AP13-631

LEGA-Kid® Efficacy and Safety in Children with Pneumonia

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Methodology

In this randomized controlled study, children between 6 months to 5 years weighing 3-15kg admitted with pneumonia were recruited. A certified physiotherapist randomly assigns them to receive CPT either manually or using LEGA-Kid®. Each child was evaluated at baseline, immediately and three minutes after the CPT.

Results

28 patients participated in the study with 47 mCPT and 43 LEGA-Kid® CPT procedures recorded. Patients from both arms had similar demography. There were no significant differences in heart rate (HR), oxygen saturation (SaO₂) and respiratory rate (RR), Dalhousie² and Wong – Baker scores³ between the two arms at baseline, immediate and three minutes post-CPT. There were significant changes of HR, SaO₂ and RR between immediate and three minutes post-CPT within each group, p-value 0.003. The mean SaO₂ at three minutes was significantly higher compared to immediately post-CPT (p-value 0.03), while the mean HR and RR were lower during three minutes compared with immediately post-CPT (p-value 0.016 and P<0.001 respectively) within each group. However, there were no significant differences in changes of HR, SaO₂ and RR between the two groups (p-value 0.745, 0.315 and 0.995 respectively).

Conclusion

The LEGA-Kid® device is not inferior to mCPT with regards to changes of heart rate, SaO₂ and respiratory rate immediately and three minutes after CPT.

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Acknowledgement

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AP13-632

Lung metastatic of rhabdomyosarcoma: report a case with delayed diagnosis of primary tumor due to COVID-19

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Introduction

Rhabdomyosarcoma (RMS) – the soft tissue sarcoma of skeletal muscle, is a common malignancy and one of the leading causes of cancer death in children. Alveolar rhabdomyosarcoma (ARMS) is a subtype of RMS, has the highest malignancy, the 5-year disease-free survival rate ranges from 8% to 29%. The most common sites of metastasis is the lung. The primary tumor site can initially appear in any skeletal muscle, but large muscle masses are more common. (eg: Thighs, glutes, back muscles). For lung metastases, CT-Scan is useful for identifying multiple small nodules; Balloon metastases, cavitation, or mediastinal lymph nodes are enlarged. Biopsy of lung lesions under CT guidance is now widely used. Histopathological results and Immunohistochemical staining of biopsies from primary or metastatic tumors can give the diagnosis of malignant lesions.

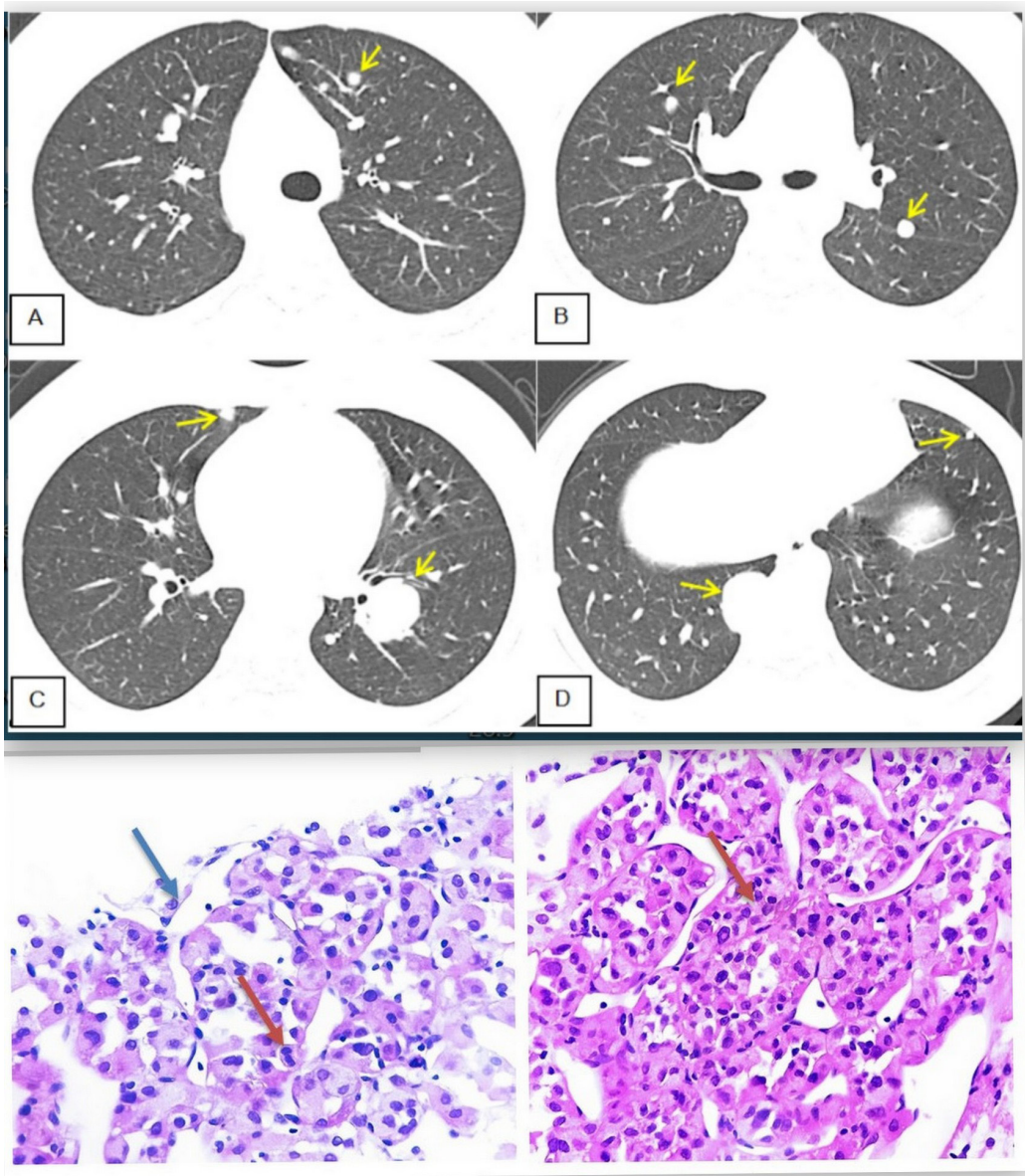
Case report

Our case is a adolescents patient – 16 years old, came to the National Lung Hospital with lung nodules consistent with metastasis, however, because the patient was infected with covid 19, it should be delayed for diagnosing. Delayed investigation of the primary tumor along with histopathological findings overlapped with epithelial malignancies. After covid 19 more than 1 months, the patient was admitted to the hospital and found out the buttock tumor, at this time the clinical, subclinical, imaging, histopathological, and immunohistochemical data were sufficient to diagnose.

Discussion

RMS is a malignant soft tissue sarcoma, common in children and adolescents. Because it is a tumor of connective tissue, mesenchymal origin, it presents variety of primary and secondary lesions, highly malignant and often metastasizes early. Reported data and literature review will help physicians have a better diagnostic approach when encountering similar cases.

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AP13-633

Multiple rib destructions as an extremely rare complication of Kasabach-Merritt syndrome in a 2-years old female child: A case report

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Introduction

Kasabach-Merritt syndrome (KMS) is a rare and life-threatening coagulopathy of infancy; the syndrome may cause severe visceral haemorrhage leading to death. We report a 2-year-old girl with KMS, presenting with massive haemothorax from haemangioma rupture and multiple rib destruction due to avascular necrosis. Currently, this is the first case of severe form of avascular necrosis in a toddler as a complication of KMS.

Case report

A 2-years-old girl presented to the emergency room with a large haemangioma and signs of respiratory distress. The patient had a bluish spot on the upper right chest since she was 5-months old. Severe anaemia, thrombocytopenia, coagulopathy, and hypofibrinogenemia were found. Chest x-ray revealed complete opacity of the right lung field due to haemothorax. Chest computed tomography (CT) scanning and angiography revealed a vascular mass in the sternum cutis region, multiple destructions of bilateral ribs, and multiple osteopenia of thoracic vertebrae (Figure 1). Diagnosis of KMS was established. Prednisone (3 mg/kg body weight/day) was given as initial therapy for 2 weeks. Consumptive coagulopathy and thrombocytopenia were resolved. Vincristine was planned for 6 weeks (1 mg/BSA/week) as adjunct. In the first few days after vincristine administration, the patient had died due to rebleeding.

Discussion

Performing CT scans and angiography provide higher accuracy in diagnosing KMS. Prednisone is used as the first-line therapy, albeit with relatively low response rate and low tolerance; vincristine in this case was used as an adjunct. Rebleeding is one of the possible main causes of death in children with KMS.

We have no conflicts of interest to disclose.



AP14-634

Case of a 48 year-old male, with bronchopulmonary sequestration presenting with recurrent pneumonia

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Introduction

Bronchopulmonary sequestration (BPS) or "accessory lung" is a rare congenital malformation with an incidence of 0.15 to 1.8% worldwide, which accounts for less than 6% of congenital lung malformations. The most widely accepted pathogenesis is that it results from formation of an accessory lung bud inferior to the normal ones. Segment or lobe of non-functioning lung tissue receives its blood supply from an aberrant systemic feeding artery and is separated from the normal bronchopulmonary tree.

Case

A 48 year-old, male, presented with recurrent productive cough and pleuritic chest pain since childhood. He was managed with recurrent pneumonia and pulmonary tuberculosis. CT-guided biopsy of right lower lobe and bronchoscopy with bronchoalveolar lavage were done, which showed chronic inflammatory changes. Chest CT-scan revealed bronchiectasis on medial basal segment of right lower lobe. Despite antibiotic treatment, symptoms persisted; hence, he was advised for lung resection. He underwent video assisted thoracic surgery with right lower lung lobectomy. Intraoperatively, an aberrant feeding artery directly from the aorta was noted. Histopathologic findings of resected lung (Figure 1) showed chronic inflammation compatible with BPS.

Discussion

Our patient had intralobar sequestration of right lower lobe. This is the more common type of BPS and similar to our case, symptoms start to appear during childhood. Identification of a systemic arterial supply and venous drainage of the sequestered lung tissue through Chest CT-scan is diagnostic of BPS. Recurrent pneumonia and lower lobe mass supplied by an aberrant artery are hallmarks of BPS. Treatment of choice is surgery which usually involves lobar resection.



Figure 1. Gross specimen of patient's right lower lobe post-lobectomy

AP14-635

A Case Report on Subglottic Hemangioma on a 4-month-old Female Infant

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Introduction

Subglottic hemangioma is a rare benign tumor in children which can cause life-threatening obstruction of the upper airway. This paper aims to report a case of subglottic hemangioma, its clinical manifestations, diagnosis, and treatment. The different causes of stridor were also described.

Case Report

This is a 4-month-old female infant with stridor and recurrent pneumonia in the past two months whose diagnosis was not confirmed. The patient was initially managed as acute laryngotracheobronchitis with transient improvement of the respiratory distress. Twenty-four hours from admission, the patient suddenly developed severe respiratory distress with deterioration in sensorium. Endotracheal intubation was attempted but triggered gross bleeding on the glottic area. The patient developed hypovolemic shock due to severe bleeding and was managed accordingly. Structural causes were entertained so CT scan of the neck was contemplated, but was not done because the machine was under repair. Transport to another hospital for the purpose of imaging was considered but the patient was unstable for transport. This made the diagnosis even more difficult to establish. Emergency tracheostomy was done to establish a stable airway. After the procedure, direct laryngoscopy confirmed the diagnosis of a subglottic hemangioma.

Discussion

A high index of suspicion for the presence of a subglottic hemangioma should be maintained especially among young patients presenting with recurrent respiratory infections associated with stridor. Establishing early diagnosis either by direct laryngoscopy, or by non-invasive CT scan can potentially prevent life-threatening complications and mortality.

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AP14-636

Lung restriction in children with marfan syndrome and severe scoliosis : a case report

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Introduction

Marfan syndrome (MFS) is a genetic disorder affecting connective tissue, often marked with the presence of scoliosis. Scoliosis decreases chest wall and lung compliance indirectly. We aimed to investigate the respiratory risk in patients with Marfan syndrome associated with scoliosis.

Case report

A 17-year-old boy came with scoliosis (Cobb angle thoracal 81,2o, lumbal 63o) and refused to do spine surgery. The patient complained easily tired during activity. From the respiratory examination, we found: pectus excavatum; chest expansion 3-4-4 cm; breathing count test 20; peak flow 275 L/min; and peak cough flow 320L/min. Spirometry evaluation showed mild restriction. Another exams lead to MFS: MFS hand test point 12; and from echocardiography there were aortic root dilatation with aortic regurgitation. We give pulmonary rehabilitation programs (incentive spirometry, air stacking exercise, active cycle breathing technique, etc.).

Discussion

MFS is caused by mutations in the gene Fibrillin-1 (FBN1) on chromosome 15 that encodes the FBN1 protein, which is an essential part of the connective tissue of cardiovascular and musculoskeletal systems

(1). Pulmonary involvement in MFS can be found in approximately 63% of the patients; thus, functional changes in the respiratory must evaluate routinely, also provide early pulmonary rehabilitation that maintains lung function during the progression of the disease

(2,3). Even though now our patient feels in good condition but without spine correction, respiratory function were at risk of deterioration and may lead to severe breathing problems. Thus we maintain it with a pulmonary rehabilitation program and give an evaluation every three months.

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AP14-637

A rare manifestation of benign tumour: Endobronchial hamartoma

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Introduction

Pulmonary hamartomas are rare benign tumors consisting of multiple mesenchymal cell lines like cartilage, bone and fat and entrapped respiratory epithelium¹⁻³. The population incidence is 0.25%¹ and observational study showed, only 1.4% of hamartomas had an endobronchial location, others are in the lung parenchyma¹⁻³. Here we discuss an interesting case of endobronchial hamartoma presented to primary centre with chronic cough and abnormal imaging.

Case report

67 years old, Malay male, active smoker with comorbid of Diabetes Mellitus and Hypertension. Patient presented with chronic cough for three months, breathlessness on moderate exertion, poor appetite and lost of weight. Physical examination revealed generalized ronchi. Blood and sputum investigations were normal. Chest radiograph showed left hilar and lower lobe opacity suggestive of infection. CECT thorax showed endoluminal solid lesion within bifurcation of left main bronchus extending to left lower lobe measuring 1.7 x 2.4 x 2.1cm. Rigid bronchoscopy revealed left endoluminal mass obstructing left main bronchus 2cm from carina. Tumour debulking was done using cryo probe and electrocautery snare. Histopathology final report concluded the diagnosis of endobronchial hamartoma. Bronchial washing culture came back positive for Haemophilus Influenza and treatment was given. He was subsequently being referred to thoracic surgery for a complete tumour resection.

Discussion

Endobronchial hamartoma should be considered as potential diagnosis that may present with various kinds of respiratory symptoms. Although endobronchial hamartomas are benign, resection is recommended to prevent postobstructive lung damage. In our case, patient already presented with obstructive pneumonia complication.

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AP14-638

Stubborn Right Sided Pleural Effusion: A Case Report

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Introduction

Hepatic hydrothorax occurs in 5-10% of cirrhosis. Almost all patients with hepatic hydrothorax also have ascites. But in a minority, this diagnosis might be elusive.

Case report

We present a 68 year old female who came in for difficulty of breathing. One month prior to admission, albeit asymptomatic, she was started on anti-koch's due to PTB finding in her chest x-ray. On presentation, her oxygen saturation is 90% at room air and had decreased breath sounds on the right. Chest x-ray showed right-sided pleural effusion and chest ultrasound revealed approximately 1,800mL fluid. Patient underwent pigtail insertion, Lights criteria turned out to be transudative and was negative for any analysis sent. Abdominal ultrasound and CT scan were unremarkable, liver enzymes were only mildly elevated (60 for both ALT and AST, upper limit of 45). Anti-koch's was stopped and the fluid lessened but still persistent. Fibroscan was eventually done which revealed stage 4 cirrhosis. After that, abdominal ultrasound showed portal hypertension and ascites. Patient was started on liver supplements. Pigtail was eventually removed after 3 months, after a month and a half of discontinuing anti-koch's and after a week of liver supplements. On follow up after 6 months, liver enzymes are normal and there is no recurrence of effusion.

Discussion

Hepatic hydrothorax can be elusive at times and high index of suspicion is important despite normal findings. Further investigation should be done if needed. In this case, the pleural effusion was prominent prior to the evidence of ascites and portal hypertension.

AP14-639

Improvement of peak cough flow score in post-stroke with Guillain-Barré-syndrome patient

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Introduction

Cough is an expulsive motor mechanism consisting of inspiratory, compression, and expulsion phases that keep the lung airways free of foreign objects. This mechanism can be disrupted during or post-stroke since it depends on the central cough center, vagus nerve, spinal motor nerves, and the respiratory muscles. Guillain-Barré-syndrome (GBS) can also affect the ability to cough effectively. Cough capacity can be easily evaluated by measuring flow during coughing using a peak flow meter. A value of peak cough flow (PCF) more than 160 L/min is needed for an effective cough.

Case Report

A patient aged 60 years, height 172 cm, post-non-hemorrhagic stroke with GBS and uncontrolled diabetes mellitus type II had done a PCF test that was performed after weaning from the four days ventilator with the score was 150 L/min. He regularly underwent rehabilitation for 1.5 months with the program were chest expansion, incentive spirometry breathing, threshold PEP, and diaphragmatic breathing, and the PCF value increased to 290 L/min. After four months of rehabilitation, his PCF score was 380 L/min.

Discussion

Nury et al. reported that the median PCF value in healthy men aged 51–60 years is 405 (315–490) L/min, and at the height of 170–179 cm is 460 (405–502) L/min.¹ We conclude that expiratory respiratory muscle weakness is possible in patients with post-stroke and GBS. Therefore, a rehabilitation program is needed to improve the cough ability.

Keywords

Cough, Guillain Barre Syndrome, PCF, Stroke

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Disclosure statement

The authors declare that they have no competing interests.

AP14-640

Reconstructive Airway Surgery in a Penetrating Neck Trauma with Laryngotracheal Injury: Achieving an Adequate Airway, Voice, and Swallowing Outcomes

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Introduction

Penetrating neck trauma is an emergency and life threatening condition that needs immediate treatment. It occurs in around 5-10% of all traumas. Laryngotracheal trauma happens once in 30.000 emergency cases in the United States. It is the second most deadly head and neck trauma, following intracranial injury. Only 0.5% of multiple trauma cases were reported to have any level airway injury.

Case Report

We reported a case of 28-year-old male patient with penetrating neck trauma zone II with laryngotracheal injury. Surgical exploration and reconstruction of the airway was done. One year follow-up revealed a remarkable result, patient has a good airway patency, a good voice, and a good swallowing function.

Discussion

Management of penetrating neck trauma requires prompt and adequate assessment of airway and circulatory conditions, also an assessment of possible neurological deficits or skeletal injuries prior to surgical exploration. Surgical exploration and airway reconstruction play an important role in achieving adequate airway, voice, and swallowing function. Reconstruction approaches, methods, and stents selection in cases of laryngotracheal injury are surgeon-dependent.

Acknowledgements

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Conflict of interest

The authors declared that there was no conflict of interest related to this article.

AP14-641

One More Chance: A Case of Recurrent Congenital Diaphragmatic Hernia

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INTRODUCTION

It is extremely rare to have a congenital diaphragmatic hernia repaired in the neonatal period to have a late recurrence in adulthood. Limited data reveal that about 5% of Bochdalek hernias and similar portion with Morgagni hernias are seen in adults. Congenital diaphragmatic hernias in adults may be incidental, symptomatic, or a surgical emergency.

CASE

This is a case of a 26 year old male patient who came in due to left upper quadrant pain with associated dry cough and vomiting episodes. Past medical history revealed a congenital diaphragmatic hernia, left repair that was done when the patient was 2 months old. Upon work-up showed diaphragmatic hernia left. The patient subsequently underwent a Thoracotomy, left, adhesiolysis, reduction of hernia, plication with primary repair of defect.

CONCLUSION

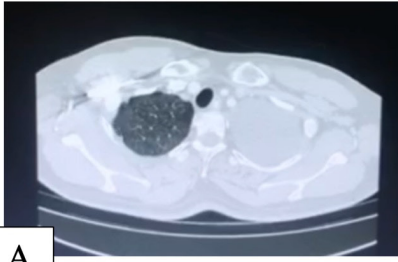
High clinical suspicion of hernia recurrence is vital for patients presenting with gastrointestinal and respiratory symptoms. The risk of recurrence is greater for those with large defects. The consensus opinion based on a case series is that repair should be done to prevent dreadful complications.

Keywords

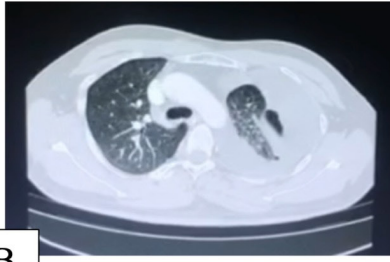
recurrent congenital diaphragmatic hernia, hernia repair

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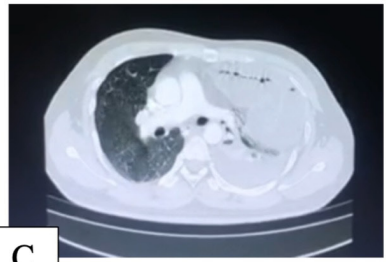
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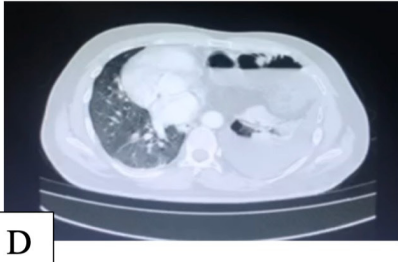
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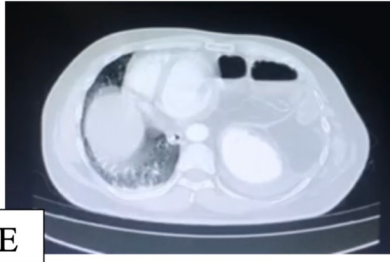
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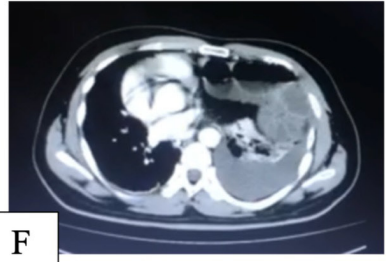
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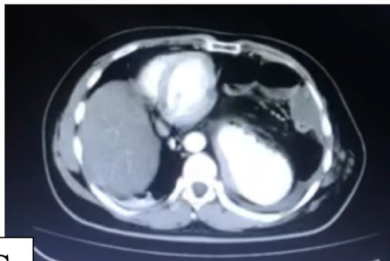
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AP14-642

Bleomycin-induced fibrosis and the effectiveness of *Centella asiatica* as treatment

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Background

Untreated pulmonary fibrosis can progress to Chronic Pulmonary Disease. Bleomycin is a drug that interferes with the growth of cancer cells. *Centella asiatica* plant contains madecassoside glycosides in the leaves and petioles, which have anti-inflammatory and antikeloid effects. This study aims to determine the effectiveness of *Centella asiatica* extract as a treatment for fibrosis.

Methods

This is an analytical study with a randomized in vivo experimental design. Fibrosis features were analyzed using a modified Ashcroft scale. The data was tested by Chi-square ($p < 0.05$).

Results

This study used 24 male wistar rats, 8 rats were induced by bleomycin, 8 rats were given *Centella asiatica* 400 mg + bleomycin 4 mg/kg BW, 8 rats were given *Centella asiatica* 800 mg + bleomycin 4 mg/kg BW. After 50 days of examination with Histopathological and Trichomasson staining, the first group showed fibrosis with a thickness level $> 50\%$ as many as 5 rats, while $< 50\%$ were 2 rats, and 1 rat died. The second group with a thickness level $> 50\%$ had 4 rats, $< 50\%$ were 4 rats with a correlation ratio ($p=0.907$). From the third group with an area below 25% as many as 3 tails (50%), some 1 tail thick (12.5%) and mostly thick above 50% as many as 1 fish (12.5%), with a correlation ratio ($p=0.441$).

Conclusion

Bleomycin can cause pulmonary fibrosis in rats and further research is needed on *Centella asiatica* and other drugs for the treatment of fibrosis.

Keywords

Fibrosis, Bleomycin, *Centella Asiatica*, Wistar Rat

AP14-643

Multi-data-integrated pulmonary function test reports in COPD patients

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Background and Aims

Visualization of a patient's serial lung function is useful to intuitively understand the current disease status, detect acute exacerbation, and predict future disease course. The aim of this study was to demonstrate multi-data integrated pulmonary function test (PFT) reports which visualize the serial spirometric changes altogether with other medical data in chronic obstructive pulmonary disease (COPD) patients.

Methods

We conducted single-center multi-data analytics of the pre-bronchodilator PFT results in COPD patients (International Classification of Diseases [ICD]-10 J44). All spirometry data of every patient who underwent a PFT at a tertiary referral hospital in Korea from September 2009 to August 2022 were obtained and analyzed. In COPD patients, we also collected their smoking and drug prescription history.

Results

A total of 343,495 PFT results were obtained from 205,559 patients. Overall, 51.2% were male and 70.5% were never-smokers. The prevalence of COPD based on pre-bronchodilator PFT was 22.5%. We presented four types of PFT reports for COPD patients; (1) Personal serial PFT visualization (2) Comparison to individuals in the same age group matched for smoking history and gender (3) Comparison to other COPD patients matched for smoking history and gender (4) PFT changes altogether with the medication history.

Conclusion

Multi-data integrated PFT reports were successfully demonstrated, enabling an intuitive understanding of the disease status of COPD patients.

AP14-644

The airway occlusion pressure (P0.1) after COVID-19

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Background and Aims

To investigate the effect of COVID-19 on airway occlusion pressure (P0.1) in the convalescent phase.

Methods

104 patients (69% of males, median age was 51 yrs) were enrolled in the cross-sectional study. Spirometry, body plethysmography, diffusion test, as well as measurements of P0.1, maximum static inspiratory (PImax) and expiratory (PEmax) pressures were performed. All patients were divided into two subgroups depending on the P0.1 deviation (above 1.5 cmH₂O or not).

Results

The median of the duration from COVID-19 onset to pulmonary function tests (PFTs) was 106 (47-174) days. The median of the maximum chest high resolution CT abnormalities in the acute period of COVID-19 was 68%. P0.1 abnormality was detected in 64 (62%) cases. In total group the medians of all measured PFTs parameters were within the normal ranges apart from DLCO (z-score=-1.91). However, significant differences were found in slow vital capacity (SVC, p=0.018), forced vital capacity (FVC, p=0.021), forced expiratory volume in 1 sec (FEV1, p=0.03), total lung capacity (TLC, p=0.012), residual volume (RV, p=0.03), alveolar volume (VA, p=0.01) and PImax (p=0.02) between the subgroups, and in the subgroup with abnormal P0.1, they were lower than in the second one apart from PImax which was higher. Correlation dependences of P0.1 with VC (r=-0.4, p<0.01), FVC (r=-0.4, p<0.01), FEV1 (r=-0.37, p<0.01), TLC (r=-0.48, p<0.01), RV (r=-0.46, p<0.01) and VA (r=-0.44, p<0.01) were revealed

Conclusion

After COVID-19 P0.1 was increased in 62% cases. Correlation dependences of P0.1 and PFTs parameters were established.

