

# APSR RESPIRATORY UPDATES



Volume 8, Issue 1

Newsletter Date: January 2016

APSR EDUCATION PUBLICATION



## Inside this issue: Updates on Bronchoscopy and Interventional Pulmonology

Diagnostic Yield and Complications of Bronchoscopy for Peripheral Lung Lesions: Results of the AQUIRE Registry.	2
Evaluation of Tracheobronchomalacia by Dynamic Flexible Bronchoscopy: A Pilot Study	2
Differentiating benign from malignant mediastinal lymph nodes visible at EBUS using grey-scale textural analysis	3
Comparison of cytologic accuracy of endobronchial ultrasound transbronchial needle aspiration using needle suction versus no suction	3
Long-term follow-up after bronchoscopic lung volume reduction treatment with coils in patients with severe emphysema	4
Pleuroscopic Pleurodesis Combined With Tunneled Pleural Catheter for Management of Malignant Pleural Effusion: A Prospective Observational Study	4
Meta-analysis of 21- Versus 22-G Aspiration Needle During Endobronchial Ultrasound-guided Transbronchial Needle Aspiration	5
Pleuroscopic cryoprobe biopsies of the pleura: A feasibility and safety study	5
Left and Right Lung Asynchrony as a Physiological Indicator for Unilateral Bronchial Obstruction in Interventional Bronchoscopy	6
Effect of Acute Hypercapnia on Outcomes and Predictive Risk Factors for Complications among Patients Receiving Bronchoscopic Interventions under General Anesthesia	6

**Articles selected and commented on by: Dr Rao and Dr Tscheikuna,**  
Division of Respiratory Diseases and Tuberculosis, Faculty of Medicine Siriraj Hospital,  
Mahidol University, Bangkok, Thailand



Follow Respiriology on Twitter



Keep informed about the latest news and published articles in [Respirology](#) and [Respirology Case Reports](#) with direct links to the articles! Sign up to [follow us on Twitter](#) today!

### **Diagnostic Yield and Complications of Bronchoscopy for Peripheral Lung Lesions: Results of the AQuIRE Registry.**

**Authors:** Ost DE, et al.; AQuIRE Bronchoscopy Registry.

**Reference:** Am J Respir Crit Care Med. 2015 Sep 14. [Epub ahead of print]

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/26367186>

**Comment:** This is an AQuIRE Registry based multicenter study of comparison of advance diagnostic bronchoscopy and standard bronchoscopy in term of diagnostic yield and complications. The total 581 patients from 15 centers were enrolled, 312 (53.7%) patients underwent diagnostic bronchoscopy. The diagnostic yield of standard bronchoscopy was 63.7%, 57.0% with r-EBUS, 38.5% with EMN, and 47.1% with EMN combined with r-EBUS. Peripheral TBNA was used in 16.4% of cases and it was diagnostic in 9.5% of cases, while TBBx was non-diagnostic, in which both were performed. The complication occurred in 2.2% of patients. Author concluded that Peripheral TBNA improved diagnostic yield for peripheral lesions, but was underutilized and the diagnostic yield of EMN and r-EBUS were lower than expected even after adjustment.

### **Evaluation of Tracheobronchomalacia by Dynamic Flexible Bronchoscopy: A Pilot Study**

**Authors:** Adnan Majid, et al.

**Reference:** AnnalsATS Volume 11 Number 6 | July 2014

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/24960030>

**Comment:** A prospective observational pilot study to evaluate the tracheobronchomalacia by dynamic flexible bronchoscopy, enrolled 10 patients. The images of the tracheobronchial tree at five different sites during forced inspiration and expiration were examined by 23 pulmonologist with different level of training and experience. The degree of airway collapse was visually measured as a percentage of narrowing at baseline (interobserver agreement) and 8 days later (intraobserver agreement). The author found a favorable correlation coefficient for inter- and intraobserver agreement, and concluded that dynamic flexible bronchoscopy is a reliable diagnostic tool for tracheobronchomalacia.

