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Hiroshi Kubo, MD, PhD, FAPSR

Tohoku University Graduate School of Medicine

2-1 Seiryomachi, Aobaku

Sendai, Miyagi 980-8575 JAPAN

Phone: +81-22-717-7184

FAX: +81-22-717-7576

E-mail: hkubo@med.tohoku.ac.jp

Prone positioning in severe acute respiratory distress syndrome.

Authors: Guerin C, et al.

Reference: N Engl J Med. 2013;368(23):2159-2168

URL: <http://www.nejm.org/doi/full/10.1056/NEJMoa1214103>

Comment: “Prolonged” prone positioning in patients with severe ARDS (P/F ratio < 150 mmHg) decreased mortality. The prone position was continuously applied for at least 16 hours per day in this study. Low tidal volume ventilation was used. Interestingly, post-hoc study of this RCT revealed that survival was not correlated with improvement in gas exchange (Am J Respir Crit Care Med 2014;189(4):494-496). Albert, et al. speculated that the benefit of prone positioning was mainly associated with the reduction of ventilator-induced lung injury. In addition, a meta-analysis demonstrated that prone positioning with high tidal volume ventilation could not reduce mortality from ARDS, suggesting that low tidal volume ventilation is essential (Intensive Care Med 2014;40(3):332-341).

The Beta agonist lung injury trial prevention. A randomized controlled trial.

Authors: Perkins GD, et al.

Reference: Am J Respir Crit Care Med. 2014;189(6):674-683

URL: <http://www.atsjournals.org/doi/full/10.1164/rccm.201308-1549OC>

Comments: Stimulating β 2-adrenergic receptor increases sodium transport of alveolar epithelial cells and reduces alveolar edema fluid. Unfortunately, previous trials using β 2-agonist could not demonstrate any beneficial role in ARDS mortality. This trial asked the question whether β 2-agonist could prevent development of ARDS. Patients inhaled salmeterol before esophageal surgery. Perioperative β 2-agonist could not reduce the development of acute lung injury. Salmeterol inhalation significantly reduced pulmonary vascular permeability index of the patients, but did not affect the changes in extravascular lung water.

A randomized controlled trial of peripheral blood mononuclear cell depletion in experimental human lung inflammation.

Authors: Barr LC, et al.

Reference: Am J Respir Crit Care Med. 2013;188(4):449-455

URL: <http://www.atsjournals.org/doi/full/10.1164/rccm.201212-2334OC>

Comments: Monocytes play a role in experimental lung injury models. This study evaluated the role of monocytes in LPS-induced lung inflammation in healthy human volunteers. Human subjects received LPS by inhalation, and then leukapheresis was performed to deplete circulating mononuclear cells. LPS inhalation induced increases in neutrophil counts and inflammatory cytokines in peripheral blood of the subjects. Monocytes depletion, however, did not reduce those inflammatory responses. Protein concentration, neutrophil infiltration, and cytokine concentration of BAL fluid were not affected either. The authors concluded that circulating monocytes had no role in the early infiltration of neutrophils during LPS-induced lung inflammation in human.

Exploring the heterogeneity of effects of corticosteroids on acute respiratory distress syndrome: a systematic review and meta-analysis.

Authors: Ruan SY, et al.

Reference: Crit Care. 2014;18(2):R63

URL: <http://ccforum.com/content/18/2/R63/abstract>

Comments: Benefit of steroid therapies in ARDS is still controversial. Ruan et al. conducted a systematic review and meta-analysis in this issue. This report demonstrated that corticosteroids did not provide any beneficial effect on long-term mortality of ARDS patients and even worsened influenza-related ARDS.



Respirology

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The effect of intravenous interferon-beta-1a (FP-1201) on lung CD73 expression and on acute respiratory distress syndrome mortality: an open-label study.

Authors: Bellingan G, et al.

Reference: Lancet Respir Med. 2014;2(2):98-107

URL: [http://www.thelancet.com/journals/lanres/article/PIIS2213-2600\(13\)70259-5/abstract](http://www.thelancet.com/journals/lanres/article/PIIS2213-2600(13)70259-5/abstract)

Comments: ARDS patients received daily intravenous administration of human recombinant interferon (IFN)- β -1a for 6 days in this open-label study. IFN- β -1a reduced 28-days mortality. IFN- β is known to increase CD73 synthesis. CD73 is an enzyme that converts adenosine monophosphate to adenosine. Adenosine has several anti-inflammatory effects through adenosine A2A receptor, including reducing lung endothelial permeability and attenuating neutrophil activation. Although it is not clear that the same CD73-dependent anti-inflammatory mechanism underlies this better outcome in this clinical trial, this new candidate for the pharmacological treatment for ARDS is promising.