AP14-645

Dynamic chest radiography as a rapid tool to assess thoracic dynamics following diaphragm plication surgery

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Background and Aims

Diaphragm plication can improve the symptoms caused by palsy, but objective tests of early improvement including spirometry and fluoroscopy can be difficult due to patient positioning or pain, and do not predict long-term outcomes. We explored the use dynamic chest radiography (DCR), a real-time, low-dose X-ray system (Konica Minolta, Inc.), to assess the motion of the diaphragm and chest wall in a patient undergoing plication surgery.

Methods

A 54-year-old Caucasian male (body mass index 38kg/m²) with a paralysed right hemidiaphragm of post-infective aetiology was referred for elective surgical plication. Supine-to-erect forced vital capacity change was 44%. Plication was performed without complication, via lateral thoracotomy without rib division. Posteroanterior (PA) 15fps DCR was acquired in a standing position pre-operatively, at 24hrs and again at 3 months. The subject was instructed to take three sniffs, a breath to full inspiration, then end-expiration. DCR software determined hemidiaphragm motion and PA projected lung area (PLA).

Results

DCR was acquired without complication. There was improvement in right hemidiaphragm excursion, speed and PLA change, and left hemidiaphragm excursion and speed (see table), consistent with symptomatic improvement.

Conclusions

DCR allows rapid, low-radiation (as little as 0.048mSv for 10s) assessment of diaphragm motion in the immediate postoperative period, when traditional pulmonary function testing is difficult to perform. DCR demonstrated easily interpretable improvements in plicated hemidiaphragm motion and contralateral hemidiaphragm motion. PLA measurements suggest that right sided chest expansion was almost equal to the unparalysed side after 3 months.

Table

		Pre-op	Post-op (24 hours)	Post-op (3 months)
Diaphragm excursion on sniff (mm)*	Right	-20	4	6
	Left	42	22	52
Peak diaphragm velocity on sniff (mm/s)*	Right	-32	-8	19
	Left	103	41	119
Projected lung area (PLA) change (cm ²) [percent of total PLA]	Right	53 [29%]	63 [24%]	81 [36%]
	Left	90 [44%]	68 [37%]	93 [43%]

* positive values imply caudal motion, negative imply cranial motion

AP15-646

Acute right lung abscess secondary to pulmonary thromboembolism with left lower limb deep vein thrombosis in a case of left-sided cerebrovascular accident

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INTRODUCTION

Pulmonary thromboembolism is a condition in which blood clots migrate from systemic circulation to pulmonary vasculature. Deep veins of the upper and lower extremities are the most common site for thrombus formation, from where emboli originate and go into pulmonary vasculature. Prolonged immobilization which is usually seen in post-op- patients and bedridden patients is the common cause of DVT. Pulmonary infarction is an uncommon consequence of pulmonary embolism because pulmonary parenchyma has three sources of oxygen: pulmonary arteries, bronchial arteries, and airways.

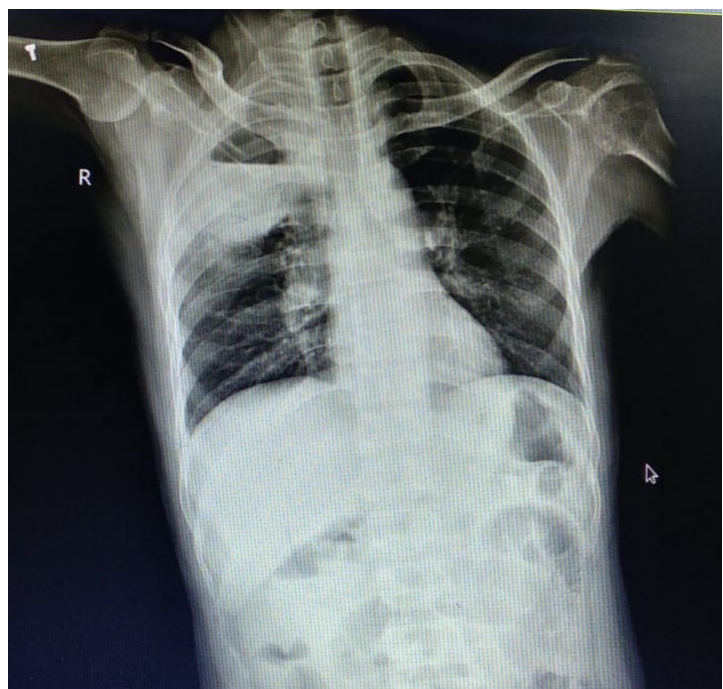
CASE REPORT

56year old male came with complaints of hemoptysis, right-sided chest pain for 5 days, and left lower limb swelling for 15 days. The patient had h/o Left-sided CVA one month back and the patient was bedridden thereafter. Chest X-ray was s/o right upper zone cavity with an air-fluid level. USG B/L LL DOPPLER showed complete occlusion below the left femoral vein. CTPA was s/o right upper lobe large thick cavitary lesion of size 7.7x7.4x7.5cm and filling defect noted in the bifurcation of pulmonary trunk extending into right and left upper lobar, descending interlobar and lower lobe segmental branches. Bronchoscopy was done, and BAL was negative for AFB CBNAAT and routine gram staining. The patient was discharged on a course of oral rivaroxaban for 3 months.

DISCUSSION

The most important predisposition for a lung abscess is the aspiration which is common in immobilized patients. But physicians should always consider lung infarction as one of the differentials in dealing with cases of prolonged immobilization.

i hereby declare that there is no funding for my case report.



AP15-647

Pulmonary embolism as a clinical manifestation of hematogenic thrombophilia

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Background and Aims

To investigate young patients with pulmonary embolism, in the absence of an obvious causative agent, for markers of thrombophilia.

Methods

The study involved 95 patients aged 17 to 50 years who had undergone pulmonary embolism (PE). In 40 patients - 42% (25 men, 15 women) the following markers of hematogenous thrombophilia were identified: F5 Leiden mutations in 20 patients, prothrombin F2 G20210A in 12, MTHFR in 15, antithrombin III deficiency in 4, protein C in 5, hyperhomocysteinemia in 20, antiphospholipid syndrome in 9 patients. Four patients had a mutation of one gene, in other cases a combined form of thrombophilia was diagnosed.

Results

In 32 cases, heredity was diagnosed for pathological thrombosis. In 12 women, the provoking factor was the intake of hormonal drugs. In 10, at the time of diagnosis of thrombophilia, relapses of PE were already registered. Treatment of an acute episode of PE was carried out in accordance with international recommendations. For the purpose of secondary prevention of thrombosis, drugs dabigatran, rivaroxaban, apixaban were prescribed; for hyperhomocysteinemia, angiovit; for congenital deficiency of protein C and antithrombin III, their commercial preparations were used. There were no further recurrences of vascular complications in these patients. There were no life-threatening bleeding with direct oral anticoagulants.

Conclusion

PE is often a clinical manifestation of hematogenous thrombophilia (42%). Therefore, young people with PE, especially recurrent PE, should be screened for markers of thrombophilia. Appointment of adequate antithrombotic therapy contributes to the disease-free course.

AP15-648

Incidental Finding of CTEPH in a Patient Presenting with Seizure, Acquired Arteriovenous Fistula, and Obstructive Sleep Apnea

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Introduction

Chronic thromboembolic pulmonary hypertension (CTEPH), a cause of pulmonary hypertension (PH), occurs following pulmonary embolism (PE) with subsequent pulmonary vascular remodeling. Commonly, CTEPH presents in a patient whose dyspnea did not resolve after PE. A frequent challenge is a delay in diagnosis due to its nonspecific symptoms and latency.

Case report

A 73-year-old male, ambulatory and non-oxygen requiring, was admitted for work-up of seizure. No identifying trigger or temporal pattern was reported. A video electroencephalography showed nonspecific focal disturbance and focal epileptic waveforms. Brain MRI/MRA showed no discrete mass lesion, only chronic lacunar infarcts. Mild right leg swelling was noted which prompted arterio-venous compression test yielding subacute deep venous thrombosis and femoro-femoral arteriovenous fistula in the right leg. The patient denies any prior PE, deep venous thrombosis, or trauma or manipulation in the femoral region. Transthoracic echocardiogram showed pulmonary artery systolic pressure of 54.6 mmHg and normal left ventricular ejection fraction. Sleep study showed severe obstructive sleep apnea (OSA). CT pulmonary angiogram showed findings of CTEPH. Perfusion ventilation lung scan demonstrated mismatched segmental ventilation-perfusion defects aligning with the diagnosis of CTEPH. The treatment plan included a referral for pulmonary thromboendarterectomy.

Discussion

Patients usually present with progressive dyspnea after an acute PE unlike our patient. The constellation of symptoms in this patient – seizure, venous thromboembolism, and acquired fistula – provide an interesting possible association with CTEPH. OSA diagnosis was also made, which could be a red herring for PH cases. Definitive management for CTEPH is pulmonary thromboendarterectomy; for those inoperable, medical therapy is an alternative.

AP15-649

“Double edged sword”; Bilateral Mycotic Pulmonary Artery Aneurysm with Acute Deep Venous Thrombosis Presenting With Massive Hemoptysis with Marfanoid Features

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Introduction

Aneurysms of the pulmonary artery (PAA) are extremely rare with few reported cases in literature. The definitive treatment is surgery in most life threatening incident.

We report an unusual case of a patient with Marfanoid features who presented with massive hemoptysis complicated by bilateral mycotic aneurysm bilateral PA thrombus, Dilated bilateral bronchial arteries and bilateral acute deep venous thrombosis underscoring the need for an aggressive complex management strategy.

Case report

An apparently well 27-year-old man with Marfan features presented at the emergency room for massive hemoptysis. He did not fulfill the Ghent nosology criteria for diagnosis of Marfan syndrome, He had the following of involvement of skeletal and musculoskeletal, which he was tagged as atypical marfan. HRCT of the chest done showed bilateral pulmonary artery aneurysm to consider mycotic aneurysm and dilated bronchial arteries. Further work up showed acute DVT on both lower extremities. Initially offered surgical repair however the team and patient was undecided because of the high risk nature. Patient was started with anti-coagulants and antibiotics while waiting for cultures. Interventional radiology did an embolization of the bilateral bronchial arteries which may be the culprit for the massive hemoptysis. No recurrence of hemoptysis till this date and series of radiographs showed stable bilateral pulmonary artery dilatation. Anti-Tuberculous medications were continued

Discussion

Pulmonary artery aneurysms constitute 1. The cause could be idiopathic but many medical conditions including congenital heart defects, connective tissue disorders, systemic vasculitides, and infections are often associated with PAA.² Bilateral PA aneurysm are rare and its natural history is still unknown; NO clear guidelines for its management. We have to be meticulous and take it by case to case basis before offering surgical repair for bilateral PAA.

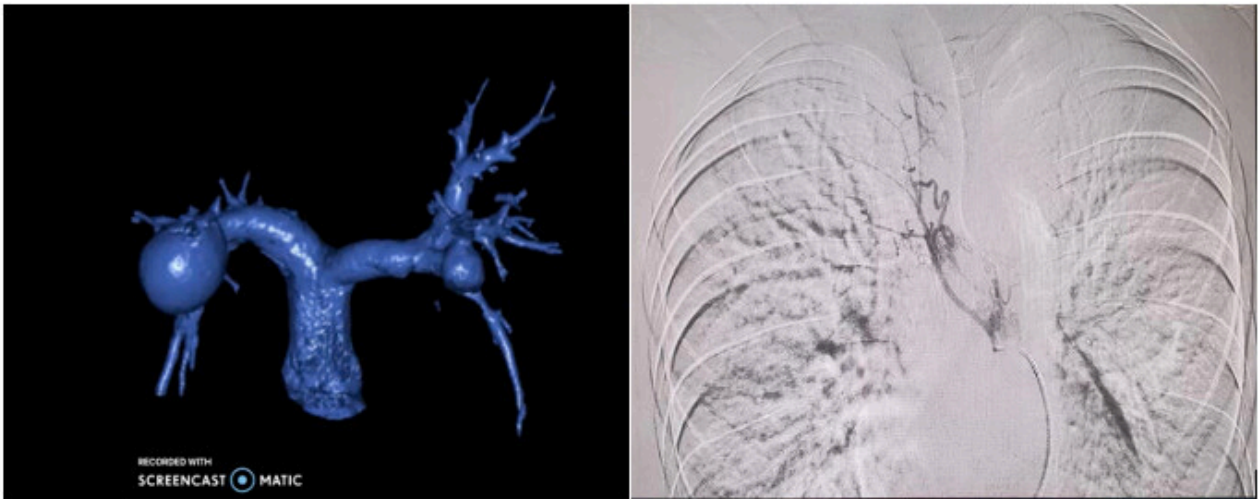
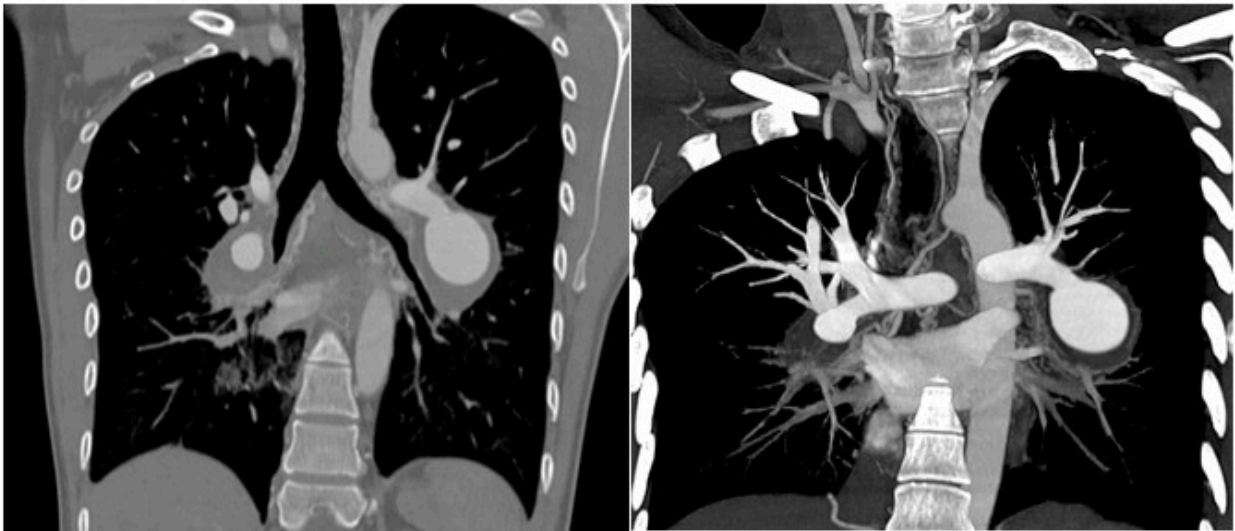
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Image 1



AP15-650

A rare case of pulmonary arterio venous malformation.

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Introduction

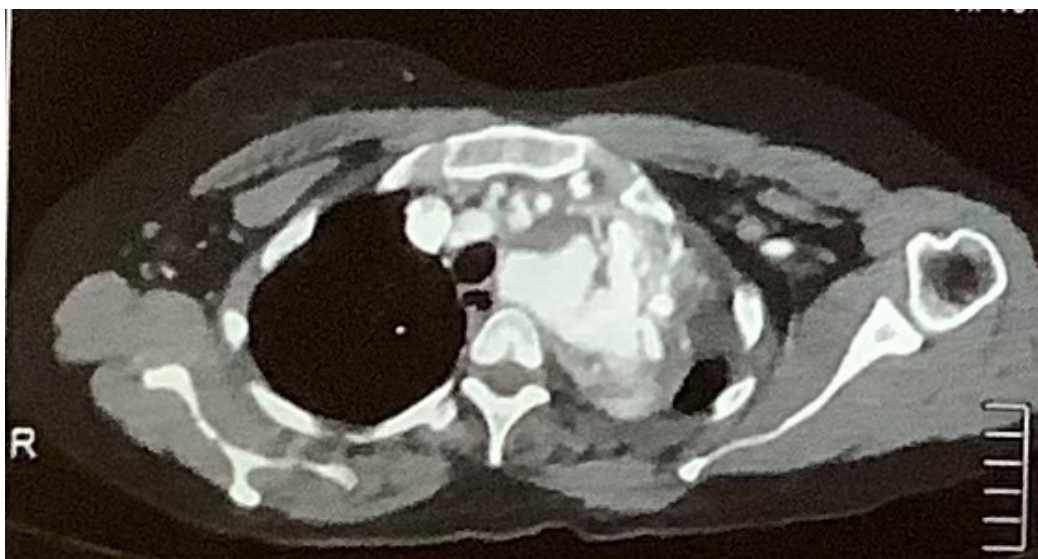
Systemic artery to pulmonary venous fistula without lung sequestration in an adult is extremely rare condition. This may be primary or secondary to infection, trauma, bypass surgery etc. They can cause high output cardiac failure due to left - left shunts.

Case report

A 45 year old female Presented with progressive shortness of breath for one year. On examination she had bounding pulse, bilateral pitting ankle oedema and her peripheral oxygen saturation was 93%. She had evidence of left upper and middle zones mass lesion with mediastinal shift to the right side. 2D echocardiogram showed normal systolic and diastolic function. Contrast enhanced computed tomography revealed a large anterior mediastinal vascular mass. CT angiogram confirmed Left to left shunt connecting the left Subclavian artery and left lower pulmonary veins draining in to the left atrium. Coil embolization was performed to the feeder vessels arising from the subclavian artery, and features of cardiac failure improved and repeat angiogram showed closure of the fistula. During the open thoracotomy it was identified that the vascular mass surrounds the left carotid artery and left subclavian artery and was not amenable for resection. 6 months later again the patient developed shortness of breath and repeat angiogram demonstrated re-opening of the fistula.

Conclusion

Percutaneous embolization of the feeder vessel is most of the time successful. But as in our patient always there is a risk of re-opening of another set of feeder vessels with time.



AP15-651

Rare cause of pulmonary hypertension

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Introduction

Myeloproliferative neoplasms and antiphospholipid syndromes are associated with increased risk of thrombosis

Case report

A 48 yr old lady with diabetes, hypertension, hypothyroidism presented with shortness of breath 2 weeks duration. She also noticed abdominal and lower limb swelling. On examination she had features suggestive of pulmonary hypertension and right heart failure. Bluish discoloration of right big toe and 2nd toe note. On admission she was in type 2 respiratory failure.

She had hemoglobin level 14.6 g/dL with hematocrit 47.7% and slightly elevated platelet count. Bone marrow aspiration and biopsy revealed marked hypercellular bone marrow with trilineage hyperplasia (panmyelosis) with absent iron stores. Bone marrow and blood picture findings are keeping with myeloproliferative neoplasm polycythemia rubra vera. JAK 2 V617F mutation was detected. Serum erythropoietin level was normal. Extractable nuclear antigen (ENA) panel was negative. Anti-cardiolipin antibodies IgG positive anti beta 2 glycoprotein IgG positive.

99 Tc Perfusion lung scan revealed very high probability of thromboembolism of both lungs. CTPA no evidence of pulmonary embolism.

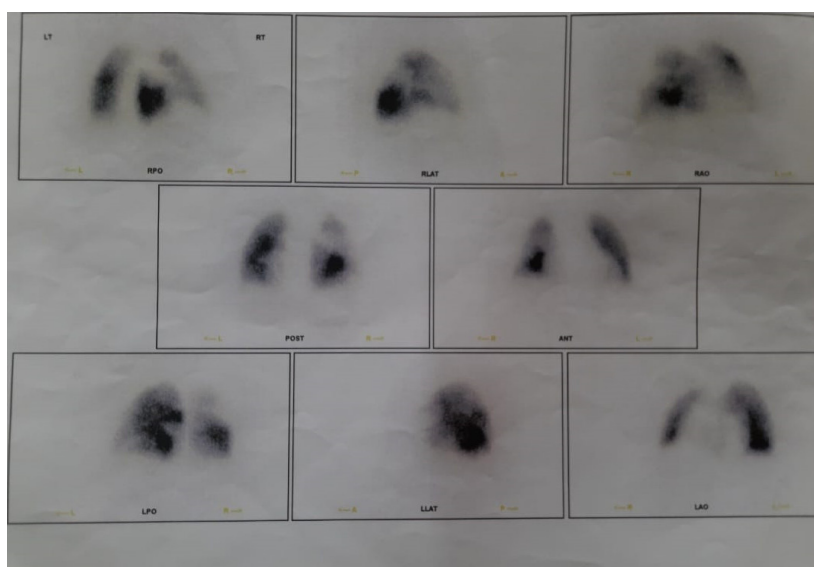
2DEcho showed moderate PHT to severe with dilated right atrium and ventricle and TRPG was 70 mmHg

CECT abdomen and pelvis only detected mild splenomegaly. UGIE revealed pan gastritis. Skin biopsy left big toe dermis show dilated vessels with mild peri lymphatic infiltration. No evidence of vasculitis or vasculopathy. CT angiogram of lower limbs normal

She was started on warfarin and hydroxyurea.

Conclusion

High degree of suspicion and awareness is required to diagnose underlying cause for pulmonary hypertension.



AP15-652

Pulmonary Arteriovenous Malformation as a Cause of Embolic Stroke

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Introduction

Pulmonary arteriovenous malformation (PAVM) is an abnormal communication between pulmonary arteries and veins responsible for right-to-left shunting. PAVM can lead to stroke due to paradoxical brain embolism. We report a case of embolic left middle cerebral artery (MCA) stroke due to the PAVM. Transcatheter arterial embolization (TAE) was performed, and the PAVM successfully occluded with Amplatzer vascular plug.

Case report

A 71-year-old woman presented with a sudden onset of right upper and lower limbs weakness and reduced responsiveness. She had a background history of hypertension and dyslipidemia. Physical examination revealed motor deficits over the right upper and lower limb with an MRC muscle power scale of 2 over 5. The National Institutes of Health Stroke Scale (NIHSS) stroke severity score was 17. Urgent computed tomography (CT) perfusion of the brain showed large left proximal MCA acute thrombotic infarction. Clopidogrel 75 mg was initiated. A CT pulmonary angiogram was performed due to persistent arterial hypoxemia and showed three PAVM at bilateral lower lobes, with the largest PAVM at the left lower lobe measuring 4.1 x 4.0 x 5.1 cm without thrombus. The PAVM occluded using Amplatzer Vascular Plug (14 mm). At the 3-month follow-up, she was weaned off supplemental oxygen, and repeated CT showed regression of the PAVM sac.

Discussion

Embolism from PAVM is a rare cause of cerebral stroke and should be suspected in patients with persistent hypoxia and typical chest radiograph abnormality. TAE of the PAVM might be a reasonable alternative for treating large PAVM in patients unfit for surgical intervention.

AP15-653

A case of definite hereditary hemorrhagic telangiectasia presenting as a refractory migraine

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Introduction

Pulmonary arteriovenous malformations (PAVMs) are one of the four core clinical features of hereditary hemorrhagic telangiectasia (HHT). 70% of PAVMs occur in patients with HHT.

Case report

A 17-year-old male presented with an episode of spontaneous epistaxis. He gave a history of a long standing poorly controlled episodic headache which was clinically managed as migraine for 3 years. He denied recent trauma to nose, inhalation of cocaine, bleeding disorders or anticoagulant use. Family history is significant for a first degree relative who died following a rupture of an AVM. He was cyanotic and clubbed. Mucosal telangiectasia, ankle edema and murmurs were absent. Oxygen saturation of room air was 85%. Hemoglobin and hematocrit were 18g/dl and 56% respectively with raised erythropoietin level suggestive of secondary polycythemia. Chest radiograph showed two round opacifications in right lung. Transthoracic echocardiogram with bubble contrast revealed a grade 2 intrapulmonary right to left shunt. Contrast enhanced computed tomography with angiography revealed two AVMs in right lung. Brain imaging was negative for cerebral AVMs. A combination of PAVM, epistaxis and first degree family history led to a diagnosis of "definite HHT". Genetic analysis was not done due to financial constraints. He underwent successful embolization of PAVMs.

Discussion

Migraine is associated with diseases with right to left shunts; such as HHT. Pathogenesis is unclear although hyperviscosity and paradoxical embolization are thought to be the postulated mechanisms. Early anticipation, proper evaluation and prompt management of AVMs are the cornerstones in the management of HHT.

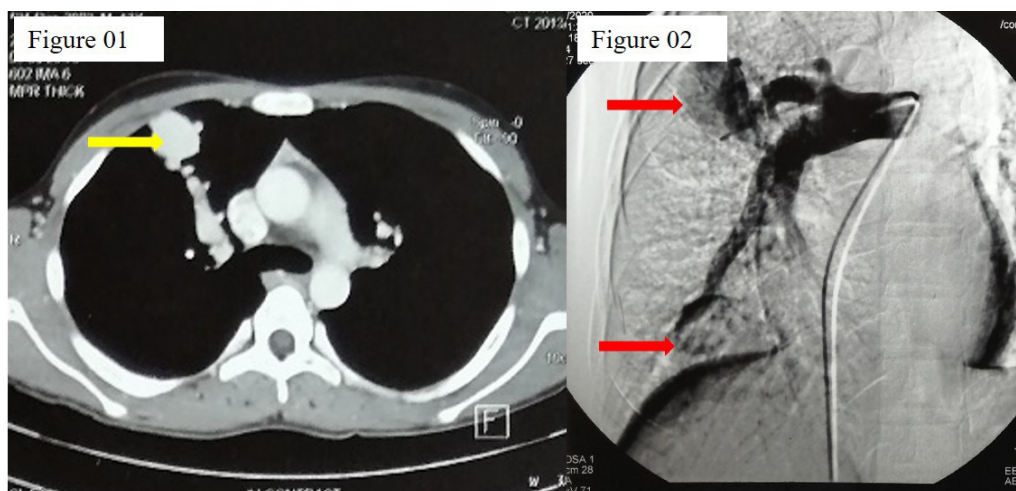


Figure 01- CT chest showing PAVMs (yellow arrow)

Figure 02- CT angiogram showing two PAVMs (red arrows)

AP15-654

Multimodalities in treating intermediate-high risk pulmonary embolism

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Introduction

Treatments of intermediate-high risk pulmonary embolism (PE) are controversial as it is a delicate balance of preventing progression of right heart failure and high risk of bleeding.

Case report

Here we discussed a 63-year-old man underlying poliomyelitis presented with sudden breathlessness with left lower limb swelling. Clinically he was tachycardic with normal blood pressure and SpO₂ 93% on room air. ABG showed type 1 respiratory failure with pO₂ 56mmHg and CXR showed clear lung field. CTPA showed extensive filling defect in bilateral main pulmonary artery with RV:LV ratio 1.2. Bedside echocardiogram confirmed dilated right ventricle and cardiac enzymes were elevated. At this point he was diagnosed with intermediate-high risk pulmonary embolism. Initially mechanical thrombectomy was performed however it resulted in minimal pulmonary artery reperfusion and this immediately followed by catheter directed thrombolysis. Subsequently his hemodynamic parameters improved and remained stable throughout the hospital admission. He was discharged with direct oral anti-coagulant after 5 days of hospitalization.

Discussion

This case highlights the importance of prompt assessment of heart function in cases of hemodynamically stable PE to distinguish between low risk to intermediate-high risk PE. Treatments may consist of multimodality approaches based local expertise and availability, with aims of immediate relief of right heart pressure whilst minimizing bleeding risks.

AP15-655

Long-term results of surgical and medical treatment of pulmonary embolism

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Background and aims

To evaluate the long-term results of medical and surgical reperfusion treatment of patients after pulmonary embolism (PE).

