APSR RESPIRATORY UPDATES

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APSR EDUCATION PUBLICATION

Inside this issue: ARDS and Critical Care

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Acute Respiratory Distress Syndrome

Davide Chiumello (eds.)

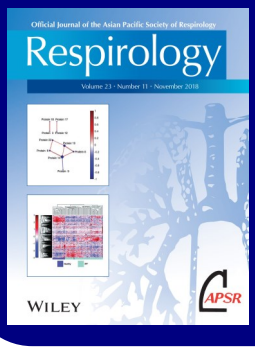
ARDS Book 2017, 354 Pages, English, ISBN 13: 978-3-319-41852-0

Comments:
Highly recommended latest update of clinical aspects on acute respiratory distress syndrome (ARDS), from definition to treatment, with focus on the more recent recommendations and evidence-based medicine. The topics address the various ventilation strategies, the impact of prone positioning, the use of partial and total extracorporeal support, the value of vasodilators, the weaning from mechanical ventilation, the pharmacological interventions, noninvasive ventilation, and the strategies using anti-inflammatory agents and stem cells, as well as other related topics including lung imaging, sedation, metabolic support, and management of hemodynamic instability and the newer aspects of ARDS in children.

Acute Respiratory Distress Syndrome, Second Edition

Augustine M. K. Choi
Volume 233 Lung Biology in Health and Disease series

Comments:
Newly revised content with ten new chapters provide clinicians, intensivist, and pulmonologists with the latest developments and applications of pharmacological and mechanical therapies needed to treat the challenging, debilitating and difficult condition of ARDS. Update highlights include: the definition, epidemiology, pathology, and pathogenesis of ARDS complications such as transfusion-related injury, and endothelium and vascular dysfunction, the long-term outcomes of ARDS, host defense and infection, and the evolving developments in ARDS therapy: glucocorticoid therapy, surfactant therapy, mechanical ventilation, and mesenchymal stem cells predictive factors: gene expression profiling and more insights on some clinicobiological mechanisms, unanswered pathophysiological questions and/or unequivocal outcomes and responses to treatment strategies.



Most cited articles:

https://onlinelibrary.wiley.com/page/journal/14401843/homepage/mostcited.html

Tissue Perfusion and Prognosis in the Critically Ill-Is Renin the New Lactate?

Khanna A et al.

CCM, February 2019: Volume 47: Number 2, Pages 288-290

https://insights.ovid.com/pubmed?pmid=30653057

Comments:

Understanding the pathophysiologic mechanisms of shock and current management strategies have recently focused on the sympathetic nervous system (SNS), the renin-angiotensin-angiotensinogen system (RAAS), and Vassopressin that proposed multimodal treatment strategy. Gleeson et al (Crit Care Med 2019; 47:152–158) reported that renin levels may be a better if not superior than lactate as a marker for mortality in hypotensive and/or critically-ill resuscitated patients since the former is not significantly influenced by renal replacement, diurnal rhythm, or common drugs that alter the RAAS pathway. This study is limited by the small heterogenous population begs for a larger more homogenous (septic shock only?) population to resuscitate the 1950'swork of Dr. Irvin Page at Cleveland Clinic and Dr. Braun Mendez in Argentina.

The Surviving Sepsis Campaign Bundle: 2018 update

Levy MM et al.

ICM, 2018, 44: 925-928

www.survivingsepsis.org

Comments:

The management of sepsis and septic shock remain the scourge and a contentious challenge to the practicing clinician despite the global reiterations of the surviving sepsis guidelines since its first publication in 2004. The development of the "Sepsis Bundle" since 2005 to protocolize pathophysiologic management approach remain central to the implementation of the Surviving Sepsis Campaign (SSC) to standardize sepsis quality improvement based on best practice and evolving updated evidence since 2004. The association between improved survival in patients with sepsis and septic shock and compliance with bundles is compelling and led to the SSC measures by the National Quality Forum (NQF) and subsequently by both the New York State (NYS) Department of Health and Centers for Medicare and Medicaid Services (CMS) in the USA for mandated public reporting and thus created an uproar among emergency room physicians and academicians to retire the SSC very recent-

ly. The latest forum on “Point-Counterpoint” between the protagonist (M. Levy et al.) and antagonist Paul Marik, S. Weingarth, et al. remain contentious while we await its resolution or consensus. Likewise, we look forward for the results of the two Ascorbic Acid or Vitamin C randomized controlled trials by June 2019 or early 2020, and Dr. Paul Marik’s Melatonin-Hydrocortisone-Ascorbic Acid-Thiamine (mHAT) metabolic resuscitation management protocol soon.

Restricted fluid resuscitation in suspected sepsis associated hypotension (REFRESH): a pilot randomised controlled trial

Stephen P. J. Macdonald et al
ICM, 2018, 44: 2070-2078
https://doi.org/10.1007/s00134-018-5433-0

Comments:
The controversy on recommended crystalloid fluid volume of 30cc/kg body weight for resuscitation by the Surviving Sepsis Campaign Guidelines 2016 (6-hour) and 2018 Update (Hour -1) bundle continue despite the SAFE and “Sepsis Triology” (ProCESS, ARISE, and ProMISE) studies dataset that showed no harm in the initial resuscitation of critically-ill patients. While other studies reveal the feasibility of restricted fluid resuscitation regimen, this current pilot study population may not be robust enough and the severity of illness stratification be clearly defined to a more homogenous group. The proof of concept on fluids or crystalloids (balanced versus saline-rich) and/or colloids (albumin) together with vasopressors/inotropes to improve macro-/micro hemodynamics (systemic or regional) remain a physiologic phenomenon that is important in oxygen delivery. However, the oxygen delivered (insignificant? 2-3%) in these solutions may not answer the problem of improve outcomes because the main bulk of oxygen is carried by haemoglobin (~80%) in the blood.