ABO Blood Type A is associated with increased risk of acute respiratory distress syndrome in Caucasians following both major trauma and severe sepsis.

Authors: Reilly JP, et al.

Reference: Chest. 2014;145(4):753-761

URL: <http://journal.publications.chestnet.org/article.aspx?articleid=1809988>

Comments: Blood type A is known to associate with an increased risk of vascular diseases, including myocardial infarction and venous thromboembolism. This study demonstrated that Caucasian people with blood type A were susceptible to ARDS after major trauma and severe sepsis, while Africans were not. So, how is the Asian population comparing?



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The microbiological and clinical outcome of guide wire exchanged versus newly inserted antimicrobial surface treated central venous catheters.

Authors: Parbat N, et al.

Reference: Crit Care. 2013;17(5):R184

URL: <http://ccforum.com/content/17/5/R184>

Comments: Central venous catheter-related sepsis is a common problem in ICUs. When the catheter infection occurs, we need to remove the line, but at the same time inserting a new line is required. Guide wire-oriented exchange at the same site of the old catheter may increase the risk of contamination of the new line. Recently, antimicrobial surface treated catheters have become available. Using these surface-treated catheters, line colonization and catheter-related sepsis were compared between the guide wire-oriented exchange technique and conventional new insertion at another site than the infected line. Using antimicrobial surface treated catheters under a sterile procedure, the rates of catheter-related bacteremia and mortality were similar in both techniques. However, if the old exchanged catheter was found to be colonized, you should not continue to use the guide wire-exchanged line. Helpful illustrations of the sterile procedure are included in this report.

Long-term cognitive impairment after critical illness.

Authors: Pandharipande PP, et al.

Reference: N Engl J Med. 2013;369(14):1306-1316

URL: <http://www.nejm.org/doi/full/10.1056/NEJMoa1301372>

Comments: Quality of life is concerned in long-time survivors of ARDS. Neuropsychological impairment is one of the main problems in the survivors. This study revealed that long-term cognitive impairment was common after critical illness. Prolonged delirium was associated with severe cognitive decline. The level of impairment was similar to the one of patients with traumatic brain injury. New approach to care for this long-term disability has been started while the patients stay in ICUs (Intensive Care Med. 2014;40(3):370-379). Furthermore, a recent trial using statin to prevent delirium may give us another promising approach to this issue (Am J Respir Crit Care Med. 2014;189(6):666-673).

Depression, post-traumatic stress disorder, and functional disability in survivors of critical illness in the BRAIN-ICU study: a longitudinal cohort study

Authors: Jackson JC, et al.

Reference: Lancet Respir Med. doi:10.1016/S2213-2600(14)70051-7

URL: [http://www.thelancet.com/journals/lanres/article/PIIS2213-2600\(14\)70051-7/fulltext](http://www.thelancet.com/journals/lanres/article/PIIS2213-2600(14)70051-7/fulltext)

Comments: This study reported that depression was very common in survivors of critical illness (37% at 3 months and 33% at 12 months after discharge). This depression was mainly expressed as physical complaints (e.g. loss of energy, fatigue, or appetite loss) rather than as emotional symptoms (e.g. sadness or tearfulness). Delirium was not associated with this depression after critical illness. We need more attention to patients' depression after they discharge from ICUs.

Assessment of the worldwide burden of critical illness: the Intensive Care Over Nations (ICON) audit.

Authors: Vincent J-L, et al.

Reference: Lancet Respir Med. doi:10.1016/S2213-2600(14)70061-X

URL: [http://www.thelancet.com/journals/lanres/article/PIIS2213-2600\(14\)70061-X/fulltext](http://www.thelancet.com/journals/lanres/article/PIIS2213-2600(14)70061-X/fulltext)

Comments: Everybody felt this, but did not have clear quantified data. This report summarized 10,069 patients in 730 ICUs in 84 countries, and now we have data on the circumstances and problems. Sepsis is the most common health problem worldwide in ICUs. However, the ratio of mechanically ventilated patients and in-hospital mortality varied among nations. Critical care needs extensive human resources and medical costs, and each country has different demands on those. Optimization in the care of the patients or developing suitable apparatus may be needed, because each country differs in resources, age distribution, scale of economy, view of life and death, etc.



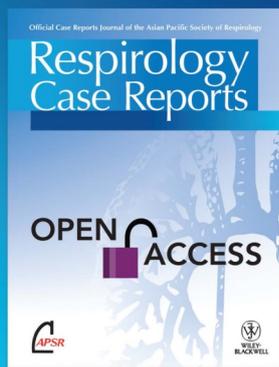
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Articles selected and commented on by Hiroshi Kubo, MD, PhD, FAPSR, Tohoku University Graduate School of Medicine, Sendai, Miyagi Japan

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

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

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