Methods

This prospective study included 30 patients with acute PE of intermediate high and high risk who had indications for reperfusion therapy in the form of thrombolytic therapy (TLT) and/or surgical thrombectomy. The end points of the study in the hospital and long-term follow-up period were such adverse cardiovascular events as death, myocardial infarction, acute cerebrovascular accident/transient ischemic attack, recurrent PE.

Results and Conclusions

It was shown that reperfusion treatment had satisfactory rates of in-hospital survival (97%), efficiency, which manifested itself in a significant regression of clinical symptoms and a significant decrease in the severity of pulmonary hypertension (from 56.93 ± 17.18 to 36.72 ± 14.47 mm Hg. Art.) with a significant decrease in tricuspid insufficiency (from 77% initially to 24% at the time of discharge) (p

AP16-656

Interstitial lung abnormality in health screening examinees: prevalence and progression

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Background and Aims

This study aimed to evaluate the prevalence of ILA and follow-up outcome in the Korean health screening population and assess the risk factors for ILA including biomarkers from routine blood test.

Methods

This retrospective study included participants who underwent chest CT for health screening program and had follow-up chest CT over a 5-year. Presence of ILA and its subtype on baseline and follow-up CTs and temporal changes of ILA was evaluated. Multivariable logistic regression was used to assess baseline risk factors associated with development or progression of ILA on follow-up, and Cox proportional hazards models were used to assess time to mortality.

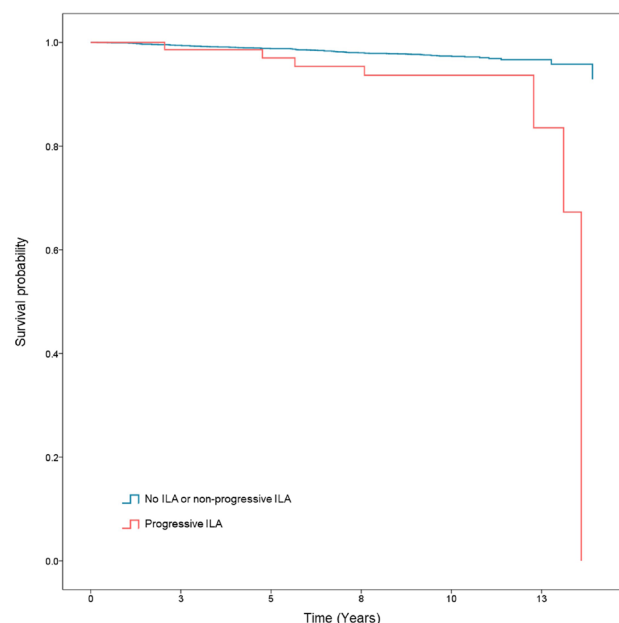
Results

A total of 2,589 participants were included (mean age: 49 years at baseline and 57 years at follow-up, male: 82.6%) and the median follow-up interval was 7.0 years. ILA were identified in 6 (0.2%) and equivocal ILA in 7 (0.3%) at baseline, and 20 (0.8%) ILA and 23 (0.9%) equivocal ILA at follow-up. Prevalence of ILA/equivocal ILA increased with the age of the participants ($P < 0.001$).

Conclusions

Prevalence of ILA in Asian health screening population was 0.8% for ILA and 1.7% for ILA or equivocal ILA which the prevalence increased with the age of the participants. Higher blood WBC, ESR and RF level at baseline along with old age and smoking status were associated with the subsequent development or progression of ILA on follow-up.

Figure. Adjusted survival curves showing survival probability, comparing participants without interstitial lung abnormalities (ILA) or nonprogressive ILA and with those with progressive ILA (adjusted for age, sex, body mass index, smoking status and pack-years smoking).



AP16-657

Comparison of the efficacy of pirfenidone in patients with combined pulmonary fibrosis and emphysema and idiopathic pulmonary fibrosis without emphysema

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Background and Aims

Combined pulmonary fibrosis and emphysema (CPFE) is a syndrome with upper lobe emphysema and lower lobe fibrosis. Pirfenidone has benefit with survival, acute exacerbation (AE), and lung function reservation in idiopathic pulmonary fibrosis (IPF). However, there are few analyzes about the efficacy of pirfenidone in CPFE.

Methods

This multicenter retrospective study with IPF enrolled Korea IPF cohort (KICO) in 30 hospitals in South Korea. We defined CPFE as IPF patients with emphysema on chest CT. Patients those who take pirfenidone less than six months were excluded.

Results

Among 1637 patients, 594 patients were CPFE (36.3%; mean age 71.4 years; men 92.8%). There was no difference with treatment between CPFE and IPF without emphysema..

The average number of acute exacerbations (AEs) after taking pirfenidone were significantly lower in CPFE than IPF without emphysema (mean difference 0.114; 95% CI 0.017-0.210, P=0.021)

In total cohort, CPFE showed significantly lower survival rate (adjusted OR 1.229; 95% CI 1.038-1.455, P=0.017). Among patients naïve to pirfenidone, CPFE showed significantly lower survival rate (OR 1.261; 95% CI 1.008 – 1.577, P = 0.043). However, among patients taking pirfenidone, there was no significant difference in survival between CPFE and IPF without emphysema.

After taking pirfenidone more than three years, there were significant benefit in DLCO, %/yr (mean difference -1.82 ± 0.90, 95% CI -3.58 – -0.05, P=0.044) and predicted FVC, %/y (-1.73 ± 0.78, 95% CI -3.27 – -0.19, P=0.028) in CPFE.

Conclusions

Pirfenidone might have benefit with survival, AE, and pulmonary function reservation in CPFE patients.

AP16-658

Pulmonary langerhans' cell histiocytosis in a non-smoker

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Introduction

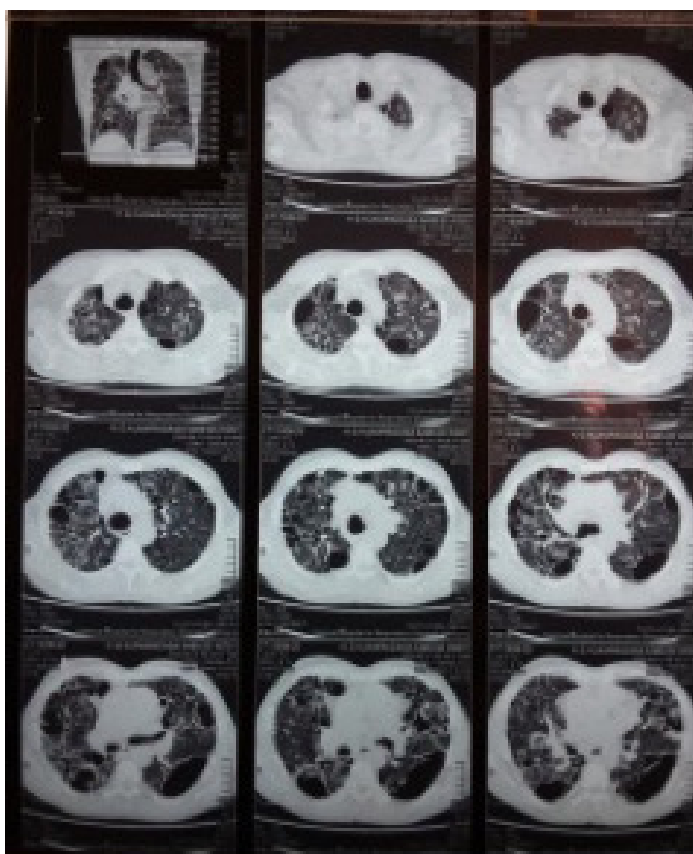
Pulmonary langerhan cell histiocytosis (PLCH) is a rare cystic interstitial lung disease which primarily affects young adults. Though no geographical or occupational exposure has been established, it almost exclusively occurs in cigarette smokers.

Case report

A 52-year-old male patient, with COPD presented with cough and shortness of breath for one week. He had a history of spontaneous right sided pneumothorax following the treatment of which he has remained mostly stable. He had no history of tobacco smoking. However, he has worked in a rubber factory for 25 years with significant exposure to industrial fumes. On examination he was dyspneic at rest with a saturation of 88%. Auscultation revealed occasional coarse crackles. Arterial blood gas showed type 1 respiratory failure. Investigations revealed a neutrophil leukocytosis with CRP-58 mg/dL, ESR-45mm/1st hour. CXR-PA revealed bilateral reticular nodular pattern involving all three zones. HRCT revealed bilateral multiple cystic spaces of varying sizes, no air fluid levels or solid components within, increased lung volumes with intervening lung showing centrilobular emphysema. The conclusion was that of Langerhans cell histiocytosis with combined pulmonary fibrosis and emphysema. He developed disease flares even with avoidance of fumes. He was started on prednisolone with relapses while attempting to tail off. He currently remains stable on a dose of 20 mg of prednisolone.

Discussion

A confident clinical diagnosis can often be made on the basis of characteristic clinical presentation and HRCT. Seen almost exclusively in smokers, its association with non-cigarette smoke is extremely rare.



AP16-659

A rare case of interstitial lung disease presenting with intractable shortness of breathing

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Introduction

In this report, we are presenting a case of Pleuroparenchymal Fibroelastosis (PPFE) which is a diagnostically and therapeutically challenging lung condition given the rarity of the disease and unavailability of effective treatment options.

Case Report

A 51-year-old female, presented with a one-year history of dry cough and shortness of breathing with rapid worsening over the last 3 months duration. She complained of a significant weight loss over the last 3 months duration. She didn't have any contact or past history of Tuberculosis. She denied any significant exposure history or features of connective tissue diseases. She had undergone an HRCT one year ago which revealed pleural thickening, reticular nodular shadows, and traction bronchiectasis involving bilateral upper lobes. Her bronchoalveolar lavage revealed negative pyogenic, fungal, and tuberculosis cultures.

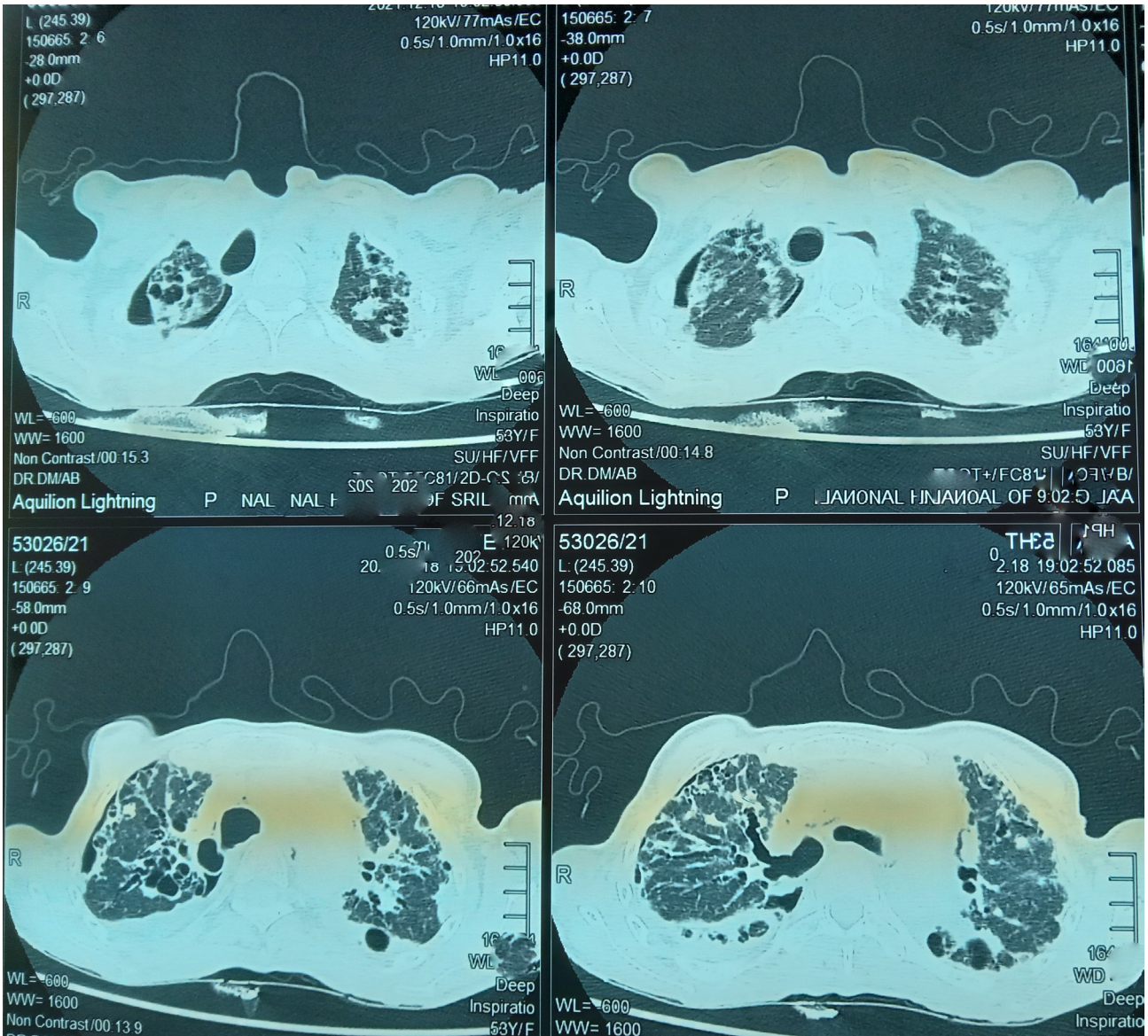
Examination revealed an emaciated female who was dyspnoeic at rest. There was bilateral apical flattening with bronchial breathing in the right upper zone and fine end-inspiratory crepitations in all lung zones.

Repeat HRCT showed bilateral bronchiectasis involving both upper and middle zones with reticulations and fibrotic changes with multiple bullae and a right-sided small pneumothorax and minimal pneumomediastinum.

After considering the radiological images with the patient's observed clinical progression a diagnosis of Pleuroparenchymal Fibroelastosis was made.

Discussion

All medical treatments including immunosuppressive and antifibrotic considered ineffective in PPFE. It is important to treat the patient symptomatically with the multidisciplinary approach and to monitor for disease progression and complications.



AP16-660

Heading: Familial interstitial lung disease in four members of one family in Bangladesh A case series

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Introduction

Familial interstitial lung disease is a rare type of ILD where two or more members of the same family have clinical features of interstitial pneumonia (1). Genetic study revealed SFTPA1 gene study showed association with idiopathic pulmonary fibrosis in these cases (2) and has autosomal dominant trait (3). We present a case series where four family members were diagnosed with ILD with a long history of undetermined respiratory diseases in family.

Case report

A 50-year-old smoker male presented with progressive dyspnea (mMRC- III) and cough for 5 years with occasional pedal edema. then he was diagnosed with Idiopathic pulmonary fibrosis and steroid induced myopathy on the basis of clinical and radiological features. His family history showed one deceased member, two siblings had similar undetermined respiratory disease. In addition, elder sister was also diagnosed as IPF based on clinical and radiological finding. Later their mother and a cousin who were asymptomatic, were also diagnosed with IPF after being screened radiologically. His 3-year-old son also has similar respiratory symptoms with nonspecific radiological findings.

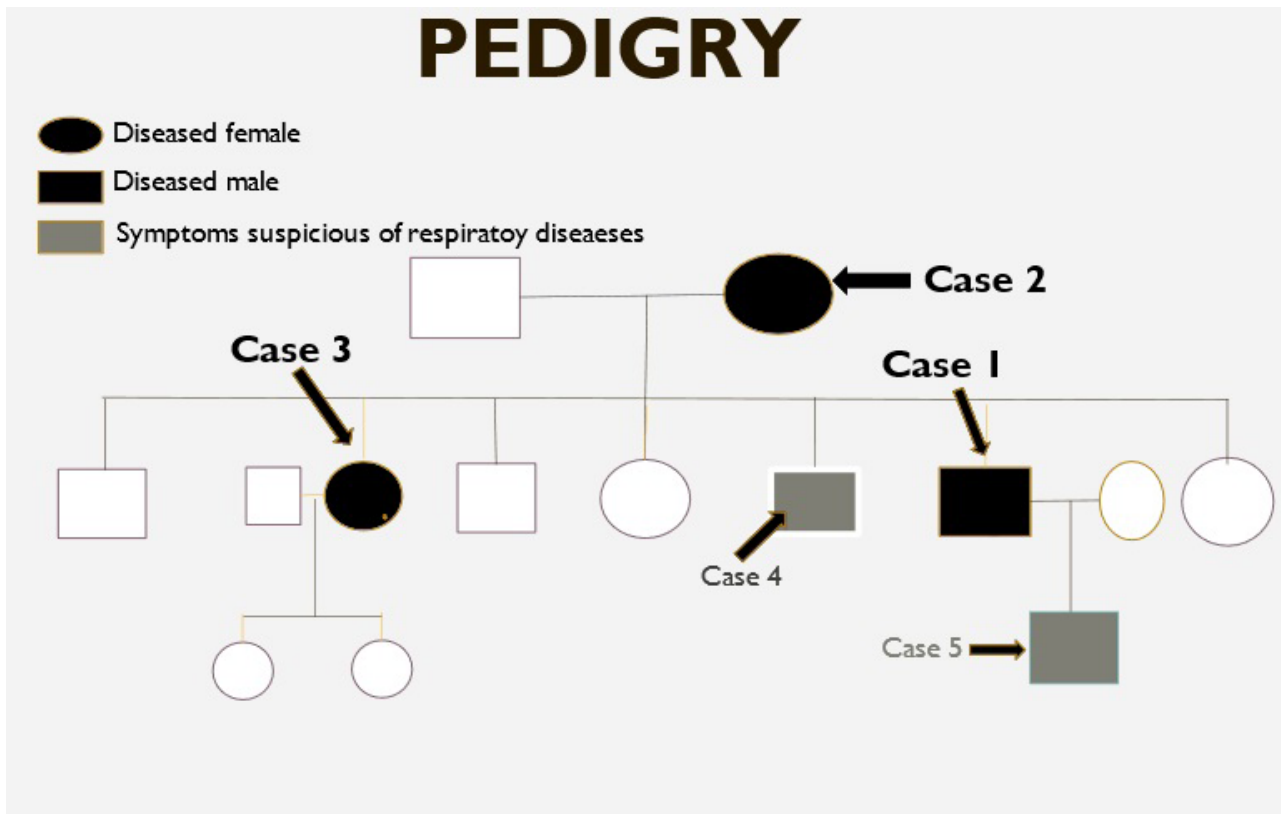
Discussion

The case series illustrates that screening of asymptomatic family members radiologically can uncover disease like familial interstitial fibrosis which are clinically, radiologically, and histologically almost indistinguishable from those of sporadic cases (4). Though, SFTPA1 gene is associated with idiopathic pulmonary fibrosis (5), in resource-limited country like Bangladesh where genetic study is unavailable, thorough screening of family members can help in early diagnosis and may guide for the treatment plan and intervention to the progression of the disease.

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AP16-661

Characteristics of dyspnea in patients with progressive fibrotic phenotype of interstitial lung diseases (ILD) associated with coronary heart disease (CHD).

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Background and Aims

to conduct a comparative analysis of dyspnea in patients with ILD, associated with CHD.

Methods

47 patients were examined: 8 with idiopathic pulmonary fibrosis, 25 - hypersensitive pneumonitis, 14 - nonspecific pneumonia. 2 groups were studied: 24 patients with CHD; 23 patients without CHD. All the patients performed spirometry, 6 minute walking test (6MWT), echocardiography. Cough, dyspnea, sputum production were assessed on a 4-point scale (4 – worse). Reticular and interstitial changes in lung tomography (CT) on a 5-point scale (5 – worse).

Results

In the groups with and without CHD, cough intensity were 2.06 and 1.84, dyspnea were 2.84 and 1.18, sputum production were 1.47 and 1.33 points, forced vital capacity (FVC) were 59.4±5.2 and 65.5±4.4% predicted, forced expiratory volume in 1 s (FEV1) were 42.7 ± 2.3 and 54.3±3.1 % predicted (p

Conclusion

In patients with ILD and CHD There was a tendency of severity of shortness of breath, cough intensity, sputum production; a decrease in the indicators of the 6-minute test, a decrease in pulmonary function parameters.

AP16-662

An unusual presentation of a known entity – The great masquerader

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Introduction

Cryptogenic organizing pneumonia (cop) is a commonly described condition with a myriad of presentation. Here we describe an atypical presentation of COP.

Case report

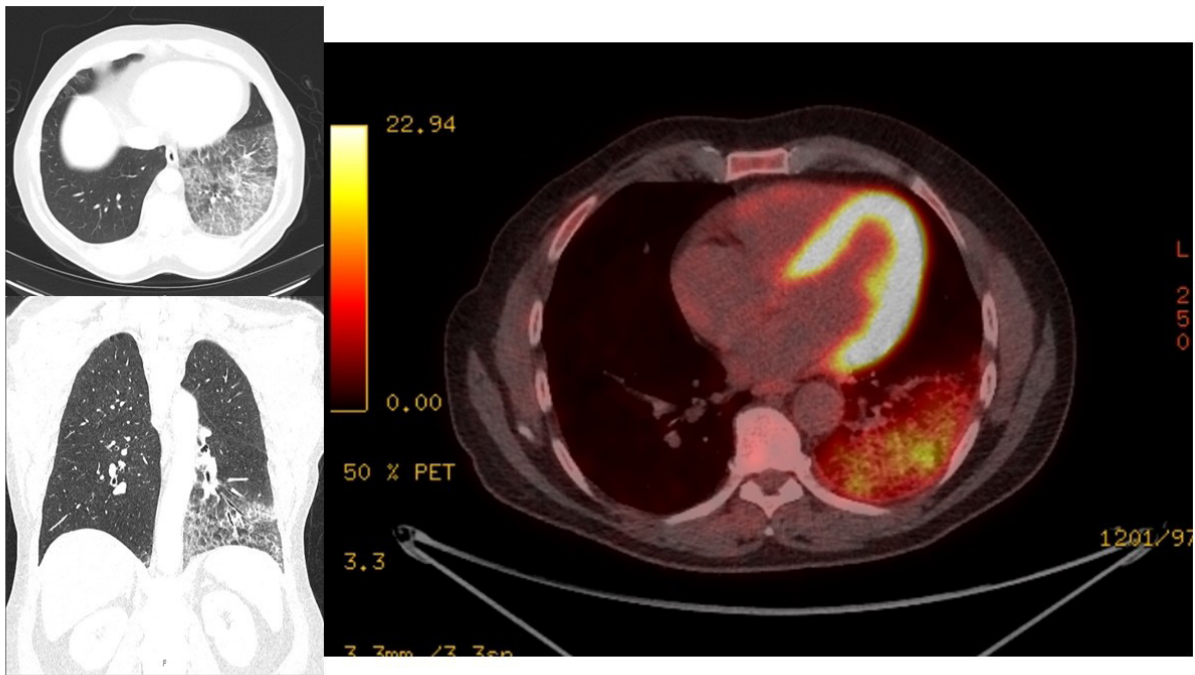
57-year-old patient presented with cough, greenish sputum and episodic haemoptysis for 6 months. This was associated with unintentional weight loss and night sweats for 1 year. On examination there was left lower zone crepitations. CXR showed left lower zone inflammatory shadows and further evaluation with PET CT showed intense uptake left lower lobe with few prominent inferior pulmonary hilar lymph nodes. He was subjected to endobronchial ultrasound guided transbronchial needle aspiration (station 7, 11L), transbronchial biopsy and a bronchial wash was done.

Bronchial wash showed macrophages 77%, neutrophils -1%, eosinophils 0% and 22% of lymphocytes. Bronchial wash revealed predominant respiratory epithelial cells, scattered macrophages, scanty lymphocytes, and benign squamous epithelial cells without malignant cells. Lymph node histology was inflammatory in nature without granuloma or atypia. Transbronchial biopsy revealed stromal organizing fibrosis and marked inflammation. Irregular spaces lined by hyperplastic appearing type 2 pneumocytes. Foamy macrophages and inflammatory cells are seen without malignant changes.

Connective tissue screening and rheumatoid screening were negative and immunoglobulins were within the normal range. His final diagnosis was concluded as organizing pneumonia and was started on Prednisolone which led to complete resolution of lesions and symptoms.

Discussion

COP is a type of diffuse interstitial lung disease that affects the distal bronchioles, respiratory bronchioles, alveolar ducts, and alveolar walls, with areas of injury primarily affecting the alveolar wall and a diagnosis of exclusion.



AP16-663

The triple trouble - severe connective tissue disease related interstitial lung disease complicated with pneumomediastinum and pulmonary embolism

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Introduction

Pneumomediastinum is the presence of air in the mediastinum. Spontaneous pneumomediastinum is rare and can occur secondary to interstitial lung diseases (ILD). Symptoms include retrosternal chest pain and dyspnea. Usually, it resolves spontaneously with the resolution of the underlying cause. Patients with connective tissue-related ILD (CTD-ILD) are also at a higher risk of developing pulmonary embolism. We present a patient with CTD-ILD who had both pneumomediastinum and pulmonary embolism.

Case report

A 62-year-old lady with well-controlled hypertension, bronchial asthma, and dyslipidemia presented to us with poorly resolving pneumonia. She had a dry cough, dyspnea, and intermittent fever over 6 weeks. History was otherwise unremarkable.

On admission she was tachypneic (30/minute) and tachycardic (120/minute) with hypoxia (Saturation 90%) together with features of ILD. High-resolution computed tomography revealed non-specific interstitial pneumonitis and organizing pneumonia. Abnormal investigations included a high C-reactive protein of 73 mg/dl, normal procalcitonin level, a high anti-nuclear factor of 1:640 with a speckled pattern, and also positive anti-Ro antibodies. She was given intravenous methylprednisolone pulses for CTD-ILD followed by prednisolone, however oxygen demand further deteriorated. While on high flow oxygen, Repeat investigations revealed pneumomediastinum, deep vein thrombosis, and pulmonary embolism despite being on prophylactic anticoagulation. The patient was eventually intubated and ventilated but expired following cardiac arrest 10 days after admission.

Discussion

Spontaneous pneumomediastinum in ILDs is rare and managed conservatively, but worsens the prognosis of ILD. The simultaneous presence of pulmonary embolism can lead to poor clinical outcomes.



AP16-664

Case of Idiopathic pleuroparenchymal fibroelastosis with pneumomediastinum

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Introduction

Idiopathic pleuroparenchymal fibroelastosis (IPPF) a rare disorder characterized by fibrotic thickening of the pleural and subpleural parenchyma which is seen predominantly in the upper lobes.