### **Differentiating benign from malignant mediastinal lymph nodes visible at EBUS using grey-scale textural analysis**

**Authors:** Anthony J. Edey, Adrian Pollentine, Claire Doody and Andrew R.L. Medford.

**Reference:** *Respirology* Volume 20, Issue 3, pages 453–458, April 2015.

**URL:** <http://onlinelibrary.wiley.com/doi/10.1111/resp.12467/abstract>

**Comment:** A retrospective observational study included 371 EBUS images of mediastinal lymph nodes of 135 patients in two groups. The grey-scale textural features were analysed by MATLAB software in the form of pixel values and entropy. The study did not demonstrate the difference in proportions of malignant disease (56% vs 53%,  $P = 0.66$ ) in the both groups and there was no difference in pixel values of images in both groups, but author found higher entropy in the malignant group (5.95 vs 5.77,  $P = 0.03$ ) and adenocarcinoma had higher entropy compare to lymphoma (6.00 vs 5.50,  $P < 0.05$ ). The author feels that the use of EBUS grey-scale textural analysis for differentiation of malignant from benign lymphadenopathy is not satisfactory.

### **Comparison of cytologic accuracy of endobronchial ultrasound transbronchial needle aspiration using needle suction versus no suction**

**Authors:** Kassem Harris, Rabih Maroun, Kristopher Attwood, Michel Chalhoub.

**Reference:** *Endosc Ultrasound*. 2015 Apr-Jun; 4(2): 115–119.

**URL:** <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4445168/>

**Comment:** This non-inferiority study compared the diagnostic accuracy of standard method of EBUS-TBNA with suction and EBUS-TBNA without suction. The total 26 patients, with LN size more than 1 cm, were enrolled in the study, and EBUS-TBNA was performed by only two operators. Each node was sampled by two methods; needle suction (EBUS-TBNA-S) and without needle suction (EBUS-TBNA-NS). Among 26 patients, 24 had an adequate tissue in both methods, one patient had adequate tissue only in one method (EBUS-TBNA-S) and one patient did not reveal adequate tissue in both methods. Also, among total 32 biopsied sites, one site showed malignant pathology in suction method and benign pathology in no suction. The study revealed that there is no statistically significant difference in diagnostic yield, between two methods in EBUS-TBNA.

### **Long-term follow-up after bronchoscopic lung volume reduction treatment with coils in patients with severe emphysema**

**Authors:** Jorine E. Hartman, et al.

**Reference:** *Respirology* 2015 Feb;20(2):319-26.

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/25418910>

**Comment:** This pilot study was aimed to demonstrate the safety and efficacy of the LVR-coil treatment in the long term follow-up. Thirty-eight patients, who were treated in LVR-coil clinical trial were invited to attend the annual follow-up, and evaluated by chest X-ray, PFT, 6MWD and standard St George's Respiratory Questionnaire (SGRQ). Thirty-five patients attended follow-up for 1 year, 27 patients for 2 years and 22 patients for 3 years, after treatment. At 3 year follow-up, evaluation showed no long-term complications, such as pneumothorax and coil migration or adverse events related to treatment, but the clinical benefit gradually declined over the time.

### **Pleuroscopic Pleurodesis Combined With Tunneled Pleural Catheter for Management of Malignant Pleural Effusion: A Prospective Observational Study**

**Authors:** Boujaoude Z, Bartter T, Abboud M, Pratter M, Abouzgheib W

**Reference:** *J Bronchology Interv Pulmonol* 2015Jul;22(3):237-43.

**URL:** <http://www.ncbi.nlm.nih.gov/pubmed/26165894>

**Comment:** In this prospective observational study 30 patients with malignant pleural effusion were enrolled, 29 patients completed the study. The patients underwent pleuroscopic pleurodesis (PP) and Tunneled pleural catheter (TPC) placement, and were followed up for 6 months. The pleurodesis was found to be successful in 92% of patients at 1 month and in 96% of patients at 6 months. The collected data were compared with the previously reported results of conventional pleuroscopic pleurodesis (CPP), and the study concluded that the combination of PP with TPC was as effective pleurodesis as was CPP and it also found to shorten LOS, shortens time to pleurodesis, and helps to control symptoms when pleurodesis fails.