Fever control in critically-ill adults: An individual patient data meta-analysis of randomized controlled trials

PJ. Young et al

ICM, Feb 2019, Volume: On-line First, Pages 1-9

https://doi.org/10.1007/s00134-019-05553-w

Comments:
Fever is an adaptive immune response with its potential risks and benefits. The study hypothesized that more active fever management would increase survival among patient subgroups

with limited physiological reserves such as older patient, patients with higher illness acuity, and those requiring organ support found no statistically significant heterogeneity in the effect of more active fever management compared with less active fever management (hazard ratio 0.97 (95% CI 0.75-1.10), P=0.32).

Is your smartphone the future of physiologic monitoring?

F Michard et al.

ICM, October 2018, Volume: On-line First, Pages 1-3

https://doi.org/10.1007/s00134-018-5419-y

Comments:
A short narrative review focused on medical-grade tools like smartphones and phablets for clinicians with applications that may have value in acute care settings, prevention, treatment adherence, life style and smoking cessation some of which show visual displays but may be costly. In this digital era, the question of privacy and compliance with ethical standards may not be clear but its utility and benefits are within grasp and perhaps life-saving in real-timely manner for on-site fully trained emergency medical service personnel intervention(s).

The rise of ward monitoring: opportunities and challenges for critical care specialists

F Michard et al.

ICM, 2018, Volume: On-line First, Page 1-3

https://doi.org/10.1007/s00134-018-5384-5

Comments:
Early and timely detection and notification of clinical deterioration of monitored patients outside the ICU may improve outcome if appropriate intervention can be given by specialists and focused-personnel trained for immediate response. The utility of wireless technology and tools to continuously do multiple monitoring with specific alert systems are within reach and the opportunity as well as challenges to improve outcome or impact healthcare is quite possible.

What's new on emerging resistant Candida species

A Cortegani et al

ICM, September 2018, Volume: On-line First, Pages 1-4

https://doi.org/10.1007/s00134-018-5363-x

Comments:

The emerging increases in drug resistance in Candida species is a cause for concern for treatment failure and impact on mortality with more than 400,000 annual cases worldwide, with incidence from 0.24 to 34.3 patients/1000 ICU admissions and mortality of about 40%.. Resistance to azoles remain uncommon in C. albicans (<5%), but is more prevalent in C. gabralta (4-16%), C. parapsilosis (4-10%), and C. tropicalis (4-9%) as reported by Maubon D et al. (ICM 40:1241-1255). In this context, I wonder if combination antifungal strategy can be empirically be administered and duration of treatment established especially in resource-limited ICUs.

Does this critically-ill patient with delirium require any drug treatment?

J. I. F. Salluh et al.

ICM, July 2018, On-line First: Pages 1-4

https://doi.org/10.1007/s00134-018-5310-x

Comments:

Between 20-40% of critically-ill patients admitted to the intensive care unit (ICU) and 60-80% of mechanically ventilated patients develop delirium with associated hospital mortality, increased cost, longer hospital stay and duration of mechanical ventilation as demonstrated in studies during the past decade (Saluh, JI 2015, Khan, BA 2017). Knowledge translation to prevent delirium is largely incomplete (Morandi, A 2017) and adherence to current recommendation on delirium and management is low on recent quality improvement studies (Cavalcanti, AB 2016, Barnes-Daly, MA 2017).This study proposes an algorithmic pragmatic approach to the ICU patient with agitated delirium and prompt initiation of drug treatment (only to patients with significantly agitated delirium) while buying time to evaluate potentially treatable causes.

Adaptive designs in critically-ill patients: principles, advantages and pitfalls

C. H. van Werkhoven et al.

ICM, 2018, On-line First: Pages 1-5

https://doi.org/10.1007/s00134-018-5426-z

Comments:

Only about 5 adaptive trial designs have been made since the 70's in the critically-ill patients but recent improvements to overcome most of the methodological and technological shortcomings during randomized controlled trials (RCT) like sample size, intervention arms, allocation ratio and study population will perhaps gain more attention and provide answers to therapeutic research questions as efficiently as possible without compromising reliability and validity based on adaptation rules being pre-specified in the study proposal. While the design may have many advantages, the cost and/or funding may be its limitation because of multiple testing and frequent interim analysis with correction of imbalances in baseline characteristics and confounding effects as more adaptations are introduced.

Acute respiratory distress syndrome (ARDS) phenotyping

M. Shankar-Hari et al.

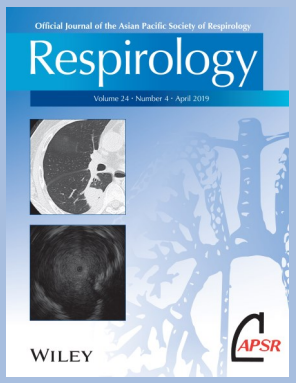
ICM, December 2018, On-line First: Pages 1-5

https://doi.org/10.1007/s00134-018-5480-6

Comments:

The reanalysis of five randomized controlled trials (RCTs) and one observational cohort studies reported the ARDS hyperinflammatory/hypoinflammatory subphenotypes among the RCTs population, and the reactive/uninflamed subphenotypes among the population studied in the observational cohort study, respectively.The identification of the ARDS subgroups or sub-phenotypes hopefully clarifies the risk of mortality (prognostic enrichment), differences in treatment strategies and responses, clinicobiologic characteristics and/or other modifiable factors (predictive enrichment) in the era of targeted or precision medicine with better understanding and improved outcomes in the near future.

APSR Publications



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