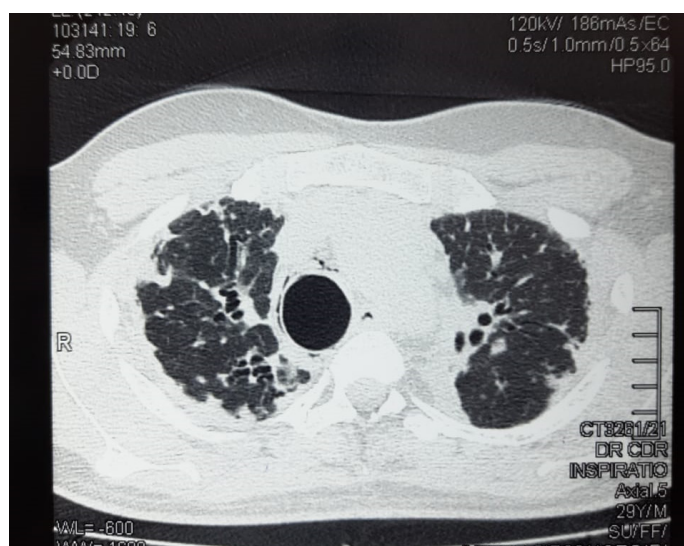
Case report

31yr old presented with progressively worsening of shortness of breath on exertion and dry cough 4 years duration and rapidly worsening over last one month. He was earlier treated as bronchiectasis. He has noted recent worsening of symptoms over one month. He is nonsmoker and had no history of tuberculosis. He was cachectic He had deepened suprasternal notch and platythorax. Bilateral crepitations were noted mainly on upper zones. Fibrotic bands with traction bronchiectasis in bilateral upper lobes with loss of right lung volumes and bilateral upper zone pleural thickening with enlarged main pulmonary artery prominent and evidence of pneumomediastinum was noted in HRCT. Lung function test revealed restrictive pattern

His studies for tuberculosis were negative. Aspergillus specific Immunoglobulin G (Ig G) and Total Ig E were normal. He bronchoalveolar lavage studies for bacterial, tuberculosis and fungal were negative.

Conclusion

In resource poor setup diagnosis these patients were misdiagnosed and treated as bronchiectasis for years. HRCT is the most important investigation in diagnosing IPPF. Causes for upper lobe fibrosis such as infection, hypersensitive pneumonitis, autoimmune disease, and sarcoidosis has to be considered and excluded. In a country with high burden of TB and aspergillus lung infection diagnosis is challenging. Clinicians should consider pneumothorax and pneumomediastinum when these patient present with worsening of shortness of breath.



AP16-665

Rapidly progressive Interstitial Lung Disease (ILD) in a patient with features of Dermatomyositis – A case report

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Introduction

Dermatomyositis (DM) and Polymyositis (PM) spectrum significantly associate with ILD and substantially contribute to mortality and morbidity. Infection, pneumomediastinum, respiratory muscle weakness and progression of ILD could cause rapid deterioration.

Case report

38y old lady presented with progressive dyspnea for 5 weeks. She had no evidence of pneumonia, asthma, heart failure, or significant exposures. She had generalized body aches and symmetrical inflammatory type arthralgia. She was ill, tachypneic, with a purplish rash over malar area of the face and around neck, and violaceous skin thickening over dorsum of knuckles with ragged cuticles. Lungs had bilateral fine crepts. A working diagnosis of DM/PM associated ILD was made as High Resolution CT (HRCT) showed Non-specific Interstitial Pneumonia / Organizing pneumonia (NSIP/OP). She was pulsed with methyle prednisolone followed by prednisolone 0.75mg/kg/day. Inflammatory markers were persistently high despite negative Covid PCR, ANA, Rheumatoid factor and normal CPK. Oxygen demand increased rapidly needing ventilatory support. Repeat HRCT showed Diffuse Alveolar Damage with Acute Interstitial Pneumonia. Despite IV Immunoglobulin with lung protective and prone ventilation she succumbed to her illness within first week of admission.

Discussion

ILD in patients with DM/PM vary and can precede dermatological manifestations. Marie I et al. in 2002 found that 23.1% developed ILD, with mortality of 13.9% (1) with worst prognosis and rapid deterioration in Acute Interstitial Pneumonia variant. Amyopathic dermatomyositis or Anti MDA-5 associated ILD could be refractory to conventional treatment and progress rapidly. 6 month survival is 40%. Combination of immunosuppressants are needed simultaneously and early in disease (2).

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AP16-666

Lung cancer emerging in a case of fibrotic interstitial lung disease

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INTRODUCTION

Development of lung cancer in idiopathic pulmonary fibrosis has been reported in literature and usually carries a poorer prognosis.

CASE REPORT

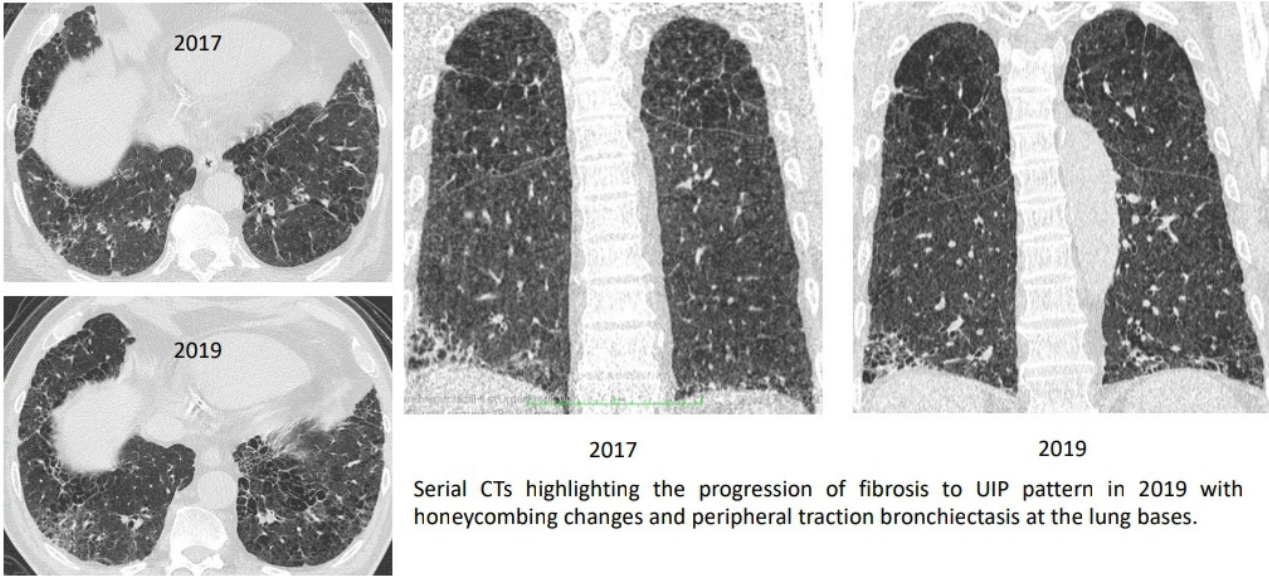
We report a 75-year-old gentleman who is an ex-chronic smoker with underlying hypertension, dyslipidemia and chronic kidney disease presented to us in 2017 for progressive exertional dyspnea for a year. He did not exhibit symptoms and signs of connective tissue disease neither does he have any environmental exposures. All autoantibodies were negative. His coronary angiogram showed near normal coronary arteries and pulmonary hypertension. CT scan showed diffuse emphysema, chronic bronchitis and interstitial lung fibrosis. His full lung function test showed normal lung volumes with isolated reduced DLCO. A ventilation perfusion lung scan performed revealed pulmonary embolism affecting 2 subsegments. He was treated for chronic thromboembolic pulmonary hypertension. Sildenafil and warfarin therapies were initiated in 2017. Serial CTs in 2018 and 2019 showed emphysema and definite UIP pattern. Nintedanib was initiated. Serial CTs between 2020 and January 2021 showed enlarging and spiculated anterior segment of the right upper lobe nodule. CT guided lung biopsy was performed in February 2021 showed lung adenocarcinoma and thus clinical staging of T2aN1M1a, Stage IVA. He has completed 6 cycles of palliative gemcitabine and subsequent CT scan showed stable disease and reducing lung nodule.

DISCUSSION

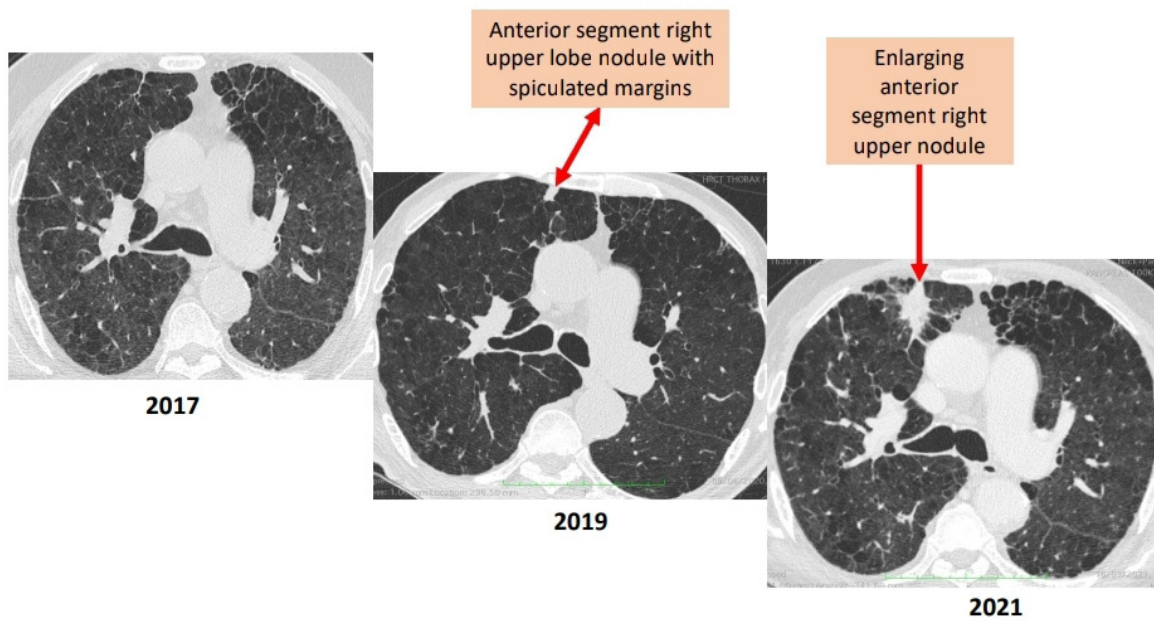
About 1 out of 10 patients with IPF develop lung cancer, with a prevalence ranging from 4.4 to 13%, and up to 48% in an autopsy study^{1,2}. Squamous cell carcinoma is the most common, followed by adenocarcinoma³.

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Serial CT Scans of the Thorax



Serial CT Scans of the Thorax



AP16-667

Challenges in management of lung cancer coexisting with idiopathic pulmonary fibrosis

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Introduction

Idiopathic Pulmonary Fibrosis (IPF) is a risk factor for lung cancer and the incidence is 3 times higher than in general population. Management of lung cancer in IPF is a dilemma as treatment modalities such as surgical resection and palliative chemotherapy poses high likelihood of acute exacerbation of IPF.

Case Report

A 68 years old ex-police officer with a smoking history of 40pack years presented with progressive dyspnoea over 6 months duration. Examination revealed bibasal crepitations but otherwise unremarkable. Upon imaging, definite usual interstitial pneumonia pattern was seen together with a cavitating lung mass in the right lower lobe. Tissue biopsy was obtained via CT-guided biopsy that confirms non small cell carcinoma, favouring squamous cell type in the immunohistochemistry. The disease was characterised as T3N2M1, based on PET scan which was in contrast to the prior CT that showed no metastasis or nodal involvement. His ECOG PS was 2 with significantly reduced 6MWD of less than 50m. Following discussion regarding risks and benefits of chemotherapy, patient opted for best supportive care alongside antifibrotic agent, Nintedanib, which is postulated to have antineoplastic properties as well.

Discussion

Evidence to support antifibrotics doubling as antineoplastic agents are limited, hence larger studies are needed to prove this hypothesis. Due to paucity of strong evidence, no platinum based systemic chemotherapy is considered safest and optimal in treating patients with advanced lung cancer in IPF. Management needs to be individualised, aligning with patient's expectations on treatment outcome and quality of life.

AP16-668

Rituximab induced pneumonitis in a patient with Sero-positive Rheumatoid arthritis – A rare complication

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Introduction

Rituximab is commonly used in the management of connective tissue disorders and interstitial lung diseases. Rituximab induced pneumotoxicity is a rarely described entity and often missed.

Case report

A 70 year old gentleman who is diagnosed with sero-positive rheumatoid arthritis admitted with shortness of breath and fever for 2 days. He was treated with annual Rituximab infusions for the past 2 years and last injection was given 2 days prior to the onset of symptoms. He was well prior to this event and could walk for miles. On examination he was hypoxic and auscultation revealed bilateral fine inspiratory crepitation. His rheumatoid arthritis was well controlled for the past two years.

On admission his inflammatory markers were elevated and connective tissue screening and ANCA were negative. CXR showed basal predominant changes. He was initially treated with high flow oxygen with intravenous Piperacillin. As there was poor response to antibiotics he was pulsed with intravenous Methylprednisolone followed by oral Prednisolone. He has responded to steroids and was able to wean oxygen however was discharged on oxygen via nasal cannula (2L/min). Once stabilised with less oxygen demand a CT was done which revealed traction bronchiectasis in mid to lower zones associated with some interlobular septal thickening, ground glass changes and some areas of mosaicism suggestive of NSIP with background pleural thickening.

Conclusion

Rituximab induced lung injury is a rarely described entity and often misdiagnosed as infection. Higher degree of suspicion and early treatment is needed to prevent irreversible lung damage.



AP16-669

Organizing pneumonia following neoadjuvant chemotherapy in a patient with breast carcinoma. A diagnostic challenge

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Introduction

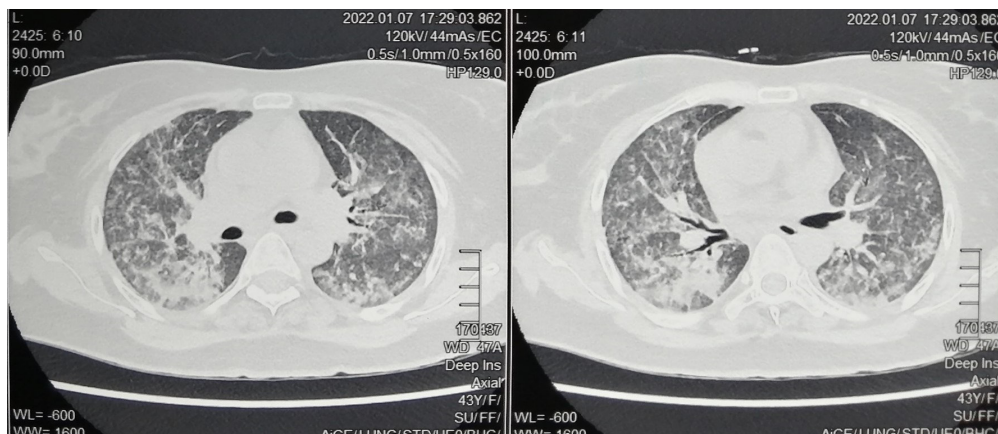
Chemotherapy induced organizing pneumonia (CIOP) is a distinct entity of pulmonary toxicity associated with antineoplastic therapy. CIOP results from direct pneumocyte damage induced by chemotherapy.

Case Report

A 43-year-old female with a recently diagnosed stage-IIIB invasive ductal carcinoma of left breast presented with a dry cough and worsening dyspnea for one week following the completion of neoadjuvant chemotherapy with doxorubicin and cyclophosphamide. She didn't undergo radiotherapy. There was no associated fever, rash, orthopnea, ankle swelling or hemoptysis. Examination revealed a tachypnic patient with an oxygen saturation of 90% on air and bi-basal crackles. Septic screening including cultures were negative and pancytopenia was absent. Corona virus disease was excluded. Chest radiograph revealed bilateral peripheral ground glass opacities (GGO) and consolidations. High resolution computed tomography (CT) of chest revealed patchy consolidations, GGO, nodular opacities and interlobular septal thickening in a basal and sub-pleural distribution; suggestive of organizing pneumonia. (Figure 01) Pulmonary function tests revealed a severe restriction. Broncho-alveolar lavage was lymphocytic predominant without evidence of infections (*Pneumocystis jirovecii*, mycobacterial infections and aspergillosis), alveolar hemorrhages or lymphangitic carcinomatosa. Transthoracic echocardiogram was negative for congestive cardiac failure. Serum brain natriuretic polypeptide was normal. CT pulmonary angiogram excluded pulmonary embolism. CIOP was diagnosed and intravenous methylprednisolone pulses followed by oral prednisolone was commenced. Patient had a remarkable improvement in dyspnea and oxygen saturation.

Discussion

Diagnosis of CIOP is challenging. Doxorubicin causes cardiomyopathy, which can account for dyspnea. Opportunistic infections, pulmonary embolism and lymphangitic carcinomatosa should be excluded. Early diagnosis and prompt treatment offers a favorable outcome.



AP16-670

A Rare Cause of Rapidly Progressive Respiratory Failure

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Introduction

Idiopathic Pleuroparenchymal Fibroelastosis (IPPFE), a rare cause of interstitial lung disease, is a type of idiopathic interstitial fibrosis with characteristic features.

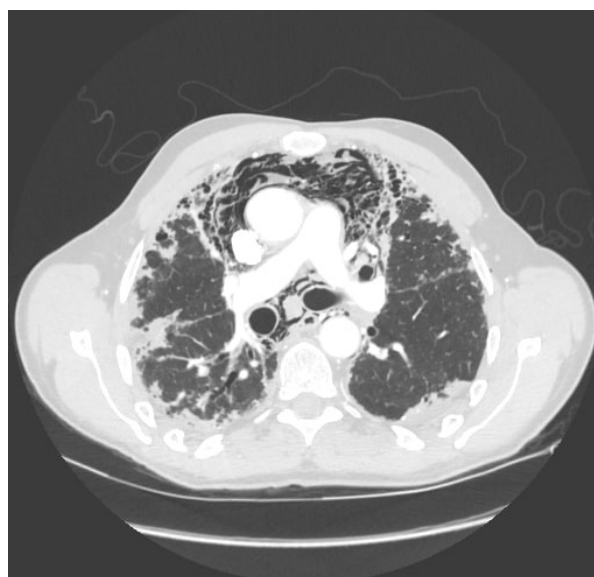
Case Report

64 year old male, former smoker, presented with cough, dyspnea and weight loss. Symptoms were stable for 3 years with rapid progression over the subsequent 2 years. CT of the chest initially showed minimal fibrosis followed by rapid progression over 2 years. Pulmonary function testing revealed moderate restriction with severely reduced diffusing capacity. A quantitative VQ scan suggested significant gradient between upper and lower lung zones. Patient was empirically treated with antibiotics and steroids. Respiratory failure progressed rapidly with patient requiring 12LPM supplemental oxygen. Lung transplant evaluation was sought but patient required intubation. Right heart catheterization showed significant pulmonary hypertension. Clinical condition deteriorated and hospice was consulted followed by withdrawal of care and the patient expired.

Discussion

IPPFE predominantly affects the upper lobes and apices of the lungs with subpleural predominance and relative sparing of the middle and lower zones and upward hilar retraction and volume loss. Radiographic appearance is consistent with cysts without honeycombing, and pleural thickening. Patients are prone to pneumothoraces. Time to death from diagnosis is 10 to 20 years though in some cases the disease progresses rapidly. A surgical lung biopsy provides histopathologic diagnosis, but is not always possible and can be associated with significant morbidity. Radiological and physiological diagnostic criteria must be applied in most cases. Rapidly progressive respiratory failure due to IPPFE warrants speedy evaluation for lung transplantation.

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AP16-671

A rare case of Combined pulmonary fibrosis and emphysema associated with systemic sclerosis

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Introduction

Combined pulmonary fibrosis and emphysema (CPFE) is co-existence of emphysema in upper lung zones and pulmonary fibrosis in lower lobe. It occurs usually in males >60yrs who are ex-smokers. But it can occur rarely in connective tissue disease patients.

Case Report

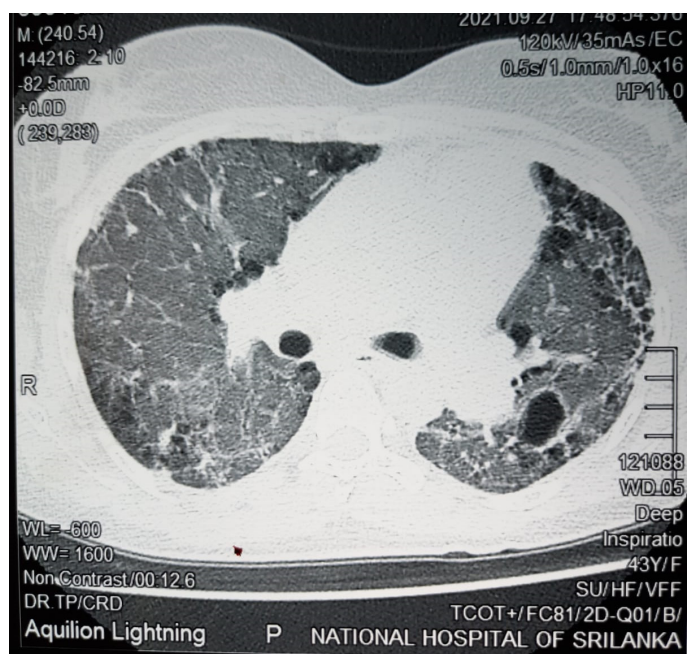
A 43yr old previously well lady presented with progressively worsening shortness of breath for 1yr duration associated with dry cough for 6months duration. She had features of limited systemic sclerosis features skin tightness of face and distal limbs, telangiectasia over face, pointed nose, narrowed mouth. She had bilateral fine basal crepitations with clinical features suggestive of right heart failure with pulmonary hypertension. She had high inflammatory markers (ESR 90 mm/1st hour). ANA positive with 1/320 titre. Anti-centromere antibodies were positive.

HRCT revealed upper zone emphysema and lower zone pulmonary fibrosis with subpleural reticular opacities, honeycomb images and traction bronchiectasis. 2DEcho showed mild PHT TRPG 35mmHg. CTPA had no evidence of pulmonary embolism

Diagnosis of limited systemic sclerosis with CPEF. Patient received IV cyclophosphamide with oral prednisolone 10mg/day. She was stable on discharge and home oxygen therapy was arranged.

Conclusion

Commonly observed pattern in Systemic sclerosis is Nonspecific interstitial pneumonia (NSIP) but Usual interstitial pneumonia (UIP) is rarely observed. CPFE is still under recognized pulmonary complication in systemic sclerosis. Although there are studies comparing treatment options for systemic sclerosis associated ILD, there is little evidence and knowledge with regards to management of systemic sclerosis patients CPFE.



AP16-672

Methotrexate induced acute interstitial pneumonia in a patient with seronegative rheumatoid arthritis -a case report

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Introduction

Methotrexate (MTX) induced acute interstitial pneumonia is a rare life threatening condition. Lung toxicity due to MTX often occurs with low dose oral therapy usually weeks to months after starting treatment. It has an acute or sub-acute course and generally occurs within the first year of treatment¹

Case report

A 63 year old female patient with seronegative rheumatoid arthritis, was on treatment with MTX presented with sub-acute onset of difficulty in breathing and with desaturation at room air. She was managed in high dependency unit and investigations revealed type 1 respiratory failure with negative pro-calcitonin. Chest x-ray showed bilateral diffuse alveolar shadowing and further evaluation with HRCT chest showed evidence suggestive of acute interstitial pneumonia. In this clinical context close liaison with the respiratory physicians agreed on the diagnosis of MTX induced acute interstitial pneumonia. MTX was withheld and started on intravenous antibiotics with atypical coverage. For the acute pneumonitis she was given IV methyl prednisolone pulse therapy followed by oral prednisolone. With the treatment regime she improved dramatically.

Discussion

There are identified risk factors of developing MTX induced lung toxicity². In suspected methotrexate induced acute pneumonitis, MTX should be promptly withdrawn, urgent chest imaging with HRCT needed to confirm the diagnosis. The patient should be given supportive measures and corticosteroid treatment³. Prompt diagnosis is the key to successful patient outcome as MTX induced acute pneumonitis can occur irrespective of the dose, duration and route of administration.

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AP16-673

A Lady with rough hands and a rash presenting with exertional shortness of breath

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Introduction

Clinically Amyopathic Dermatomyositis (CADM) occurs in the absence of typical proximal myopathy and laboratory evidence of myositis. They can present with rapidly progressing interstitial lung disease.

Case report

43-year-old lady with Diabetes and Hypertension presented with progressive worsening shortness of breath for 2 weeks. (MMRC 3). She had nonproductive cough. She denied a history of exertional angina, ischemic heart diseases, orthopnea, or lower limb swelling. She complained progressive facial swelling associated with facial pigmentation over the bilateral cheeks and around the orbit for past 6 months. There were no constitutional symptoms, but she complained of significant body weakness and muscle pain especially on thighs.

She was dyspneic with resting SpO₂ of 85%. There was a violaceous macular skin rash over the cheeks, periorbital area and over the anterior chest. She had erythematous and fissured rough hands involving palms and lateral aspect of the fingers. Auscultation of the lungs revealed bilateral fine end inspiratory crepitations.

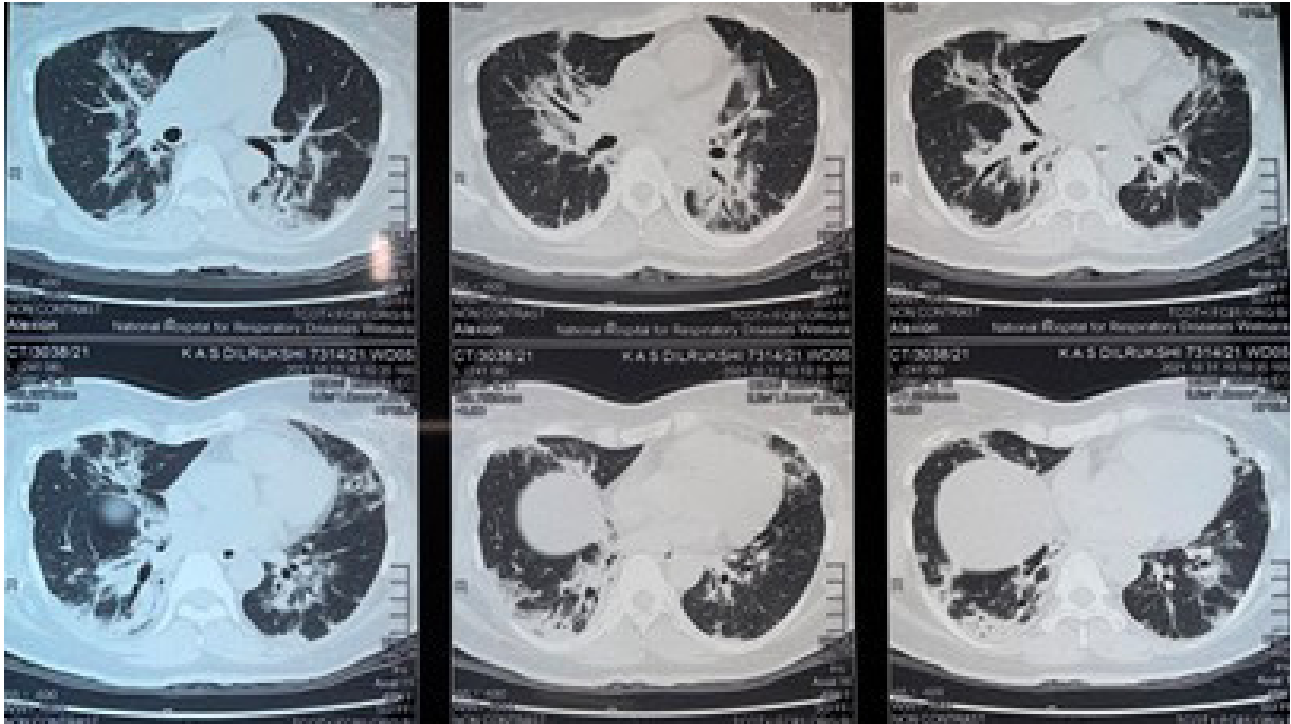
Her Xray showed Bilateral reticular nodular shadows. Her biochemical profile was normal. Pyogenic screening, Tuberculosis screening, retroviral screening and the tumor markers for possible malignancy were also negative. HRCT showed progressive subpleural and peri Broncho-vascular consolidation with associated subpleural traction bronchiectasis along the bases highly suggestive of organizing pneumonia.