### **Meta-analysis of 21- Versus 22-G Aspiration Needle During Endobronchial Ultrasound-guided Transbronchial Needle Aspiration**

**Authors:** Giri S, Pathak R, Yarlagadda V, Karmacharya P, Aryal MR, Martin MG.

**Reference:** J Bronchology Interv Pulmonol. 2015 Apr;22(2):107-13

**URL:** [http://journals.lww.com/bronchology/Fulltext/2015/04000/Meta\\_analysis\\_of\\_21\\_Versus\\_22\\_G\\_Aspiration](http://journals.lww.com/bronchology/Fulltext/2015/04000/Meta_analysis_of_21_Versus_22_G_Aspiration)

**Comment:** A systematic meta-analysis of studies using 21 G and 22 G needle in EBUS-TBNA, was performed and diagnostic benefits were compared. Total 1720 patients from 5 studies were enrolled. The sample adequacy rate in 21 G and 22 G needle was 89.1% and 90.0% respectively, that was not statistically significant. The meta-analysis concluded that there was no significant difference in diagnostic yield, sample adequacy and complication rates between the 21 G and 22 G needle groups.

### **Pleuroscopic cryoprobe biopsies of the pleura: A feasibility and safety study**

**Authors:** Thomas R, et al.

**Reference:** Respirology. 2015 Feb;20(2):327-32

**URL:** <http://pleura.com.au/publications.html>

**Comment:** This is a retrospective study of diagnostic pleuroscopy and pleural biopsy using standard flexible biopsy forceps and a flexible cryoprobe. All biopsies were evaluated separately and patients were followed up for  $\geq 6$  months. Twenty-two patients underwent pleuroscopic flexible forceps biopsy (FFB) and cryoprobe biopsy (CB), and definitive diagnosis was established in 22 (90%) patients, using FFB and CB. The CB was found better than FFB in terms of large tissue specimen, less crush artifacts and preservation of cellular architecture. The bleeding complications were also not significant in cryoprobe biopsy.

### **Left and Right Lung Asynchrony as a Physiological Indicator for Unilateral Bronchial Obstruction in Interventional Bronchoscopy**

**Authors:** Masamichi Mineshita, Hirotaka Kida, Hiroki Nishine, Hiroshi Handa, Takeo Inoue, Teruomi Miyazawa

**Reference:** PLoS One. 2014; 9(8): e105327.

**URL:** <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4136828/>

**Comment:** The flow-volume curve cannot differentiate right and left lung bronchial obstruction and PFT may not change significantly after Intervention. This study demonstrated the airflow asynchrony in both lungs, measured by gap index, is a good predictor of a favorable outcome of the intervention and dyspnea scale improvement. Total 50 cases with central airway obstruction (CAO) were included in the study and divided into three groups; tracheal, bronchial and extensive obstruction. The gap index was measured as average gaps of lung sound intensity peaks between the two lungs, for a 12 second duration. The pre-procedure, gap index was significantly higher ( $p < 0.05$ ) in bronchial and extensive obstruction than in the tracheal obstruction. The study showed that after Interventional bronchoscopy, dyspnea scale ( $p < 0.001$ ) and gap index significantly improved ( $p < 0.05$ ); however, no significant improvement was demonstrated in PFT. The improvement was more in patients with gap index more than 0.06 second, than in gap index of 0.06 seconds or less.