Her ANA was positive with negative Ds DNA and U1RNP and the myositis panel was positive for Ro-52 and Mi-2 antibodies. Her CPK levels were persistently negative, and the needle EMG was suggestive of myopathy without associated myositis. Anti MDA antibody was not done.

Discussion

Exertional shortness of breath is the most common presenting feature, and it may mainly due to the underlying ILD but partly due to the associated muscle weakness, anemia, pulmonary hypertension, chronic thromboembolism, or cardiac causes.

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AP16-674

The tale of a dyspneic lady with cystic lungs. A case of primary Sjögren syndrome complicated with lymphoid interstitial pneumonia

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Introduction

Sjögren syndrome (SS) is a multisystem inflammatory disease which has a wide spectrum of interstitial lung diseases including lymphoid interstitial pneumonia (LIP).

Case report

A-60-year old female presented with dry eyes, skin rash over shins and progressively worsening breathlessness for 3 months. She denied constitutional symptoms, hemoptysis, altered sensorium, sexual promiscuity or smoking. Examination revealed a vasculitic rash over shins. Connective tissue disease features, focal neurological signs or exertional desaturation was not seen. Normochromic normocytic anemia and thrombocytopenia were noted with a normal white cell count. Inflammatory markers were raised. Blood cultures were negative. Retroviral and hepatitis B and C screening were negative. Antinuclear antibody (1:160 speckled pattern), rheumatoid factor, anti-Ro antibodies and anti-La antibodies were positive. Rest of the extractable nuclear antigen panel, complements, cryoglobulins and antineutrophil cytoplasmic antibodies were negative. Echocardiogram and chest radiograph were normal. High resolution computed tomography (HRCT) of chest showed thin walled cysts along the bronchovascular bundles, suggestive of LIP. Spirometry was normal. Skin biopsy revealed a leukocytoclastic vasculitis. Schirmer test was positive. A diagnosis of primary SS was made and commenced on pulsed methylprednisolone and cyclophosphamide. She had a marked improvement following the treatment.

Discussion

Evaluation of cystic lung disease is challenging as multiple etiologies exist. LIP is a distinct feature of SS. Cough is the commonest presenting feature of LIP. Lung biopsy is the gold standard for diagnosis of LIP, though typical HRCT appearance is sufficient for diagnosis. Although there is no clear consensus, prednisolone will offer a satisfactory response with regards to radiological resolution.

AP16-675

Surveying for interstitial lung diseases at pham ngoc thach hospital in two years 2020 - 2021

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Background and aims

Interstitial lung disease (ILD) is a group of rare but increasingly popular diseases in pulmonology, which is also relevant to other specialties such as rheumatology, nephrology, and immunology. However, prevalence and characteristics of ILD in Vietnam remains unknown.

Method

In this observational retrospective study, we recruited all patients with ILD, administered to Pham Ngoc Thach hospital in 2020 and 2021. The data was analyzed using T-test with p value of 0.05 as threshold of statistical significance. Our objective is to identify frequencies of interstitial lung diseases at Pham Ngoc Thach hospital and to compare them with chronic obstructive pulmonary disease.

Result

There were 609 cases diagnosed with ILD, 1.28% of total hospitalized patients, at Pham Ngoc Thach hospital in 2020 and 2021. The mean age of diagnosis is 63.25 years old. On gender, ILD was more popular in male than female (60.92% and 39.08%, respectively). The most common type of ILD in the study is occupational and drug exposed ones, accounting for 25% of patients. Additionally, acute interstitial pneumonia and idiopathic interstitial pneumonia comprised approximately 20% of patients each. Only 2% of patients have CTD as underlying disease and 4% of patients were diagnosed with hypersensitivity pneumonia. Finally, rare ILDs were detected in 30% of cases.

Conclusion

ILD is not uncommon in our clinical setting at Pham Ngoc Thach hospital, accounting for 1.28% of total hospitalized patients. Although, the incidence of ILD is lower than other chronic pulmonary disease, the figure might change with increasing awareness and emerging diagnostic guidelines.

The authors declare that they have no conflicts of interests.

AP16-676

Pleuroparenchymal fibroelastosis associated with invasive aspergillosis

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Introduction

Pleuroparenchymal fibroelastosis (PPFE) is a rare entity, characterized by upper lobe dominant subpleural fibroelastosis and dense fibrous thickening of the visceral pleura. Most cases are idiopathic but it can also occur secondary to underlying diseases such as chronic or recurrent bronchopulmonary infection (e.g. Aspergillus).

Case Report

A 70-year-old patient with bronchial asthma presented to the hospital with cough productive of non-purulent sputum for 3 months. She complained of shortness of breath on exertion (Mmrc 2), loss of appetite and loss of weight. On examination she was cachectic and pale with a saturation of 96%. She had a deepened suprasternal notch. There was no clubbing.

Investigations revealed a hemoglobin of 7.7 g/dl (iron deficiency anemia /anemia of chronic disease). ESR was 99/1st hour and CRP was 42.5 mg/l. Tuberculosis screening was negative. Sputum pyogenic culture isolated Pseudomonas Spp. HRCT demonstrated upper lobe predominant patchy pleural thickening, mild degree reticular opacities and traction bronchiectasis. Rest of the lung showed mosaic attenuation with few scattered patches of pleuroparenchymal scarring. Bronchoalveolar lavage cell differential was normal. Aspergillus fumigatus was isolated from the bronchial wash and galactomannan was 1.74. Lung function tests were normal. The diagnosis of PPFE was made following HRCT findings coupled with examination findings in the absence of histopathological evidence. She was given intravenous ceftazidime for 14 days and was started on voriconazole.

Discussion

A number of potential initiating factors have been identified to cause non-idiopathic PPFE including chronic or recurrent bronchopulmonary infection. Recent reports of PPFE have highlighted the presence of Aspergillus, although the frequency of clinically significant aspergillosis has not been determined.

AP16-677

A case of a mixed connective tissue disease presenting with features of interstitial lung disease and underlying pulmonary tuberculosis

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Introduction

Mixed Connective Tissue Disease(MCTD) is a distinct clinical entity with overlapping features of Systemic Lupus Erythematosus, Systemic Sclerosis, and Polymyositis with antibodies against U1 Ribonucleoprotein (RNP).

Case Report

In this case report, we are reporting a case of a 43-year-old female presenting with a history of dry cough, exertional dyspnea, and constitutional symptoms. She also complained of a photosensitive rash on her forehead, a history of hair loss, and inflammatory type polyarthritis mostly involving the small joints of the hands. Examination of the face revealed an erythematous rash on her forehead with alopecia, a beaked nose, and a microstomia. Hand examination revealed swollen proximal interphalangeal joint with thickened skin over fingers and nail fold infarcts. She was found to have positive anti-U1 RNP antibodies with negative antibody screening for Anti-dsDNA and Anti-Smith antibodies. There was evidence of Usual Interstitial Pneumonia in her HRCT as well. With all these clinical and laboratory findings a diagnosis of MCTD was made. She was found to have underlying pulmonary tuberculosis with a positive sputum TB Genexpert as well as coexisting interstitial lung disease (ILD).

Conclusion

In conclusion, it is important to consider MCTD when patients present with mixed features of Systemic Lupus Erythematosus, Systemic Sclerosis, and Polymyositis. It is important to exclude ILD and pulmonary arterial hypertension in patients diagnosed with MCTD. In addition to that, we have to understand that ILD patients are at risk of pulmonary tuberculosis which is important to exclude before starting immunosuppressive treatment.



AP16-678

Brigatinib induced severe interstitial pneumonitis

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introduction

Brigatinib is a tyrosine kinase inhibitor. This is used in ALK-positive advanced non-small cell lung cancer. We describe a case of acute severe interstitial pneumonitis following brigatinib treatment.

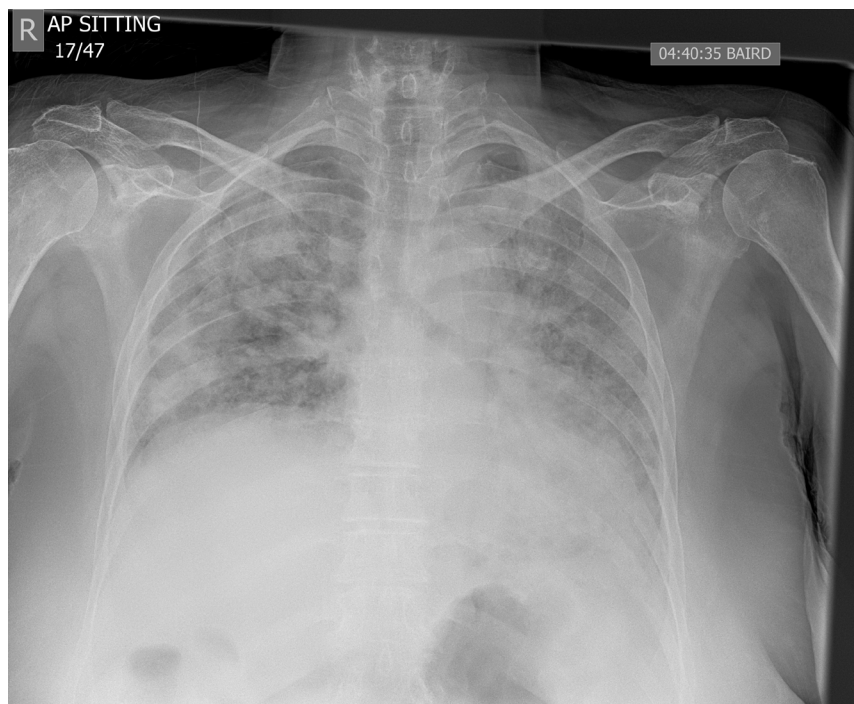
case report

A 72 year old lady with an advanced non-small cell lung cancer with brain metastases admitted with progressive shortness of breath for 2 days, associated with fever and dry cough. She was started on brigatinib two prior to onset of symptoms. Clinical examination revealed crepitations of the bilateral chest. CXR showed diffuse inflammatory changes in both lungs. (Image 1). Arterial blood gas revealed significant type 1 respiratory failure. CRP was raised with normal procalcitonin levels.

She was initially started on broad spectrum antibiotics with respiratory support for severe pneumonia. The patient clinically deteriorated despite antibiotic therapy. With the availability of normal procalcitonin and history of recent brigatinib treatment, she was started on intravenous methylprednisolone pulses which later converted to prednisolone. With the commencement of the steroid therapy she remarkably improved. Blood and sputum cultures were negative. HRCT done after 1 week of steroid therapy showed diffuse ground glass changes compatible with pneumonitis.

discussion

Brigatinib is an ALK inhibitor approved for the treatment of patients with ALK-positive metastatic non-small cell lung cancer who are progressed on or are intolerant to crizotinib. Interstitial lung disease/pneumonitis is described as a pulmonary toxicity of brigatinib. However, there are no case reports in the literature about this association. It will be of utmost importance, the clinicians to be aware of this significant adverse effect of Brigatinib.



AP16-679

Interstitial Lung Disease in association with Anti myositis antibodies: a series of 6 cases.

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Pulmonary Medicine, All India Institute of Medical Sciences, Bhopal, India, ⁶ Pulmonary Medicine, All India Institute of Medical Sciences, Bhopal, India

Introduction

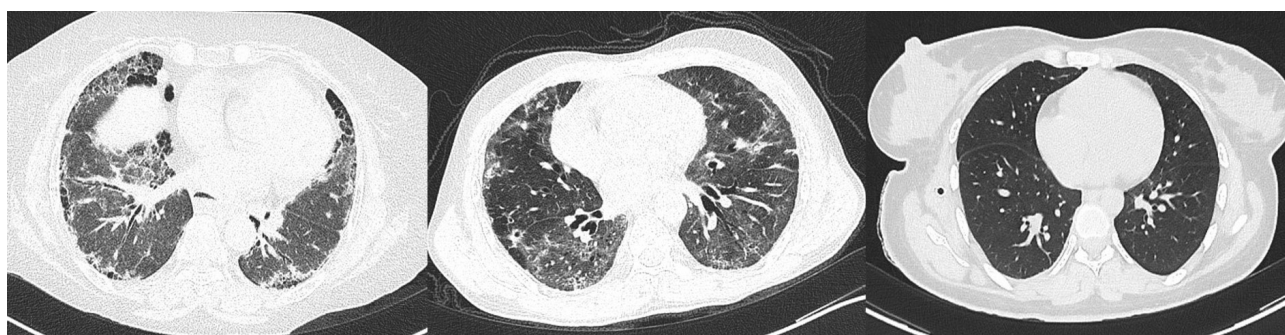
Although ILDs are increasingly recognized with the availability of CT scans yet a good proportion of them are labelled idiopathic. We report six cases of ILD which revealed various anti myositis antibodies and helped establish the etiology behind Interstitial Lung Disease.

Case Report

We came across 6 cases 5 of whom were labelled as Interstitial Lung Disease on CT thorax and 1 female presented with recurrent pneumothorax. After getting negative reports by ANA by immunofluorescence and thereafter for ANA by ENA (Extracted Nuclear Antigen) reflex, these were tested for anti-myositis antibodies which turned out positive. 4 were males with age ranging from 57-70 years and 2 were females of age 26 and 39 respectively. First patient (70 male), was positive for anti Mi-12 and KU, second patient (64 male) was positive for anti PL-12 and KU, third patient (60 male) was positive for anti Mi-12 and anti PL-12, fourth patient (57 male) was positive for KU antibodies and PCNA antibodies, fifth patient (26 female) was positive for anti PM-Scl antibodies and sixth patient (39 female) was positive for ro-52, mi 2 antibodies.

Discussion

ILDs are now diagnosed more commonly than before but a lot of them are falsely classified as idiopathic. Systematic and aggressive approach with autoantibody testing by ENA reflex and Anti myositis antibodies helps to diagnose and classify these ILDs. Interestingly, lack of myopathy and rapid progression of ILD is encountered in a good proportion of them.



70 year male, Anti mi-2 and KS positive

64 year male, anti PL-12 and KS positive

26 year female, PM-Scl 75 positive

AP16-680

Diagnosis Dilemma: Pulmonary Veno-occlusive disease- A rare cause of pulmonary hypertension

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Introduction

Pulmonary Veno-occlusive Disease (PVOD) is an uncommon and challenging cause of pulmonary hypertension with high morbidity and mortality. It is due to vascular remodeling in the pulmonary venules and veins. It is very difficult to differentiate from pulmonary arterial hypertension. High-resolution computed tomography (HRCT) of the chest is a noninvasive diagnostic tool used to screen for PVOD.

Case report

A 14-year-old young boy presented with progressive shortness of breath, fatigue, and syncopal attacks. Clinical examination was compatible with pulmonary hypertension and investigations including transthoracic echocardiogram and right heart catheterization further confirmed the diagnosis. Extensive work-up for secondary causes was negative. His HRCT chest finding was consistent with PVOD such as few mediastinal lymph node enlargement, centrilobular ground-glass opacities, and interlobular septa. PVOD is further supported by normal lung volume with decreased diffusion capacity and normal ventilation-perfusion scan. Lung biopsy was not tried as it carries high complications. He was started on diuretics and pulmonary vasodilator therapy for which he was tolerated without developing noncardiogenic pulmonary odema. As PVOD did not curable and had high mortality, he was referred for a lung transplant.

Discussion

Clinicians should have a high clinical suspicion of PVOD when evaluating the causes of pulmonary hypertension. A triad characteristic HRCT finding will point towards the diagnosis. Early diagnosis will aid in lung transplant at the earliest possible, as it is fatal within months to a few short years after initial presentation.

AP16-681

Hemoptysis with progressive breathlessness in an otherwise healthy adult, a common presentation of a rare disease

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Introduction

Etiologies of pulmonary hemorrhage is diverse, and evaluation exhausting. Undiagnosed, it could be fatal. Lacking evidence from randomized controlled trials, case reporting, and peer discussions guide care.

Case report

A 43-year-old male had progressive dyspnea and hemoptysis for 6 months with mild dry cough. History lacked diurnal variation, wheezing, fever, or night sweats. With intact appetite, body weight remained static. Bowel habits were normal. No personal or family history of bleeding manifestations. Past medical history insignificant without contact history of Tuberculosis (TB). He was a non-smoker and didn't use illicit drugs.

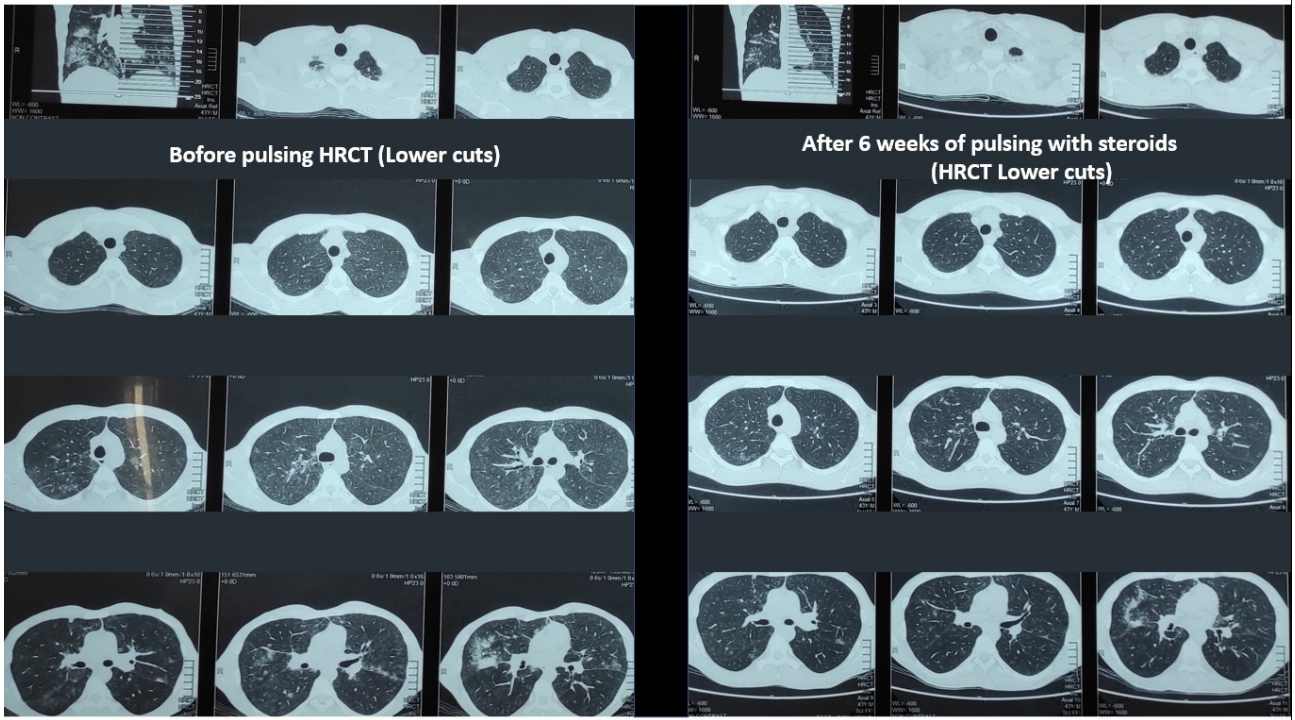
He was dyspneic, not clubbed with absence of features of connective tissue diseases. There were no vasculitic rashes. He was hemodynamically stable, had bi-basal fine crepitations, without other heart failure features. Arterial PaO₂ was 64mmHg. Neurologically normal.

Investigations targeted to exclude infections, bleeding disorders and manifestations of multisystem autoimmune diseases. Only significant findings were mild splenomegaly. His renal, liver functions, and 2D echo was normal.

HRCT suggested diffuse alveolar hemorrhage and confirmed by sequential Broncho Alveolar Lavage. Extractable anti-nuclear antibodies, C-ANCA, P-ANCA, and anti-GBM antibodies were negative.

Discussion

Absence of extrapulmonary features suggested either Idiopathic pulmonary hemosiderosis (IPH) or Idiopathic pauci-immune pulmonary capillaritis (IPIPC). Age, presentation, and absence of systemic involvement favored IPIPC over IPH. Capillaritis on lung biopsy confirms IPIPC, however, it isn't required to commence treatment. Published case reports suggest methyl prednisolone pulsing +/- with add-on Cyclophosphamide pulses. Marked clinical and radiological outcome noted with said management which reiterated the importance of early diagnosis and treatment in IPIPC.



AP16-682

Erasmus Syndrome: A Case Report and Review of Literature

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Background

Erasmus syndrome is a rare disease entity characterized by the development of systemic sclerosis (SSc) on the background of silica exposure or silicosis.

Case Report

We report the case of a 40-year-old Filipino male who worked in a silica grind mill for 10 years and eventually developed Erasmus syndrome. The patient initially presented with chronic back pain in 2018 associated with chest x-ray findings of pulmonary tuberculosis (PTB), with symptom improvement after anti-TB treatment. However, the back pain recurred in 2021, this time with arthralgia, Raynaud's phenomenon, thickening of bilateral hands, and exertional dyspnea. On physical examination, there was salt-and-pepper dermopathy and skin tightening over the back, chest, and extremities. ANA-IF and anti-scleroderma (Scl)-70 antibodies were strongly positive confirming the diagnosis of systemic sclerosis. Chest CT scan illustrated multiple subcentimeter nodules and enlarged mediastinal lymph nodes with eggshell calcifications, consistent with silicosis. Spirometry with body plethysmography was normal but diffusing capacity for carbon monoxide (DLCO) was severely reduced.

Discussion

Silicosis is the most common form of pneumoconiosis- a group of interstitial lung diseases caused by inhalation of certain mineral dust. Silica exposure has also been associated with a number of systemic autoimmune diseases. The presence of systemic sclerosis on the background of silicosis or silica exposure has been termed Erasmus syndrome. This condition is rare condition with estimated prevalence of 0.9%.

Conclusion

Maintaining a high index of suspicion is key to the diagnosis of Erasmus syndrome. This is the first documented case of Erasmus syndrome in the Philippines.

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AP16-683

Using antifibrotic drugs as an add-on treatment for lung fibrosis after Covid-19 infection: Two case reports from Vietnam

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INTRODUCTION

The COVID-19 pandemic has changed our knowledge about many medical aspects, especially in the respiratory field. Despite new shreds of evidence have been updated, there is still a lot that remains unknown. Current treatments are not cover all the long-term effects of post-Covid-19 infection. Progressive lung fibrosis is one of the worst Covid-19 sequelae, which requires aggressive treatment to minimize lung damage.

CASE REPORT

We present two critical cases of COVID-19, who were required non invasive ventilator (NIV), anticoagulants, and steroid therapy to survive and developed Pulmonary fibrosis. Their high resolution computed tomography (HR-CT) scan revealed severe damage and progressive fibrosing. When discharged from the emergency department, they still need conventional oxygen therapy (3- 4 liters/minutes) at the beginning of treatment with anti-fibrotic. They were given an anti-fibrotic agent (Nintedanib) for 1 month (case 1) and 3 months (case 2). Both cases showed significant improvements and the clinical symptoms and in the pre and post-treatment radiological findings and also the lung function test. None of them have developed the side effects of Nintedanib until now. DISCUSSION: The Covid-19 and idiopathic pulmonary fibrosis may have similar mechanisms on the lung fibrosis progress. This connection raises questions that anti-fibrotic therapy can be used as an add-on treatment for individuals who developed pulmonary fibrosis brought by COVID 19 infection. Anti-fibrotic agents like Nintedanib may help to improve the patient's symptoms, however, there is still no certainty on its effect on the reversal of pulmonary fibrosis.

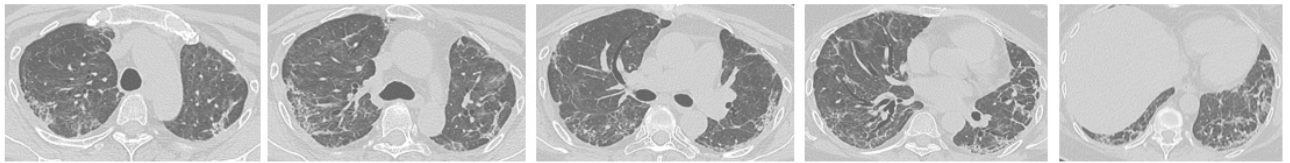
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AP16-684

Prevalence and risk factors of uveitis in patients with newly diagnosed sarcoidosis in Korea

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Background and Aims

Sarcoidosis is an idiopathic and inflammatory disease characterized by non-caseating granulomatous lesions, which involve various systemic organs. Uveitis is one of the distinct manifestations in sarcoidosis. Because there are not sufficient evidences, we investigated the epidemiology and risk factors of uveitis in patients with sarcoidosis.

Methods

This study of 68 patients with sarcoidosis, who were accompanied with uveitis (n = 18) and the others (n = 50), were performed. We retrospectively investigated the baseline characteristics, comorbidities and result of pulmonary function test. Additionally, we collected the information about sarcoidosis, including involved organs, disease stage, imaging findings, bronchoalveolar lavage (BAL) fluid analysis and serum laboratory findings. We analyzed difference by using chi-square test and student t test.

Results

Among 68 newly diagnosed patients with sarcoidosis, uveitis were observed in 18 patients (26.5%). There was no statistically significant difference in demographic characteristics between patients with and without uveitis. However, all sarcoidosis patients with uveitis presented bilateral hilar lymph node enlargement (18/18 patients in uveitis group vs. 35/50 patients in non-uveitis group, P = 0.021). Patients with uveitis showed lower percentage of neutrophil in BAL fluid (0.2 ± 0.5 vs. 1.8 ± 3.1 , P = 0.014) and serum lymphocyte count (1373.3 ± 542.7 vs. 1765.3 ± 872.3 , P = 0.032) than patients without uveitis.

Conclusions

Among newly diagnosed sarcoidosis patients, about a quarter of patients have uveitis at diagnosis time. Clinicians are needed to carefully evaluate uveitis in patients with bilateral hilar lymph node enlargement, lower neutrophil in BAL fluid and serum lymphocyte.

AP16-685

Metastatic gastric signet ring cell carcinoma presenting as interstitial lung disease

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Introduction

Signet-ring-cell carcinoma (SRCC) is described to be a rare and poorly differentiated aggressive subtype of adenocarcinoma commonly from the gastrointestinal tract.¹ In the last two decades, SRCC cases presenting with metastases has increased to over 40%.² However, most metastatic tumors would present as well-defined, round, and multiple nodular shadows on imaging, and the appearance of ground-glass opacities suggests non-malignant conditions such as infection, diffuse alveolar hemorrhage, or interstitial lung disease (ILD).³

Case Report

We report on a case of a 61-year-old Filipino female with more than one-month history of dyspnea and recurrent pleural effusion with no reported gastrointestinal symptoms. High resolution CT scan revealed hazy and reticulonodular densities in both lung fields and ground-glass opacities in the right middle lobe and posterior basal segment of both lower lobes with peripheral predominance. SARS-CoV-2 testing was negative. ILD was considered. Pleural fluid culture and cytology was negative however, positive for metastatic malignancy on tissue biopsy. Lung biopsy also showed presence of dense fibrosis and fibroblastic foci fulfilling the criteria specific for Usual Interstitial Pneumonia (UIP). Abdominal CT scan showed a gastric wall mass and biopsy revealed SRCC. The final diagnosis was primary gastric SRCC with multiple metastases. She eventually expired due to multiple organ failure.

Discussion

Our case presented with primarily respiratory symptoms and interstitial lung disease on chest imaging. Incidental findings of gastric wall mass prompted further investigation. Concomitant findings of ILD and metastasis on imaging and biopsy may warrant investigation for primary malignancy in all patients presenting with interstitial lung disease.

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AP16-686

The clinical efficacy of a Mixture of Ivy Leaf Extract and Coptidis rhizome in patients with idiopathic pulmonary fibrosis

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Background and Aims

Idiopathic pulmonary fibrosis (IPF) is a progressive fibrotic lung disease with poor prognosis and cough is the one of most common and major symptoms in IPF. The aim of this study was to evaluate the clinical efficacy of a Mixture of Ivy Leaf Extract and Coptidis rhizome (Synatura®) in patients with IPF.

Methods

This was a prospective, open-label, single-center, single-arm study in Korea from October 2019 to September 2020. IPF patients with chronic bronchitis were enrolled. Between baseline and eight weeks after use of Synatura®, clinical measures regarding cough and health-related quality of life, and the systemic inflammatory markers was prospectively collected.

Results

Thirty patients were enrolled. Median age was 73 years and 86.7% were men. The median GAP stage of IPF was 3. Baseline total score of LCQ and SGRQ were 104.5 and 30.59 respectively. After eight weeks, there was no significant improvement in LCQ (16.8 [15.6-19.1] vs 17.5 [15.2-18.9], $p=0.772$) and SGRQ (30.6 [19.4-37.8] vs 29.9 [19.6-41.8], $p=0.194$) scores. Also there was no significant differences of systemic inflammatory markers. In analysis of minimal clinically important differences (MCID), one third (33.3%) patients fulfilled the criteria of MCID (1.3) in LCQ scores and median differences was 14 (range: 10-18). In terms of SGRQ, six patients (20%) reached MCID (4.0) without significant predictive factors.

Conclusions

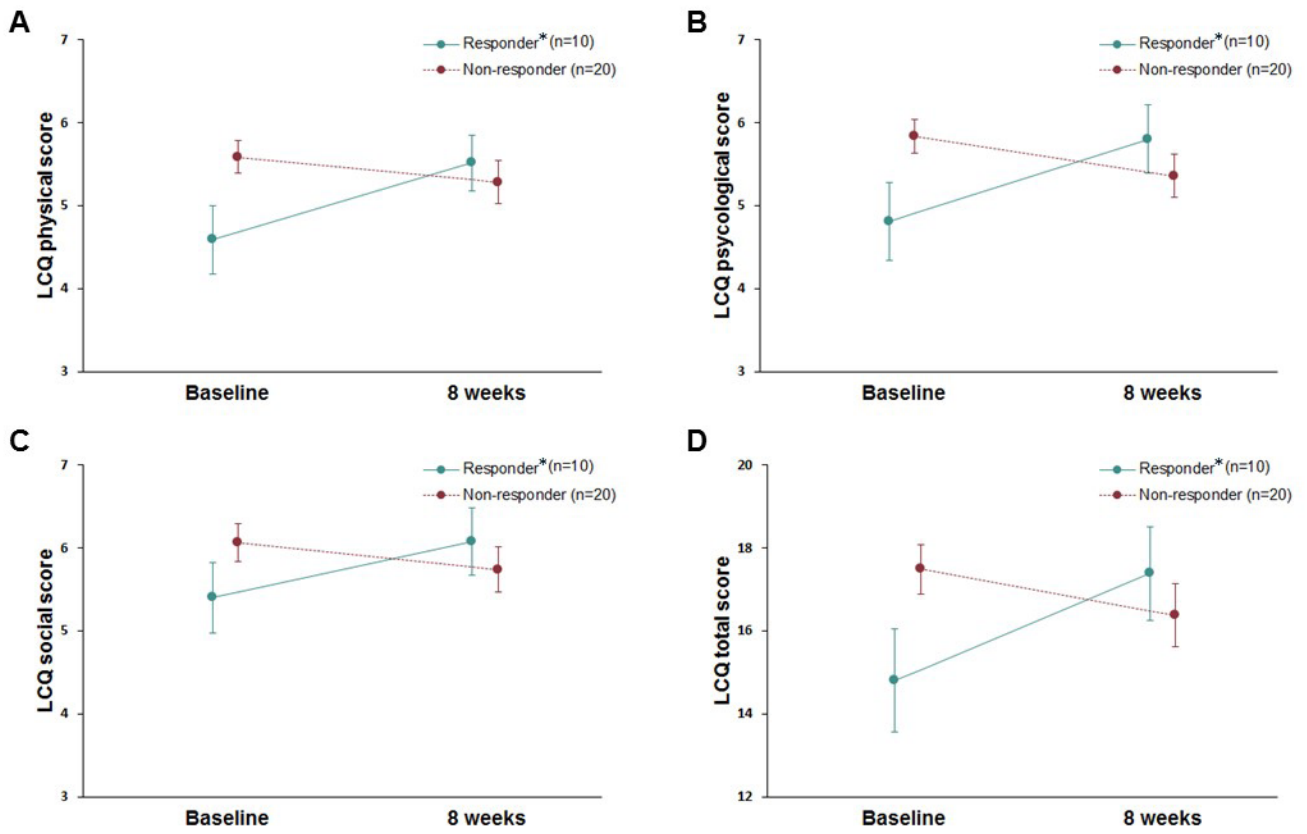
In our study, use of Synatura® during 8 weeks improved cough-specific life quality in one third patients with IPF. Large-scale, randomized, double-blind, placebo-controlled clinical trials are needed.

Figure 1. Comparison of Leicester Cough Questionnaire scores including each domain (physical, psychological, social) between responder and non-responder at the baseline study and after 8 weeks.

LCQ, Leicester Cough Questionnaire

Disclosure statement

Authors declare no conflicts of interest.



AP16-687

Description of Monocyte Counts and Interstitial Lung Disease: A Single ILD Referral Centre in Malaysia

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Background

Several studies have suggested that higher monocyte count is associated with disease progression and mortality in patients with Idiopathic Pulmonary Fibrosis (IPF) and other interstitial lung diseases (ILD) 1-3. The objective of this study is to describe the association of monocyte counts and different ILD subgroups in Malaysia to derive baseline characteristics and preliminary trends towards clinical outcome.

Methods

A cross-sectional retrospective study of all patients with ILD in Institut Perubatan Respiratori (IPR) during a 3-year period between 2017 – 2022. The study evaluates high monocyte count cohort data by the third quartile (Q3) and low monocyte count for

Results

There are 93 ILD patients analysed and the value of Q3 was 0.785 K/ μ L. The mean age and gender split of 70% male were similar across both groups of >Q3 and The >Q3 group had more autoimmune ILDs (AI-ILD) patients (48%) and lower IPF patients (39%) compared to Q3, 48%. Preliminary trends towards clinical outcome showed no difference in terms of percentage of acute exacerbation and death.

Conclusion

This study suggests that monocytes may not be a reliable biomarker for IPF nor ILD. High monocyte count cohorts may be associated with AI-ILDs compared to IPF.

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AP16-688

Rapidly progressive interstitial lung disease associated with anti-NXP2 antibody

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Introduction

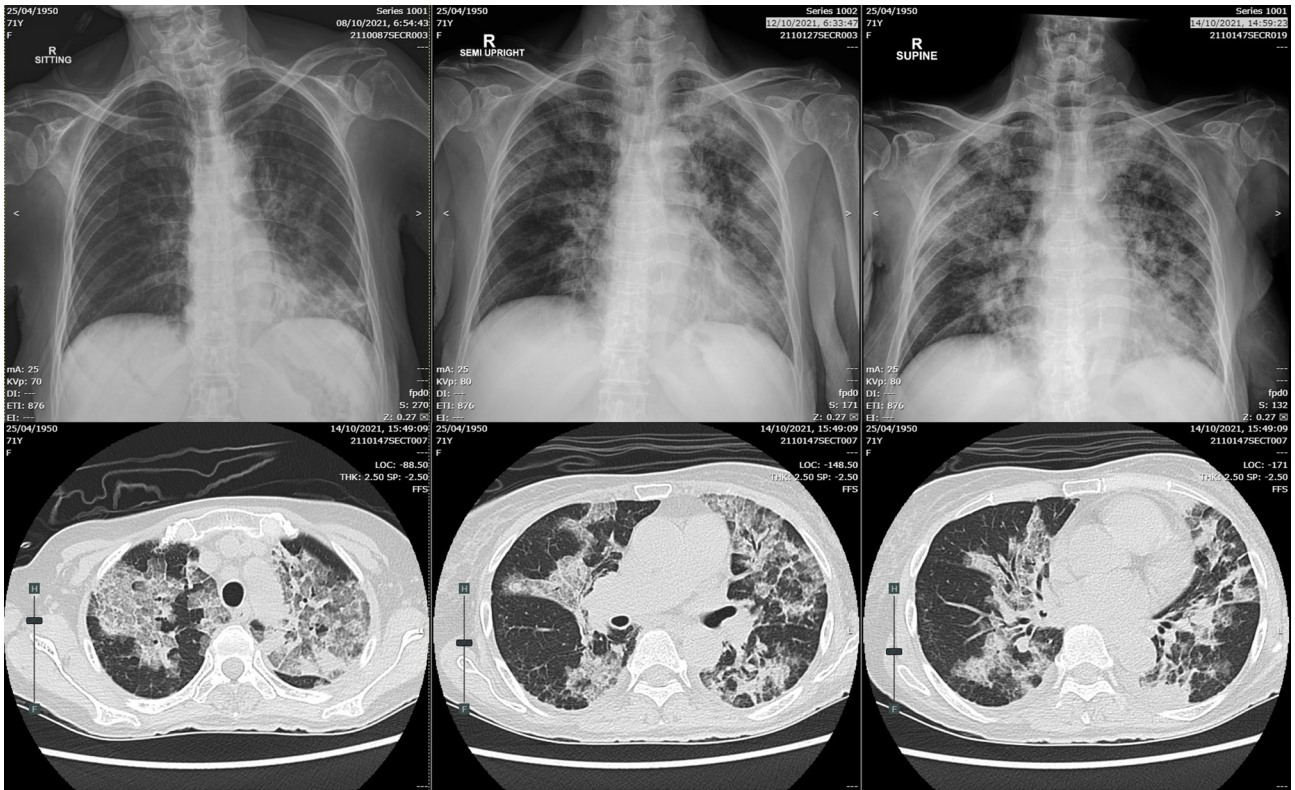
Rapidly progressive interstitial lung disease (RP-ILD) manifests as rapidly progressive dyspnea with a worsening of interstitial lung changes. Herein we reported a case of pancreatic cancer developed RP-ILD associated with an anti-nuclear matrix protein 2 (anti-NXP2) antibody without clinical of dermatomyositis.

Case report

After endoscopic retrograde cholangiopancreatography for obstructive ascending cholangitis in a 71-year-old woman with pancreatic adenocarcinoma diagnosed five months before, the patient developed a fever, coughing, and mild dyspnea. Aspiration pneumonia was initially diagnosed and antibiotic was initiated. Five days later, her clinical was not improved and chest radiography (CXR) demonstrated progressive bilateral ground-glass opacities (GGO). A computed tomography scan of the chest disclosed multifocal GGO with interlobular septal thickening (Figure). Bronchoalveolar (BAL) and transbronchial biopsy were performed. The BAL fluid results were negative for all microbiological tests, bile, amylase, and lipase. The cytology revealed adenocarcinoma while the histopathology demonstrated organizing diffuse alveolar damage (DAD). The myositis-specific autoantibodies profiles revealed positive anti-NXP2 and borderline positive anti-melanoma differentiation-associated gene-5 (anti-MDA5). CXR was improved after administration of dexamethasone for three days.

Discussion

Anti-NXP2 antibody is one of the serologic markers of dermatomyositis associated malignancy. Its association with pulmonary involvement is still unknown. Our patient had neither skin signs nor muscle weakness that led to the diagnosis of dermatomyositis. However, base of her known underlying malignancy, RP-ILD with DAD on histology, positive anti-NXP2 antibody and good response to steroid, RP-ILD-associated anti-NXP2 antibody was diagnosed. Physician should keep this condition in mind as it can cause fatal disease.



AP16-689

Efficacy of Low-Dose Nintedanib in Idiopathic Pulmonary Fibrosis, a retrospective single institute analysis.

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Background and Aims

Large clinical trials revealed that 150 mg bid of nintedanib reduced annual decline in forced vital capacity (FVC) in patients with idiopathic pulmonary fibrosis (IPF). However in the real-world, due to the toxicity of nintedanib, standard-dose administration is intolerable for some patients, and a reduced-dose is given in such cases. The aim of this study was to evaluate the efficacy of reduced-dose of nintedanib in patients with IPF.

Methods

IPF patients who were treated with nintedanib from January 2016 to December 2021 in our hospital were included in this study. According to the dose of nintedanib, the patients were divided into the two groups; the standard dose (150 mg bid) and low dose (100mg bid) groups, and their clinical characteristics and outcomes were compared. Three of the patients in the low-dose group were intolerant to the standard dose, and five were given low-dose from the beginning due to their frailty. Patients who were intolerant to low doses were excluded from the analysis.

Results

Thirty-nine patients with IPF were retrospectively analyzed. Thirty-one and eight patients were treated with standard and low doses of nintedanib, respectively. In the standard dose group, baseline %FVC was significantly lower than in the low dose group. However, there was no difference in relative reduction in FVC as well as %FVC between the two groups. Duration of nintedanib treatment was not different between the two groups.

Conclusion

It is possible that treatment with low-dose nintedanib is clinically effective in IPF.

AP16-690

The Impact of MDT meetings and addition of Clinical Pathway on diagnosis and cost analysis in DPLD patients from two tertiary centers in Klang Valley.

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Background

Diffuse parenchymal lung disease (DPLD) represents a diverse group of lung diseases with subtle differences in presentation, but with significant difference in outcome when treated according to their subtypes. MDT meetings has been shown to increase the accuracy in the diagnosis of DPLD. We also developed a clinical pathway (CP) for the management of DPLD and evaluated its effectiveness.

Method

This is a cohort study with retrospective and prospective approach. Patients were grouped in 3 arms which are the non-MDT group, MDT group, and CP/MDT group. The 1st and 2nd groups are retrospective patients (2015 – 2020) whom data is collected from their medical records; while the 3rd group comprises of prospective patients recruited in the outpatient respiratory clinics. We studied on interval between clinic visits, time to diagnosis, costs involved in making a diagnosis.

Results

The interval between clinic visits was longest in the non-MDT group (19 to 23 weeks) compared to the MDT group (10-13 weeks) and in the CP/MDT group (4 – 6 weeks) ($P < 0.001$). MDT group had the shortest time to diagnose (in weeks) (35.59 ± 26.83) ($P < 0.001$). Time to treatment initiation (in weeks) was shorter in the CP/MDT group (13.59 ± 5.87). The cost (RM) to diagnose DPLD was found to be lowest in the MDT group (1314.50 ± 603.84) ($p < 0.001$).

Conclusion

MDT reduced the time to diagnosis and cost involved. The addition of CP to existing MDT showed reduction in clinic visit intervals and time to initiate treatment.

Results

Characteristics	No MDT n= 27 Mean (SD)	MDT n= 46 Mean (SD)	CP/ MDT n= 28 Mean (SD)	F stat / t-stat (df)	P value
Interval between 1 st and 2 nd visit	19.26 (19.67)	10.00 (8.38)	4.89 (2.59)	10.72 (2, 98)	< 0.001 ^{a*}
Interval between 2 nd and 3 rd visit	20.26 (12.86)	13.07 (10.15)	5.57 (3.18)	15.80 (2, 98)	< 0.001 ^{a*}
Interval between 3 rd to 4 th visit	24.59 (15.34)	13.41 (9.25)	5.75 (3.26)	23.61 (2, 98)	< 0.001 ^{a*}
Total duration to diagnosis (weeks)	132.78 (73.00)	35.59 (26.83)	12.07 (4.63)	65.16 (2, 97)	< 0.001 ^{a*}
Total duration to treatment	132.78 (73.00)	37.13 (27.06)	13.59 (5.87)	63.04 (2, 97)	< 0.001 ^{a*}
Cost to diagnosis, mean (SD)	2675.44 (966.46)	1314.50 (603.84)	1339.25 (329.52)	40.60 (2, 98)	< 0.001 ^{a*}
Cost to diagnosis (KKM), mean (SD)	2593.00 (976.46)	1695.06 (618.25)	1594.57 (289.50)	9.38 (2, 43)	< 0.001 ^{a*}
Cost to diagnosis (IPR), mean (SD)	2764.23 (987.10)	1069.86 (456.52)	1083.93 (36.14)	42.51 (2, 52)	< 0.001 ^{a*}

^a One-way ANOVA; ^b Fisher-exact test; ^c independent t-test; ^d Kruskal-Wallis test * Statistically significant

* Post-Hoc using Games-Howell: Interval between 1st & 2nd visit
No MDT vs CP / MDT, $P=0.002$
No MDT vs MDT, $P= 0.067$
CP / MDT vs MDT, $P= 0.001^*$

* Post-Hoc using Games-Howell: Total duration to treatment
No MDT vs CP / MDT, $P<0.001^*$
No MDT vs MDT, $P<0.001^*$
CP / MDT vs MDT, $P< 0.001^*$

* Post-Hoc using Games-Howell: Interval between 2nd & 3rd visit
No MDT vs CP / MDT, $P<0.001^*$
No MDT vs MDT, $P= 0.043$
CP/MDT vs MDT, $P<0.001^*$

* Post-Hoc using Games-Howell: Cost to diagnosis
No MDT vs CP / MDT, $P<0.001^*$
No MDT vs MDT, $P <0.001^*$
CP / MDT vs MDT, $P= 0.972$

* Post-Hoc using Games-Howell: Interval between 3rd & 4th visit
No MDT vs CP / MDT, $P<0.001^*$
No MDT vs MDT, $P=0.004^*$
CP / MDT vs MDT, $P< 0.001^*$

* Post-Hoc using Games-Howell: Cost to diagnosis IPR
No MDT vs CP / MDT, $P<0.001^*$
No MDT vs MDT, $P <0.001^*$
CP / MDT vs MDT, $P= 0.986$

* Post-Hoc using Games-Howell: Total duration to diagnosis (weeks)
No MDT vs CP / MDT, $P<0.001^*$
No MDT vs MDT, $P<0.001^*$
CP / MDT vs MDT, $P< 0.001^*$

* Post-Hoc using Games-Howell: Cost to diagnosis KKM
No MDT vs CP / MDT, $P=0.006^*$
No MDT vs MDT, $P =0.018$
CP / MDT vs MDT, $P= 0.817$

AP16-691

Double whammy: a case of post severe COVID pneumonia - anti mda 5 associated interstitial lung disease

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Introduction

Coronavirus Disease 2019 (COVID-19), caused by highly contagious severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) might trigger autoimmune aberrance in genetically predisposed subjects has been raised including anti-melanoma differentiation-associated gene 5 (anti-MDA5) antibody.

Case report

52 years old lady presented with acute breathless, fever and cough for 1 week and was diagnosed COVID 19 pneumonia based on nasal swab COVID polymerase chain reaction(PCR). She was intubated in intensive care unit(ICU) for 4 days with steroids and anti viral . She developed pulmonary embolism during COVID pneumonia with computed tomography pulmonary angiography (CTPA) revealed organizing pneumonia OP bilateral lung. Subsequently patient was followed up in respiratory clinic and was found to have bilateral hands small joints pain, Raynaud's phenomenon, muscle weakness over bilateral proximal arm with Gottron's papule and mechanic hands 7 months post COVID .Blood investigation showed normal creatinine kinase level 129 U/L, strong positive anti MDA-5 and anti Ro52. Patient was referred to rheumatology team and diagnosed with clinical associated dermatomyositis anti MDA-5 interstitial lung disease(ILD) and patient was initiated IV cyclophosphamide (CYC), prednisolone. After 4 cycles of CYC ,serial lung function showed mild improvement of FVC 1.48L(44%) to 1.64L(50%).

Discussion

It was prudent to look for autoimmune ILD in the case for non resolving or new onset pneumonia following post COVID infection.

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AP16-692

Organizing pneumonia in patients who are in post COVID state or develop late onset symptoms of COVID-19

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Background and Aims

Organizing pneumonia has often reported as a post-COVID complication. We evaluated the response of steroid for patients who were in post-COVID state or developed late onset symptoms of COVID-19 with organizing pneumonia.

Methods

In patients who visited our hospital from March 1, 2022 to April 30, 2022, patients who developed symptoms after 14 days of COVID-19 confirmation or remained symptoms after 14 days of COVID-19 treatment were analyzed as retrospective.

Patients showing organizing pattern on CT were included, and those who showed suspicious bacteriological infection or pulmonary edema were excluded based on radiological, microbiological or laboratory findings.

Results

Of 47 patients who visited during the period, a total of 19 patients were included. Symptom onset of patients was 16 ± 2.86 days, and required fiO_2 was 0.49 ± 0.26 at the time of visit.

14 patients were improved and discharged, and days of hospitalization in improved group was 15.26 ± 7.95 , and required fiO_2 and CRP improved from 0.45 ± 0.26 to 0.21 ± 0.02 and from 8.50 ± 7.47 mg/dL to 0.80 ± 0.81 mg/dL, respectively.

Steroid requirement was 0.68 ± 0.18 mg/day/kg, and although not statistically significant, relation between onset of symptom and steroid requirement tended to be somewhat linear with $p = 0.191$ (Coef 0.0249).

5 patients expired, and causes of death were secondary events such as bacterial infection and cardiovascular event during hospitalization.

Conclusion

Patients of post COVID-19 with organizing pattern can be expected to respond well to steroid, and early intervention may affect steroid requirement.

AP16-693

Rare case of acute exacerbations of post COVID-19 interstitial lung disease

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Introduction

Acute exacerbations of Post COVID interstitial lung disease(ILD)is rare incident and less reported.

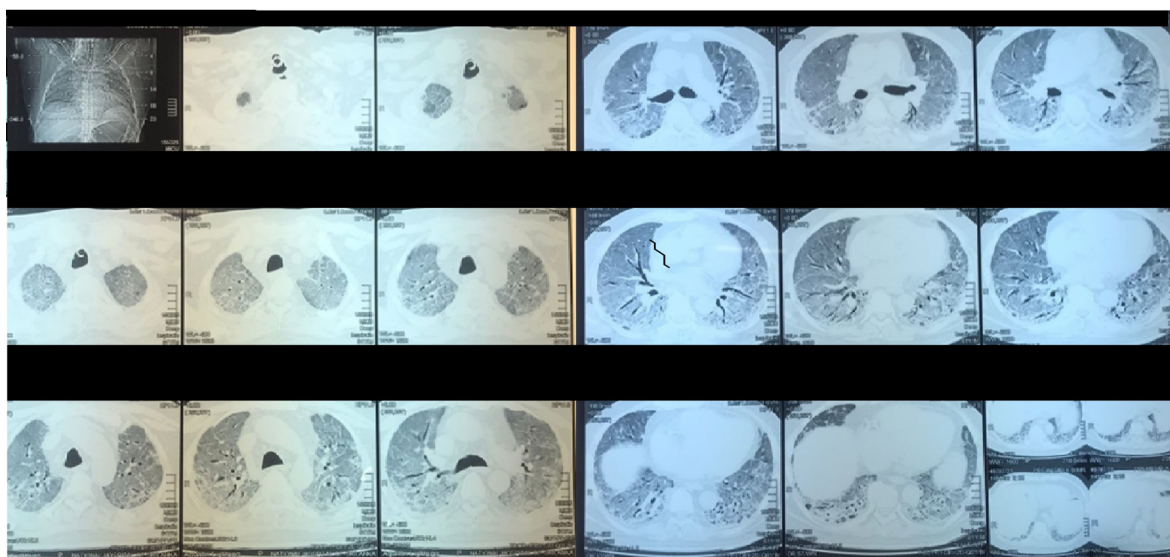
Case report

A 61yr old previously healthy male retired manager was treated for sever covid pneumonia complicated with pneumomediastinum with ICU stay 9 day. His initial HRCT showed peri broncho vascular consolidations suggestive of Organizing pneumonia. He was discharged with oral prednisolone. Gradual improvement clinically and radiologically was noted during follow up visits and was on tailing of prednisolone regime.

16 weeks after initial covid infection he re-admitted with worsening shortness of breath and cough for 1 week. He is a non-smoker and denied any exposures to chemicals or birds. His inflammatory markers were normal. COVID PCR and rapid antigen tests were negative. Despite of extensive screening there was no infectious etiology identified. HRCT revealed diffuse ground glass opacifications of bilateral lung fields. CTPA was negative. Due to worsening of respiratory failure, he was intubated and ventilated, and steroids 1mg/kg/day was started. He had slow clinical response and weaning was difficult. So MMF was added for which good clinical improvement was noted over next few days. Subsequent HRCT showed clearing of ground glass opacities and new development of fibrosis, and he was started on pirfenidone.

Conclusion

There is scarcity of knowledge on management of acute exacerbations of post COVID 19 ILD. If post covid patient present with acute deterioration, with worsening diffuse ground glass changes in HRCT consider possibility of acute exacerbation of post covid ILD.



AP16-694

Sarcoidosis associated pulmonary artery stenosis and pulmonary hypertension – A Challenging case

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Introduction

Sarcoidosis-associated pulmonary hypertension (SAPH) is a challenging entity. It is associated with increased disability and mortality. Pulmonary artery stenosis caused by external compression in sarcoidosis is a significant reason for SAPH.

Case report

A 45-year-old previously healthy lady presented with progressively worsening shortness of breath for 2 months duration. There were no associated other respiratory symptoms or features of heart failure. She did not have features suggestive of connective tissue diseases. She also denied any exposure to dust or chemicals. Her examination consisted of the diagnosis of pulmonary hypertension. Other system examinations were unremarkable. Her 2D echo has the feature of severe pulmonary hypertension without cardiac abnormalities. There was evidence of stage 3 pulmonary sarcoidosis on the HRCT chest. Her contrast chest and CT pulmonary angiography revealed a short segment tight stricture of the right pulmonary artery probably due to mediastinal lymphadenopathy. Initially, she responded to steroids, but when it was tailed off, her symptom worsened, and she developed right heart failure features. Her repeat CT showed a totally occluded right pulmonary artery. The right heart catheterization also confirmed it and subsequently she was placed with a pulmonary artery stent. Her steroid dose also increased, and a steroid-sparing drug was also added. She eventually became symptoms-free.

Discussion

Treating SAPH by immune suppression is typically insufficient. Pulmonary artery stenting has been demonstrated to be effective and safe in achieving a sustained decrease in pulmonary artery pressure which will lead to significant clinical improvement.

AP16-695

Assessment of disease severity of diffuse parenchymal lung disease (DPLD) patients by 6-minute walk test (6MWT)

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Background and Aim

The facility of performing spirometry is very limited in resource-poor countries. So, the aim of the study was to evaluate the usefulness of 6MWT to assess disease severity in DPLD patients.

Methods

This was a two-year long cross-sectional study conducted on 100 DPLD patients at the Department of Respiratory Medicine of Dhaka Medical College Hospital. All the patients were categorized into mild, moderate, moderately severe, severe and very severe groups on the basis of FVC% predicted as per ATS guidelines. A mean 6-Minute Walk Distance (6MWD) for each group was calculated and compared. The Cut-off value of 6MWD was determined between various disease severity groups.