### **Effect of Acute Hypercapnia on Outcomes and Predictive Risk Factors for Complications among Patients Receiving Bronchoscopic Interventions under General Anesthesia**

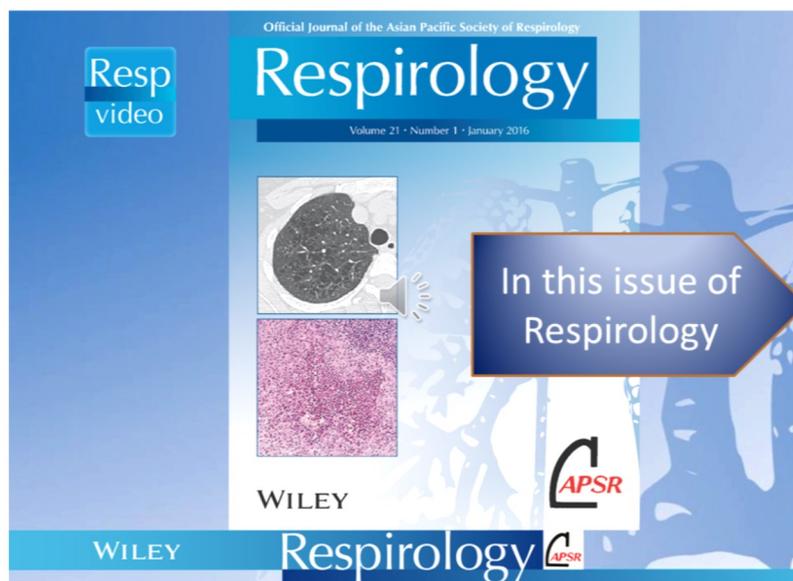
**Authors:** Qinghao Cheng, Jieli Zhang, Hongwu Wang, Rujin Zhang, Yun Yue, Lei Li

**Reference:** PLoS One. 2015; 10(7): e0130771.

**URL:** <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4492548/>

**Comment:** This is a retrospective study in which 323 patients with airway stenosis were enrolled and rigid bronchoscopy under general anesthesia was performed. The ABG was done during the procedure and all patients were grouped in three categories according to the level of PaCO<sub>2</sub>. The PaO<sub>2</sub> levels, recovery delay and complications were compared in three groups. The study results showed that severe

hypercapnia ( $\text{PaCO}_2 > 100 \text{ mmHg}$ ) was associated with delayed recovery, lower  $\text{PaO}_2$  ( $p=0.00$ ) and elevated glucose levels ( $p=0.00$ ). The authors concluded that acute hypercapnia less than 100 mmHg was not associated with adverse events, whereas severe hypercapnia was associated with delayed recovery and lower  $\text{PaO}_2$  levels, and is an independent predictive factor for bronchoscopic intervention complications.



New issue of  
Respirology  
now available  
online!

✓ [Watch the video about the issue highlights](#)

✓ [Read the issue.](#)

**APSR Respiratory Updates is an initiative of the APSR Education Committee**

Articles selected and commented on by Dr Rao and Dr Tscheikuna, Division of Respiratory Diseases and Tuberculosis, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Editor: Dr David CL Lam, Department of Medicine, University of Hong Kong, Hong Kong, China

Compiled by Dr Christel Norman, Respirology Editorial Office, Perth, Australia

*Disclaimer: This publication is not intended as a replacement for regular medical education. The comments are an interpretation of the published study and reflect the opinion of the writer rather than those of the research group or scientific journal. It is suggested readers review the full trial data before forming a final conclusion on its merits. Privacy Policy: The APSR Secretariat will record your email details on a secure database and will not release it to anyone without your prior approval. The APSR and you have the right to inspect, update or delete your details at any time.*

To advertise, subscribe a colleague or to unsubscribe please contact : Secretariat, Asian Pacific Society of Respirology, 2F, Hongo Asakaze Bldg. 2-9-8 Hongo, Bunkyo-ku, Tokyo, 113-0033, Japan. Email: [apsrinfo@theapsr.org](mailto:apsrinfo@theapsr.org)