Results

There is a significant correlation between 6MWD and FVC% predicted. The difference of 6MWD between very severe DPLD patients and not very severe DPLD patients (mild, moderate, moderately severe and severe) was statistically significant ($p < 0.001$). Also, the difference of 6MWD between severe-very severe DPLD patients and other groups (mild-moderate-moderately severe) was statistically significant ($p < 0.001$). A cut-off value of 6MWD between the very severe group and the rest of the patients was determined at ≤ 335 m with 80% sensitivity and 77.6% specificity. Another cut-off value of ≤ 388 m was calculated between the severe group and the rest of the patient group (mild-moderate-moderately severe) with 72.7% sensitivity and 68.7% specificity. This study found that 6MWD cannot significantly differentiate the mild, moderate and moderately severe group of patients

Conclusion

6MWT can be a tool to differentiate severe and very severe patients from mild, moderate and moderately severe patients of DPLD.

AP16-696

Are blood vessels a target organ for sarcoidosis?

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Our goal was to establish the effect of sarcoidosis on hemodynamic parameters depending on the degree of impaired lung function.

Methods

We examined 18 patients with a morphologically verified diagnosis of sarcoidosis who were admitted to the clinic in November-December 2021. In accordance with the parameters of the diffusion capacity of the lungs, the patients were divided into 2 groups: Group 1 (n=8) included patients with DLCO more than 80% of the norm, Group 2 (n=10) – with reduced DLCO (less than 80%). All patients, along with the study of laboratory parameters of disease activity and HRCT, underwent daily monitoring of blood pressure, ultrasound of the carotid arteries and ecocardiography. Patients in both groups were matched in terms of age, smoking status and absence of severe cardiovascular disease.

Results

It was found that patients of group 2 had significantly higher systolic pressure in the pulmonary artery (28[25;30] mmHg vs 20,5[19;23]mmHg, $p<0,05$) thickness of the carotid intima-media complex (0,7[0,62;0,8]mm vs 0,5[0,47;0,52]mm, $p<0,05$) and pulse blood pressure (39,5[38;43,2] vs 36[33,7;39,2] mmHg, $p<0,05$). There was a trend towards a higher value of systolic BP and daily variability of systolic BP

Conclusion

The data obtained as a result of the study confirm the need to consider the vascular wall as a potential target organ in sarcoidosis. The future studies will help to investigate the incidence, pathobiology, and clinical significance of endothelial dysfunction in patients with sarcoidosis.

AP16-697

Peripheral blood monocyte count as a prognostic biomarker in idiopathic interstitial pneumonia other than idiopathic pulmonary fibrosis

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Background and Aims

Idiopathic interstitial pneumonia (IIP) is a chronic fibrosing lung disease of unknown etiology. Although the mechanism of pulmonary fibrosis is complex, monocyte-derived macrophages are increasingly recognized as important drivers of fibrotic formation in the lung. Increased peripheral blood monocyte counts (Mo) are reported to be associated with accelerated decline in lung function and increased risk of death in patients with idiopathic pulmonary fibrosis (IPF). However, it has not been clarified clinical significance of Mo in IIP. The goal of this study was to determine clinical significance of Mo in IIP.

Methods

IIP patients who admitted to our hospital were retrospectively analyzed. IIP was divided into IPF and non-IPF according to the recent international consensus classification. Mo and clinical parameters were analyzed, and the relationship between Mo and prognosis at 2 years after admission was evaluated.

Results

In IIP patients, Mo showed a positive correlation with white blood cell counts, whereas no obvious correlation was observed with other clinical parameters. Although mean Mo did not differ between survivors and non-survivors, there was a trend toward a greater proportion of high Mo (Mo \geq 600/ μ l) in non-survivors. In non-IPF patients, univariate analysis showed high baseline Mo as a prognostic risk factor, and survival rate was significantly lower in the high Mo group compared to the low Mo group. However, Mo and survival were related in IPF.

Conclusion

Mo is a possible prognostic biomarker in non-IIP patients.

AP16-698

VISTA is a novel diagnostic and prognostic biomarker in idiopathic pulmonary fibrosis

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Background and Aims

Immune dysregulation has been implicated in the pathogenesis of Idiopathic pulmonary fibrosis (IPF). V domain Ig suppressor of T cell activation (VISTA) is a novel immune regulator expressed on both myeloid and T lymphocyte lineages, modulating innate and adaptive immunity. We aim to identify the usefulness of VISTA as a diagnosis or prognostic biomarker in patients with IPF.

Methods

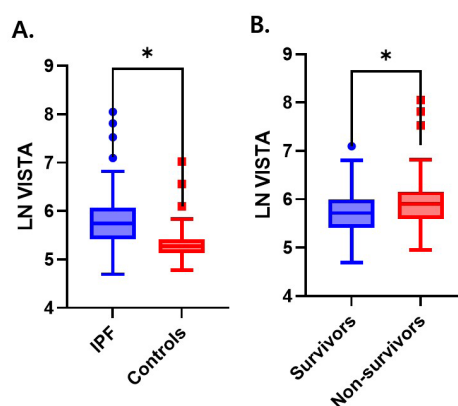
VISTA level was measured in human plasma samples (IPF: 100, healthy controls: 60 [mean age: 63.0 years, male: 90.0%]) using an ELISA kit (R&D Systems). Log-transformed VISTA (LN VISTA) level was used to reduce the skewness of the original data, and the logistic regression analysis was used to evaluate the association between VISTA levels and IPF diagnosis or mortality.

Results

Of patients with IPF, the mean age was 67.8 years and males were 79.0%, and death occurred in 47% during follow-up (median: 19 months). Plasma VISTA levels were significantly higher (5.8 ± 0.5 [IPF] vs. 5.3 ± 0.4 [control], $P < 0.001$) in IPF patients than those in controls (figure-A). In receiver operating curve analysis, plasma VISTA level was useful in predicting the diagnosis of IPF (area under the curve=0.793, sensitivity=72%, specificity=80%). Among patients with IPF, the non-survivors showed significantly higher VISTA levels than the survivors (figure-B). In the multivariable analysis adjusting age and forced vital capacity, plasma VISTA levels were significantly associated with the one-year mortality (odds ratio: 4.259, 95% confidence interval: 1.412-12.842, $P = 0.010$) in patients with IPF.

Conclusions

Our data suggest that plasma VISTA level might be a potential diagnostic and prognostic biomarker in IPF.



AP16-699

Plasma adiokines predict diagnosis and prognosis in patients with idiopathic pulmonary fibrosis

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Background and Aims

Dysregulation of lipid metabolism has been implicated in the pathogenesis of idiopathic pulmonary fibrosis (IPF), but the roles of adipokines in IPF are not well defined. This study aimed to evaluate predicting values of plasma adipokines (leptin and adiponectin) for diagnosis and prognosis of IPF.

Methods

Clinical data were retrospectively analyzed in IPF (n=100) patients and healthy controls (n=64). Plasma adipokines levels were measured using enzyme-linked immunosorbent assay.

Results

The mean age of IPF patients were 68.4 years and 83.0% were male; they were older than controls. The plasma leptin levels were higher in IPF patients than those in controls (Figure 1), and were independently associated with diagnosis of IPF (odds ratio 1.007; 95% confidence interval [CI] 1.003-1.011) in the multivariate analysis adjusted by age. In receiver operating curve analysis, plasma adiponectin level was useful in predicting the 3-year mortality of IPF patients (area under the curve=0.622; cut-off value=2700 ng/ml, sensitivity=83.7%, specificity=45.1%). Among IPF patients, high adiponectin levels (> 2700 ng/ml) were independently associated with the 3-year mortality (hazard ratio [HR] 3.332, 95% CI 1.544-7.192), along with the adiponectin/leptin (A/L) ratio (HR 1.00, 95% CI 1.000-1.003) in the multivariate analysis adjusted by age and sex. IPF patients with high adiponectin levels also showed poorer survival than those without (mean survival time: 23.8 vs 30.6 months, P= 0.006).

Conclusions

Our results suggest that plasma adipokines are useful in predicting diagnosis and prognosis in patients with IPF.

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Acknowledgements/Disclosure statement:

The authors declare that they have no competing interests.

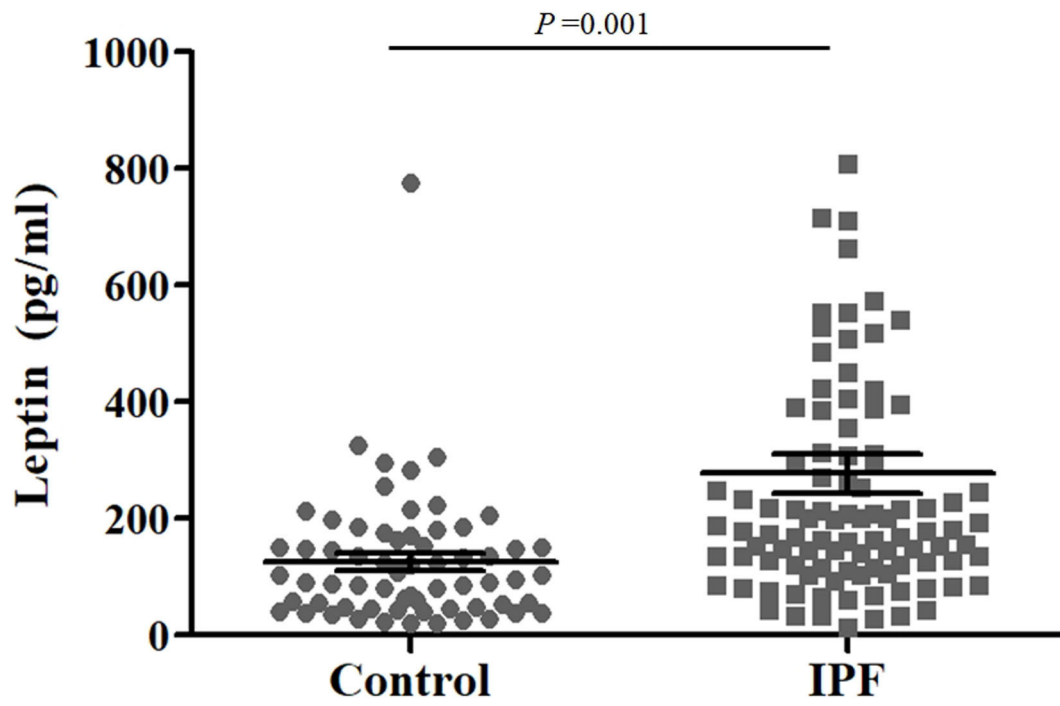


Figure 1. Comparison of plasma leptin level between IPF patients and controls

AP16-700

The Efficacy of Pulmonary Rehabilitation in Patients with Idiopathic pulmonary fibrosis

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Background and Aims

The clinical efficacy of pulmonary rehabilitation (PR) in idiopathic pulmonary fibrosis (IPF) patients is still controversial. The purpose of the study was to evaluate the efficacy of PR on functional performance, exercise-related oxygen saturation and health-related quality of life in patients with IPF.

Methods

A total of 29 patients with IPF enrolled from August 2019 to October 2021 at Haeundae-Paik Hospital, Busan, Republic of Korea were randomly divided into PR group (14) and Non-PR group (15).

Clinical outcomes including Cardiopulmonary exercise test (CPET), pulmonary function test (PFT), six-minute walk test (6MWT), Saint George's respiratory Questionnaire (SGRQ), muscle strength test, were evaluated in each group at the start and after 8 weeks.

Results

No statistically significant differences were observed in baseline characteristics between two groups. In analysis of changes in clinical outcomes after 8 weeks in both PR group and Non-PR group, PR group showed peak cough flow ($p < 0.001$), maximal oxygen consumption ($\text{VO}_{2\text{max}}/\text{kg}$) ($p = 0.005$), total exercise time ($p < 0.001$) in CPET, distance of six-minute walk test ($p = 0.006$) were significantly improved in PR group, whereas Non-PR group showed no significant differences. There were no statistically significant differences in results of PFT, total SGRQ score and muscle strength test in both groups after 8 weeks of follow up.

Conclusion

In this study, RP resulted in improvement with exercise capacity measured using CPET and 6MWT. Further study is needed to evaluate long term efficacy of PR in the patients with IPF.

Table 1. Comparison of changes in clinical outcomes between baseline and after 8 weeks in both groups

PR, pulmonary rehabilitation; FVC, functional vital capacity; Pred, predicted; DLco, diffusing capacity of lung for carbon monoxide; MIP, maximal inspiratory pressure; SGRQ, Saint George's respiratory questionnaire; $\text{VO}_{2\text{max}}/\text{kg}$, maximal oxygen consumption; 6MWT, six-minute walk test

Disclosure statement

The researcher claims no conflicts of interest

	PR (n=14)			Non-PR (n=15)		<i>P</i> -value
	Baseline	After 8 weeks	<i>P</i> -value	Baseline	After 8 weeks	
FVC (% Pred.)	75.50±14.33	74.36±11.80	0.549	88.33±15.61	89.47±16.13	0.348
DLco (% Pred.)	63.64±10.83	61.85±11.85	0.296	66.47±18.59	67.47±17.78	0.662
Peak cough flow (L/min)	317.86±93.58	426.43±88.54	<0.001	417.33±102.36	464.67±87.58	0.092
MIP (%)	119.00±24.06	110.43±22.02	0.059	97.60±27.24	102.33±28.49	0.609
SGRQ, total	22.68±11.66	21.01±12.30	0.232	27.55±19.24	28.08±16.04	0.836
VO₂max (ml/kg/min)	22.66±2.76	24.82±4.10	0.005	20.67±4.27	22.32±5.46	0.152
Total exercise time (sec.)	563.57±171.31	808.79±75.47	<0.001	586.40±208.21	640.87±182.96	0.222
6MWT distance (m)	486.86±60.50	536.79±37.48	0.006	521.60±53.92	495.93±68.37	0.280

AP16-701

Birt-Hogg-Dubé Syndrome in Korean family with a Novel Folliculin Gene Mutation

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Introduction

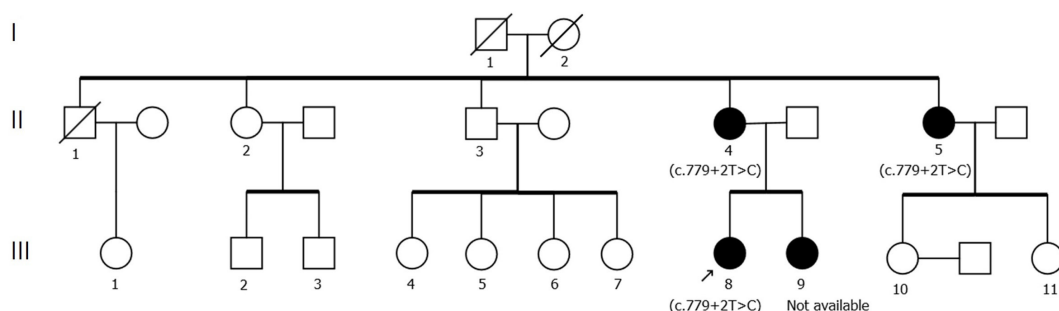
Birt-Hogg-Dubé (BHD) syndrome is a rare autosomal dominant disorder caused by folliculin (FLCN) gene mutation. The characteristic features include fibrofolliculoma, renal cell cancer, pulmonary cysts, and spontaneous pneumothorax. After the first detection of FLCN gene that generated BHD in 2002, about 120 FLCN gene mutation were reported in BHD patients.

Case report

A 44-year-old female was admitted for incidentally detected spontaneous pneumothorax in her regular follow-up chest computed tomography (CT). She was a never-smoker and had undergone chest-tube insertion due to spontaneous pneumothorax, which was incidentally detected on her regular follow-up chest CT at 6-years ago because of her breast cancer history. At that time, radiological findings including multiple evenly distributed, thin-wall cysts in both lung and pneumothorax in a reproductive female suggested the diagnosis of lymphangioleiomyomatosis (LAM), but she did not follow-up further. Although she did not complain of respiratory symptoms, breathing sound was decreased in left lung field without other abnormal findings of physical examination. Her initial chest CT revealed increased in number and size of multiple cysts with left lung pneumothorax. She underwent left upper lobe wedge resection via video-associated thoracoscopic surgery for the diagnosis of LAM. However, her histopathological results did was not compatible with LAM showing negative immunohistochemical markers of LAM. Close history taking gave clues supporting the diagnosis of BHD syndrome by presenting her familial history of recurrent pneumothorax. The patient performed genetic test for FLCN mutation and exhibited a novel FLCN mutation in intron 7, c.779+2T>C heterozygous, same as her mother and aunt.

Discussion

Here we report a case of BHD syndrome with a novel mutation in intron 7 of FLCN gene within Korean single family. BHD syndrome should be suspected in a patient with familial history of cystic lung disease and genetic examination might be helpful for diagnosis of BHD.



AP16-702

Usefulness of software-based quantification for a computed tomography image analysis in patients with combined pulmonary fibrosis and emphysema

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Background and Aims

Quantitative CT has been applied to various obstructive and restrictive pulmonary diseases including chronic obstructive pulmonary disease and idiopathic pulmonary fibrosis. The aim of this study is to clarify the associations between various quantitative CT parameters and clinical characteristics in patients with combined pulmonary fibrosis and emphysema (CPFE).

Methods

Medical records of 132 CPFE patients were retrospectively reviewed to obtain the patients' clinical data. CT images were analyzed to evaluate the percentage of low attenuation volume (LAV%), the percentage of high attenuation volume (HAV%), the percentage of airway wall area, the erector spinae muscle cross-sectional area (ESM_{CSA}) and the ratio of diameter of main pulmonary artery to that of aorta based on previous studies. The associations between these parameters and clinical characteristics including prognosis, the incidence of acute exacerbation, pulmonary function and exercise tolerance capacity were investigated.

Results

There were no significant associations between all of these parameters and the risk of death. A higher HAV% was independently associated with the incidence of acute exacerbation. Lower HAV% and higher ESM_{CSA} were independently associated with higher forced vital capacity and higher forced expiratory volume in one second. Lower LAV%, lower HAV% and higher ESM_{CSA} were independently associated with higher diffusing capacity of lung for carbon monoxide. Higher LAV% and higher HAV% were independently associated with greater oxygen desaturation during the 6-minute walking test.

Conclusion

The quantitative CT parameters could be useful in predicting the incidence of acute exacerbation, pulmonary function and exercise tolerance capacity, but not prognosis.

AP16-703

Benefits of Systemic Corticosteroid in Post-COVID-19 Interstitial Lung Disease.

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Background

Interstitial lung disease (ILD) was frequently presented in chest computed tomography (CT) of patients who had COVID-19. There is no consensus on optimal management of patients with post COVID-19 ILD. In this study, we aimed to address the role of systemic corticosteroids in patients with post COVID-19 ILD.

Method

This study was a multicenter retrospective study that analyzed patients with post COVID-19 ILD, including 8 centers of Korea from July 2021. Baseline characteristics were collected. Clinical deterioration was defined as composite outcome of chest x-ray (CXR) deteriorations, adding antibiotics, systemic corticosteroids or oxygen supplement after 48hours of hospitalization. We compared clinical characteristics and presence of clinical deterioration between corticosteroid user and non-user..

Result

Total of 46 patients were enrolled. 13 patients were steroid non-users and 33 were steroid users. There were no significant differences between two groups in age, sex, BMI, smoking history, comorbidities, symptoms, white blood cell count, C-reactive protein, hospital days, oxygen supplement, radiologic findings, use of antibiotics, ICU admission and corticosteroid use day. There was significant difference in adding antibiotics (38.5% vs 6.1%, p=0.02, respectively) and corticosteroids after 48hours (41.7% vs 3.0%, p<0.01, respectively). Oxygen supplement and CXR deterioration were not significantly different. In binomial regression model, corticosteroid user showed more favorable outcome in clinical deterioration, adding antibiotics (OR=0.05, 95%CI [0.01-0.49]), adding corticosteroid (OR=0.05, 95%CI [0.00-0.61]), and CXR deterioration (OR=0.09, 95%CI [0.01-0.66])

Conclusion

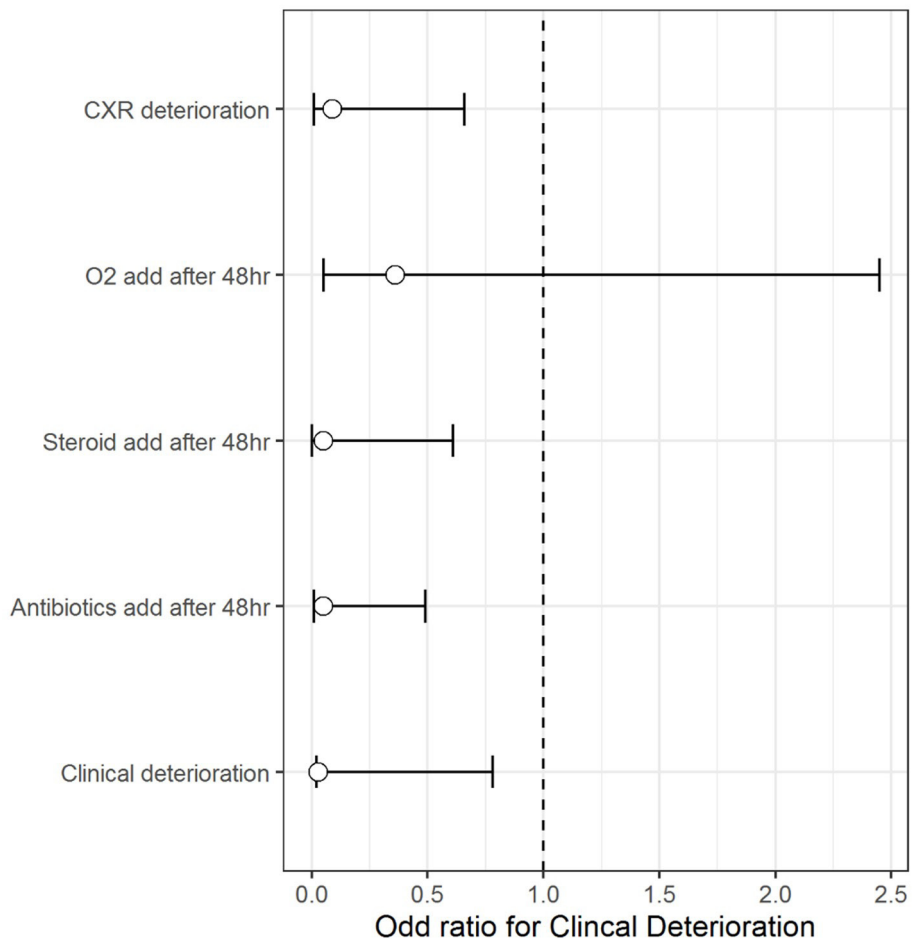
Initial systemic corticosteroids in post-COVID19 ILD demonstrate significant clinical benefits. Therefore, we recommend the use of systemic corticosteroids in post COVID-19 ILD.

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AP16-704

Broncho-obstructive syndrome (BOS) in patients with different forms of hypersensitivity pneumonitis (HP).

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Background and Aims

to study of BOS in patients with different forms of HP.

Methods

For 5 years of follow-up, 385 patients with a diagnosis of HP were examined. All patients underwent a physical examination, a study of the function of external respiration with a bronchodilation test.

Results

Out of 385 patients with HP, 197 people made up the group with an acute course of the disease, 188 patients had a chronic course of HP. Out of 188 patients with chronic HP, BOS was detected in 117 people (62.2%). Out of 197 patients with an acute course of HP, BOS was detected in 80 people (40.6%). As a result of the conducted studies, it was revealed that in patients with an acute course of HP, BOS of the 2nd degree of severity is most often observed (in 32 patients, (40%)), as well as in the case of patients with chronically current HP-in 41 patients (35 %). Among patients with a chronic course of HP, 28 patients with comorbid pathology were observed, which amounted to 23.9%. At the same time, 6 patients had COPD (5,1%), 22 patients had bronchial asthma, which amounted to 18.8% of patients. Among patients with an acute course of HP, 23 patients with concomitant diseases of nonspecific lung diseases were observed, which amounted to 28.75%. At the same time, 4 patients had COPD (this is 5%), and 19 patients had bronchial asthma, which was 23.75% of patients.

Conclusion

The results show a high presence of BOS in patients with HP. At the same time, according to the degree of bronchial obstruction, the most common is 2 severity, both in the chronic course of HP and in the acute course of HP, which proves the need for bronchodilatory therapy in patients with HP, combined with BOS.

AP16-705

Single time point scores for predicting 1-year progression and 5-year overall survival in idiopathic pulmonary fibrosis: A validation study of Imaging Signature IPF (IS-IPF)

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Background

Disease progression and survival in idiopathic pulmonary fibrosis (IPF) are unpredictable at the time of diagnosis. A single time point (STP) score suggested the early detection of disease progression based on high resolution CT (HRCT).

Aim

Imaging Signature IPF (IS-IPF) study was designed to validate the one-year prediction of progression and five-year survival using STP scores.

Methods

HRCT with clinical information and pulmonary function test of 248 IPF patients were collected retrospectively from two cohorts between March 2004 and October 2019. Quantitative lung fibrosis (QLF) at baseline measured the extent of pulmonary fibrosis on HRCT. STP scores were developed using radiomics features at the voxel level of the whole lung on baseline HRCT. Progression free survival and 5-year overall survival were assessed in patients stratified by STP scores of 30% or 40% using Cox regression.

Results

Among enrolled patients, 128 (52%) were IPF progressors who had a 10% or more decline of FVC or death. The average PFT follow-up was 27±17 months. QLF at baseline was 15.4% in non-progressor vs 16.7% in progressor ($p = 0.35$). After adjusting the GAP stage, STP scores higher than 30% and QLF score $\geq 10\%$ were associated with disease progression (hazard ratio 1.50; $p=0.034$, and $HR=1.40$; $p=0.106$, respectively). STP scores $\geq 30\%$, $\geq 40\%$, and $QLF \geq 10\%$ had poor prognosis ($p=0.067$, $p=0.0339$, and $p=0.0514$, respectively).

Conclusions

Machine learning-based STP scores at the initial HRCT could predict one-year progression and 5-year survival in IPF patients. We ascertained the usefulness of STP scores from the independent two cohorts.

AP16-706

RNA-recognizing immune sensor regulates bleomycin-induced activation of macrophages, lymphocytes, and neutrophils and subsequent lung fibrosis

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Background and Aims

Innate immune sensors recognizing nucleic acids are essential in the host defense, whereas they may be involved in the pathogenesis of respiratory disease such as asthma. This study aims to clarify the role of RNA-recognizing immune sensors including MDA5 in the lung fibrosis.

Methods

C57BL/6N, MDA5KO, and MAVSKO mice were subjected to intratracheal administration of bleomycin. Bronchial alveolar lavage fluid (BALF) and lung tissue were collected for cell analysis, lung pathology, and qPCR. Measurement of physiological lung function was also performed. Bone marrow-derived macrophages (BMDMs) from each mouse and siRNA-treated U937 were used for the further study.

Results

MDA5KO mice exhibited exacerbated lung fibrosis with low lung compliance and the elevation of fibrotic marker compared with other mice. MDA5KO mice have increased number of lymphocytes in BALF and IL-17 positive Th17 cells and neutrophils in their lungs. The inflammatory chemokine CCL2 was more elevated in bleomycin-treated BMDMs and MDA5-suppressed U937. RNA-seq analysis of specific lung macrophages in bleomycin-treated mice and BMDMs revealed the distinct gene expression profiles which were dependent on MDA5.

Conclusion

MDA5 regulates bleomycin-induced lung fibrosis in the context of the interaction of macrophages, lymphocytes, and neutrophils and that might be independent of subsequent activation of MAVS.

AP16-707

The analysis of the effect of statin therapy on the clinical course of IPF

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Background and Aims

The association between statin therapy and the prognosis of idiopathic pulmonary fibrosis(IPF) patients has not yet been fully understood. The aim of this study was to analyze the effect of statin medication on the clinical course of IPF.

Methods

We conducted a multicenter retrospective cohort study for patients with newly diagnosed IPF between March 2010 and March 2020. The 2016 International Working Group report was used as the basis for acute exacerbation of IPF(AE-IPF) diagnosis. We defined statin group as patients who took statin for at least 2 months after IPF diagnosis. Baseline clinical characteristics, all cause 3-year mortality, and incidence of AE-IPF between statin group and non-statin group were analyzed.

Results

The total study population consisted of 503 patients; 154(30.6%) were in statin group and 349(69.4%) were in non-statin group. Compared with non-statin group, statin group had significantly higher baseline forced vital capacity, creatinine level, underlying ischemic heart disease(IHD), diabetes mellitus, cerebrovascular disease, chronic kidney disease, proton pump inhibitor use, and current smoker proportion(PConclusion: Statin therapy does not appear to provide a significant benefit to the prognosis of IPF patients. A prospective study excluding the effects of underlying diseases such as IHD is needed.

All authors declare no potential conflicts of interest

AP16-708

Obstructive Sleep Apnea in Patients with Idiopathic pulmonary fibrosis: Prevalence and Predictive Factors

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Background and Aims

Idiopathic pulmonary fibrosis (IPF) is a progressive fibrotic lung disease with poor prognosis. In recent studies, obstructive sleep apnea (OSA) showed high prevalence in IPF patients and was associated with poor prognosis. The aim of this study was to evaluate the prevalence and predictive factors of OSA in Korean patients with IPF.

Method

Clinical data from 167 patients with IPF enrolled from December 2017 to December 2021 at Haeundae-Paik Hospital, Busan, South Korea, were retrospectively analyzed. OSA was monitored with a level 4 portable device and defined as an apnea-hypopnea index (AHI) of more than 5 per hour of sleep.

Result

The mean follow-up period was 25 months. The mean age was 71.4 years, and 79% were men. 109 patients (64.7%) were diagnosed with OSA. Mild OSA based on AHI index was most common (62.0%). Older age, higher body weight, and high risk in the Berlin questionnaire were independent risk factors for OSA in the multivariable logistic regression analysis (Table 1). In the multivariable Cox analysis, low diffusing capacity of the lungs for carbon monoxide (hazard ratio [HR] 0.97, 95% CI: 0.95–1.00, $p = 0.049$), short distance during six-minute walk test (HR 1.00, 95% CI: 0.99–1.00, $p = 0.028$), and diabetes mellitus (HR 2.64, 95% CI: 1.29–5.40, $p = 0.008$) were significant risk factors for one-year mortality in patients with IPF; however, OSA was not.

Conclusion

About two-thirds patients with IPF had OSA. Older age, higher body weight, and high risk in the Berlin questionnaire were significant risk factors for OSA in patients with IPF.

Table 1. Predictive factors for OSA in patients with IPF assessed using a logistic regression model

BMI, body mass index; CRP, C-reactive protein; FVC, forced vital capacity; FEV1, forced expiratory volume in one second; DLco, diffusing capacity of the lungs for carbon monoxide; GAP, gender-age-pulmonary function; SpO₂, saturation of percutaneous oxygen; GERD, gastroesophageal reflux disease; SBQ, stop bang questionnaire; BQ, berlin questionnaire

Disclosure statement

Authors declare no conflicts of interest

Variable	Unadjusted analysis		Multivariable analysis	
	OR(95% CI)	P-value	OR(95% CI)	P-value
Age, years	1.06 (1.01 - 1.11)	0.016	1.07 (1.02 - 1.13)	0.007
Male	1.74 (0.82 - 3.72)	0.151		
Smoking, years	0.99 (0.98 - 1.01)	0.443		
Weight, kg	1.05 (1.02 - 1.08)	0.003	1.05 (1.02 - 1.09)	0.002
BMI, kg/m ²	1.17 (1.05 - 1.30)	0.004		
Neck circumference, cm	1.11 (1.01 - 1.23)	0.026		
CRP, mg/dL	0.83 (0.68 - 1.02)	0.071		
Arterial oxygen pressure, mmHg	1.00 (0.99 - 1.01)	0.552		
Pulmonary function				
FVC, % predicted	1.00 (0.98 - 1.02)	0.885		
FEV1, % predicted	1.01 (0.99 - 1.03)	0.468		
DLco, % predicted	1.01 (0.99 - 1.03)	0.535		
GAP stage				
Stage 1	Reference			
Stage 2	1.35 (0.69 - 2.62)	0.379		
Stage 3	0.73 (0.21 - 2.59)	0.626		
Six-minute walk test				
Distance, m	1.00 (1.00 - 1.00)	0.753		
Initial SpO ₂ , %	1.00 (0.88 - 1.14)	0.983		
Lowest SpO ₂ , %	1.00 (0.96 - 1.05)	0.970		
Difference	1.00 (0.95 - 1.06)	0.970		
Underlying disease				
Cardiovascular disease	1.76 (0.92 - 3.38)	0.089		
Diabetes mellitus	1.63 (0.83 - 3.19)	0.157		
Chronic kidney disease	2.25 (0.25 - 20.63)	0.472		
Neurovascular disease	2.45 (0.87 - 6.92)	0.090		
GERD	0.98 (0.31 - 3.08)	0.975		
Malignancy	0.73 (0.34 - 1.58)	0.425		
SBQ risk				
Low risk	Reference			
Moderate risk	1.48 (0.70 - 3.11)	0.300		
High risk	4.15 (1.32 - 12.99)	0.015		
BQ risk	2.52 (1.07 - 5.93)	0.035	2.76 (1.12 - 6.80)	0.028

AP16-709

Importance of clinical history of antigen exposure and anti-Trichosporon asahii antibody evaluation for diagnosis of summer-type hypersensitivity pneumonitis in patients with chronic interstitial lung diseases

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Background and Aims

Trichosporon asahii is the pathogen of summer-type hypersensitivity pneumonitis (HP), and serum anti-Trichosporon asahii antibody (TaAb) is clinically useful for diagnosis of acute summer-type HP. However, its clinical significance of chronic interstitial lung disease (ILD) patients has not been clarified. The goal of this study was to clarify the clinical significance of TaAb in patients with chronic ILDs.

Methods

Patients with chronic ILDs of unknown etiology who were admitted to our department were retrospectively analyzed. The patients with elevated serum TaAb were divided into the two groups according to the presence or absence of clinical history of antigen exposure, and their clinical characteristics were compared between the groups. In addition, clinical significance of clinical history of antigen exposure and elevated TaAb was evaluated in the latest ATS/JRS/ALAT and CHEST HP guidelines.

Results

157 patients were retrospectively evaluated, and 25 (11.5%) patients with elevated serum TaAb were analyzed. In 12 (48%) out of 25 patients, Trichosporon asahii was suspected as an inciting antigen by interview. The inciting antigen exposure positive group had significantly higher TaAb antibody titer compared to the inciting antigen negative group. Confirmation of clinical history of antigen exposure made HP diagnosis more confident when the ATS/JRS/ALAT guideline was used.

Conclusions

In addition to analyzing TaAb, evaluation of clinical history of antigen exposure is important for patients with chronic ILDs to be made a confident diagnosis of summer-type HP.

AP16-710

Clinical significance of vitamin D deficiency in lung transplant recipients

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Background and Aims

Vitamin D is thought to have various physiological effects in addition to bone metabolism. This study aims to investigate the clinical significance of vitamin D deficiency in lung transplant recipients, focusing on post-transplant complications and long-term prognosis.

Methods

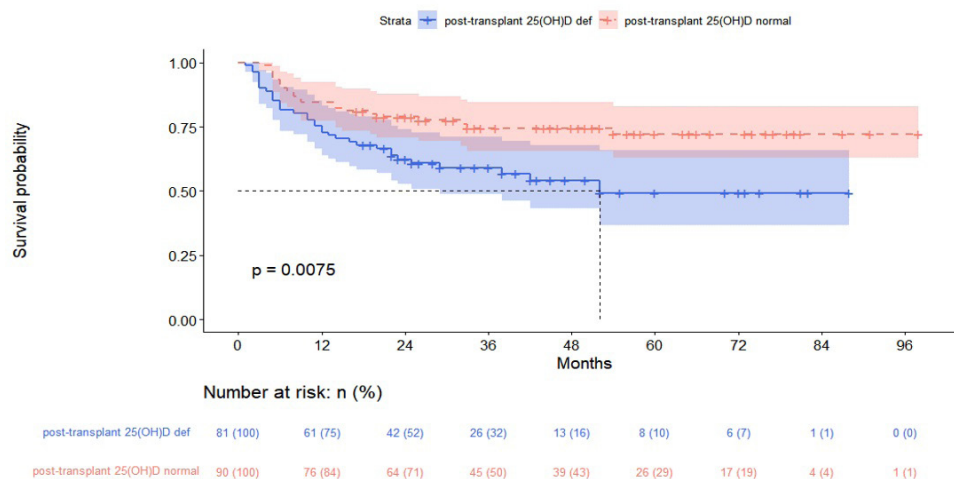
The subjects of this study were 171 patients with both pre- and post-transplant vitamin D levels (25(OH)D) who underwent lung transplantation at Severance Hospital in Seoul from January 2013 to March 2020. The medical records were reviewed retrospectively to compare the clinical features and prognosis between the 25(OH)D deficient (< 20 ng/ml) group and the 25(OH)D normal (≥ 20 ng/ml) group.

Results

In the analysis on pre-transplant 25(OH)D, the number of patients in 25(OH)D deficiency and 25(OH)D normal group were 103 (60.2%) and 68 (39.8%), respectively. There was no statistically significant difference in the incidence rate of postop complications and overall mortality between the groups. In the analysis on post-transplant 25(OH)D, the number of patients in 25(OH)D deficiency and 25(OH)D normal group were 81 (47.4%) and 90 (52.6%), respectively. The incidence of postop AKI (17.6 vs 6.0%; $p=0.044$) was higher in post-transplant 25(OH)D deficient group. The post-transplant 25(OH)D deficiency group had a statistically significant higher overall mortality rate than the 25(OH)D normal group (43.2 vs 25.6%; $p=0.023$). In survival analysis, post-transplant 25(OH)D-deficient group had a worse survival rate than the normal group (log-rank test: $p=0.0075$, Figure 1).

Conclusion

Post-transplant vitamin D deficiency was associated with poorer survival in lung transplant recipients.



AP16-711

Polymyxin-B hemoperfusion in patients with acute exacerbation of idiopathic pulmonary fibrosis; A single center prospective pilot study

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Background and Aims

Patients with acute exacerbation of idiopathic pulmonary fibrosis (AE-IPF) have poor prognosis, but the effective treatment is unknown. In recent years, several retrospective studies have suggested clinical benefit of polymyxin-B hemoperfusion (PMX-DHP) in patients with AE-IPF. We aimed to investigate the efficacy and safety of PMX-DHP treatment in patients with AE-IPF.

Methods

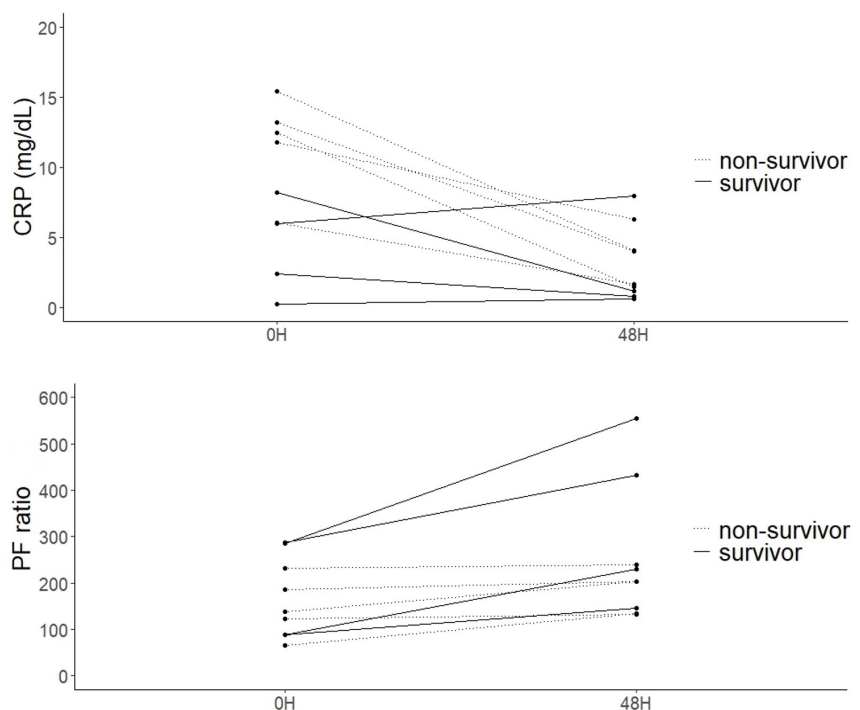
Patients diagnosed with AE-IPF (n=10) were prospectively enrolled at Asan Medical Center, South Korea. The PMX-DHP was administered twice for 6 hours with an interval of 24-hours at a flow rate of 80-100mL/min, and at the same time, steroid pulse therapy was administered (500mg of methylprednisolone for 3 days).

Results

The mean age of all subjects was 67 years, and males were 70%. During follow-up (median: 44 days, interquartile range: 16-54 days), 6 (66.6%) patients died (2 transplantation included); in-hospital mortality rate was 66.6%, and the 30-day and 90-day mortality rates were 33.3% and 77.8%, respectively. After PMX-DHP treatment, P/F ratio was improved (median values: 130.7 vs. 202.5, $p=0.005$) and C-reactive protein (CRP) levels were decreased (7.93mg/dL vs. 2.84mg/dL, $p=0.028$) (Figure). The non-survivors showed numerically lesser improvements in P/F ratio and KL-6 levels over 48 hours than survivors without statistical significance (median absolute/relative changes over 48 hours: 63.5/45.6% vs. 98.1/56.9% [P/F ratio], 1.6U/mL/0.09% vs. -199.8U/mL/-7.06% [KL-6]). During hospitalization, no adverse events associated with PMX-DHP treatment were observed.

Conclusion

Our results suggest that PMX-DHP treatment may be useful in improving oxygenation and reducing inflammation in patients with AE-IPF with acceptable safety profiles.



AP16-712

COVID-19 vaccine-related pneumonitis in Korea

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Background and Aims

Unexpected and rare but potentially serious adverse events have been reported with the wide-spread administration of COVID-19 vaccines. We present a case series of COVID-19 vaccine-related pneumonitis (CV-P) and elucidate differences in clinical and radiologic features.

Methods

We diagnosed CV-P using the clinical criteria for drug-induced interstitial lung disease (ILD) proposed by Camus et al.[1] and the radiologic criteria for drug-related pneumonitis suggested by the Fleischner Society.[2]

Results

Eleven patients with CV-P were enrolled (median age: 80 years, 45% were men). Ten patients received the BNT162b2-mRNA vaccine (first dose: 6/10), and one received the first dose of ChAdOx1 nCoV-19. CV-P in eight patients without underlying ILD (de novo CV-P) was subclassified according to computed tomography findings as follows: organizing pneumonia (n=4) and diffuse alveolar damage (n=4). The remaining three patients had underlying ILD: hypersensitivity pneumonitis, airspace enlargement with fibrosis, and idiopathic pulmonary fibrosis. In these patients, we identified newly aggravated parenchymal lesions (increased ground-glass opacity or consolidation) in addition to the stable background ILD findings. We diagnosed lymphocytic alveolitis (32–92%), either pure or associated with eosinophilic inflammation (2–32%), in five patients with de novo CV-P on BAL fluid testing. One patient with acute respiratory distress syndrome died despite appropriate treatment. All other patients responded well to systemic steroids, and improvement was sustained on regular follow-ups.

Conclusion

We suggest that CV-P should be monitored under the category of pre-specified adverse events of special interest, and COVID-19 vaccines warrant further investigation to elucidate their association with ILD.

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AP16-713

Oleanolic acid acetate alleviates bleomycin-induced pulmonary fibrosis in mice

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Background

Oleanolic acid acetate (OAA) is a triterpenoid compound derived from *Vigna angularis* and is known to have various effects such as tumor suppression, kidney protection, and anti-inflammatory effect. However, research on the inhibition mechanisms of OAA in fibrosis is limited. In this study, we investigated the effects of OAA on bleomycin-induced pulmonary fibrosis in mice and its underlying mechanism in vivo and in vitro.

Methods

The in vivo effect of OAA was evaluated by measuring histological changes, mRNA, BALF, collagen content and protein expression in bleomycin-induced pulmonary fibrosis mice. The in vitro effect of OAA was evaluated proliferation, mRNA and protein expression of A549 and NIH3T3 cells were analyzed by CCK-8, real-time PCR and Western blot respectively. Mice were treated with bleomycin and OAA was orally administered for 14 days after bleomycin injection, and A549 and NIH3T3 cells were induced by TGF- β 1 for 48 hours.

Results

OAA treatment reduced inflammatory cell count, cytokine level and soluble protein accumulation in bronchoalveolar lavage fluid, and ameliorated weight loss and lung weight, lung histopathological abnormality and pulmonary collagen deposition. OAA also inhibited the expression of EMT and fibrotic markers in vivo and in vitro. Moreover, levels of TGF- β 1, p-Smad2, and p-Smad3 in vivo and in vitro decreased after OAA treatment.

Conclusion

OAA inhibits bleomycin-induced pulmonary fibrosis by EMT inhibition and may therefore be a novel therapeutic drug for the treatment of IPF.

AP16-714

Evaluation of fibrocytes in silica-induced and bleomycin-induced pulmonary fibrosis model in mice by single cell RNA-seq analysis

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Background and Aims

The differences in the profibrotic roles of fibrocytes from macrophages have not been fully investigated. In this study, we performed single cell RNA-sequence (sc RNA-seq) in two types of pulmonary fibrosis mouse models using Col1a2-GFP reporter mice to investigate the biological function of collagen-producing immune cells, which are considered as fibrocytes.

Methods

Experimental pulmonary fibrosis was induced in Col1a2-GFP reporter mouse with silica 400 mg/kg i.t. or bleomycin (BLM) 3.0 mg/kg i.t. Individual cell groups in murine lungs were obtained by using cell sorter. The libraries of cDNA for sc RNA-seq were constructed by the Chromium system (10x Genomics).

Results

Intratracheal administration of silica induced pulmonary fibrosis in mice with granulomatous lesions, especially after Day 28. At this time point, the number of Col1a2-GFP+CD45+ cells, suggesting fibrocytes, was increased in silica-treated lung tissues. To determine what cell types Col1a2-GFP+CD45+ cells are composed of, we performed sc RNA-seq analysis of whole CD45+ cells and Col1a2-GFP+CD45+ cells obtained from murine lungs, at day 42 after silica administration. Analysis data revealed the majority of Col1a2-GFP+CD45+ cells showed a similar phenotype to previously reported profibrotic macrophages with high expression of specific markers such as *Spp1*, *Gpnmb* and *Fabp5*. To clarify characteristics of this fibrocytes cluster, we compared sc RNA-seq data of CD45+ cells of silica-treated mice with that of BLM-treated mice. Fibrocytes in silica-treated mice were classified into a different cluster from profibrotic macrophage cluster in BLM-treated lungs. Gene Ontology analysis revealed differences of these clusters and that fibrocytes of silica-induced lung fibrosis expressed higher levels of genes associated with enhancing inflammatory responses.

Conclusion

Fibrocytes, show a similar gene expression profile of profibrotic macrophages in silica-treated mice. Fibrocytes of silica-treated mice express higher levels of genes associated with inflammatory signatures compared with profibrotic macrophage in BLM-treated lung tissue.

AP16-715

New prognostic scoring system for mortality in idiopathic pulmonary fibrosis modifying the GAP model with desaturation during six-minute walk test

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Background and Aims

Idiopathic pulmonary fibrosis (IPF) is a progressive fibrosing interstitial lung disease (ILD) with variable and heterogeneous clinical course. The GAP (gender, age and physiology) model had been used to predict mortality in patients with IPF, and however also some limitations. Therefore, our aim in this study was to develop new prognostic scoring system in the Korea IPF Cohort (KICO) registry.

Methods

This is a retrospective study of Korean patients with IPF in KICO registry from June 2016 to August 2021. We developed new scoring system (the GAP6) based on the GAP model adding nadir SpO₂ during six-minute walk test (6MWT) in the KICO registry and compared the efficacy of the GAP and the GAP6 model.

Results

Among 2,412 patients in KICO registry, 966 patients were enrolled. The GAP6 model showed significant prognostic value for mortality between each stage (HR Stage II vs. Stage I = 2.89 (95% CI=2.38-3.51), HR Stage III vs. Stage II = 2.68 (95% CI=1.60-4.51)). In comparison the model performance with area under curve (AUC) using receiver operating characteristic (ROC) curve analysis, the GAP6 model showed a significant improvement for predicting mortality than the GAP model (AUC the GAP vs the GAP6, 0.646 vs 0.671, $p < 0.0019$). Also, the C-index values slightly improved from 0.674 to 0.691 for mortality.

Conclusions

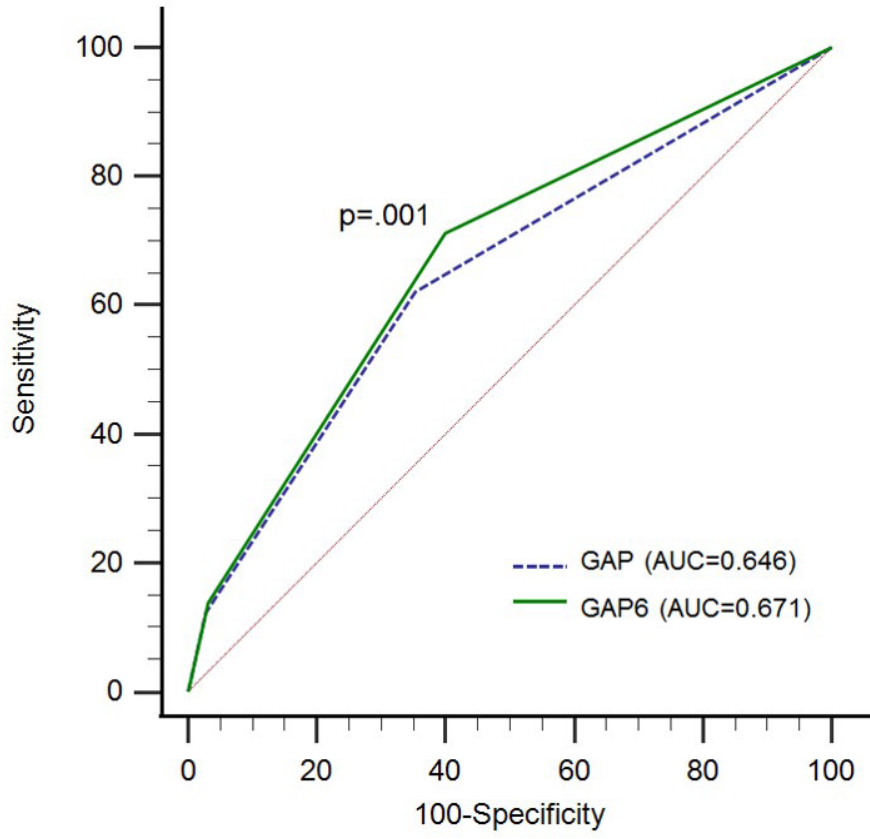
The GAP6 model improves prediction ability with C-index and AUC. Additional multinational study is needed to confirm these finding and validate the applicability and accuracy of this risk assessment system.

Figure 1. Comparison of the model performance with AUC using ROC curve analysis between the GAP and the GAP6 model

AUC, area under curve; ROC, receiver operating characteristic; GAP, gender, age and physiology

Acknowledgement/Disclosure statement

Authors declare no conflicts of interest.



AP16-716

Longitudinal evaluation of patients with lymphangiomyomatosis with lower level of serum VEGF-D.

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Background and Aims

Serum Vascular endothelial growth factor (VEGF)-D level for lymphangiomyomatosis (LAM) is identified as a noninvasive diagnostic method reported by ATS/JRS guideline (AJRCCM, 2016) and their cut-off level for diagnosing LAM (800 pg/ml) are well known. It is also known that LAM patients with serum VEGF-D level less than 800 pg/ml have been diagnosed by radiologically and or pathologically. However, the clinical background of LAM patients with lower VEGF-D levels (800 pg/ml) is unknown. In this study, we evaluated the longitudinal change in serum VEGF-D and clinical data in LAM patients with lower serum VEGF-D level.

Methods

Among 108 LAM patients who visited Kinki-Chuo Chest Medical Center between October 1991 and November 2016, thirty LAM patients whose serum level of VEGF-D less than 800 pg/ml were enrolled in this study.

Results

Twenty-eight percent of LAM patients had serum VEGF-D less than 800 pg/ml. Pulmonary functions and serum markers showed relatively stable changes in LAM patients with lower VEGF-D level. In 10 of 30 LAM patients, serum VEGF-D levels changed greater than 800 pg/ml, however, 20 of 30 LAM patients kept changing in less than 800 pg/ml. There was no difference in pulmonary function or serum markers in the clinical course between these two groups. Even if the serum VEGF-D level is less than 800 pg/ml, a quite severe case was observed.

Conclusion

It is considered that LAM treatment is insufficient only by inhibition of VEGF-D function.

AP16-717

Pulmonary fibrosis in critically ill patients with COVID-19: prevalence and outcome : A multicentre retrospective cohort study in South Korea

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Background and aims

Pulmonary fibrosis may occur after coronavirus disease 2019 (COVID-19) infection. The aim of this study was to identify prevalence and outcomes of pulmonary fibrosis in patients with severe COVID-19 pneumonia.

Methods: Clinical data and chest CT images of 125 patients with severe COVID-19 pneumonia requiring mechanical ventilation were retrospectively collected from 9 hospitals in South Korea. The presence of fibrotic change on chest CT was evaluated by visual assessment.

Results

Of 125 patients, 60.8% were male, the mean age was 68.5 years, and 7.2% of patients had underlying lung disease; 17.6% died during hospitalization, 71.2% had one or more complications including intubation related airway injury (12.8%), ventilator associated pneumonia (44.8%) or lung injury (11.2%), and hemodynamic disturbance (33.4%). On the follow-up chest CT (the median interval: 38 days, interquartile range: 24-68 days), 94 (75.2%) patients showed one or more fibrotic lesions, and traction bronchiectasis and/or bronchiolectasis was the most frequently observed (60.8%). Among the basic characteristics, patients with fibrotic lesion(≥ 1) had lower heart rates and AST concentration than those without. There was no difference in the in-hospital mortality (16.1% vs 18.1%) and prevalence of complications (67.7% vs 72.3%) between fibrotic group and non-fibrotic group. In the Cox regression analysis, hemoglobin levels

Conclusion

Our results suggest that in patients with severe COVID-19 pneumonia, significant fibrotic changes on chest CT were identified in around three quarters of them, and outcomes were similar to those without.