Editor’s Commentary

Although noninvasive ventilation (NIV) may reduce the need for intubation in acute respiratory failure, it is not successful in all cases and there is no standard method to predict success or failure. Berg and colleagues evaluated the ability of the rapid shallow breathing index (RSBI) to predict NIV failure and mortality. They found that an RSBI > 105 during NIV was associated with the need for intubation and increased in-hospital mortality. What is unknown is whether patients with an elevated RSBI could also have benefited from an increase in NIV settings. This is not the traditional way of using RSBI. But, as Wolfe points out in her editorial, there may be a larger role for RSBI to gain insight into our patients’ overall balance between respiratory load and support.

The extent to which a difficult airway at reintubation contributes to patient morbidity is unknown. The aim of the study by Menon and colleagues was to examine the occurrence and complications of failed extubation, the associated risk factors, and the morbidity and mortality associated with reintubation. Nearly 20% of the critically ill patients in this study required reintubation. Consistent with previous reports in the literature, reintubation was associated with higher mortality, increased length of stay, and higher cost. What may not be as well appreciated is that a difficult airway at reintubation is associated with higher mortality. As Bittner and Schmidt point out in their editorial, clinicians should be more vigilant in identifying patients at risk for extubation failure. However, unnecessarily delaying extubation is also not good and can lead to complications. Clearly, additional research is needed to identify the absolute best time for extubation.

Spirometry before and after bronchodilator administration is performed to assess the reversibility of flow-limitation. In patients with normal baseline spirometry, the frequency of a positive bronchodilator response has not been described. Hegewald et al retrospectively assessed patients who underwent bronchodilator testing after a normal baseline spirometry. None of the patients with a pre-bronchodilator FEV1 > 100% of predicted responded to a bronchodilator. They therefore recommend that bronchodilator testing can be omitted in patients with normal spirometry. As Dwyer and Abraham state in their editorial, routine ordering of bronchodilators with spirometry may be wasteful when spirometry is normal. One must also be careful about false negatives, but there were none in the Hegewald study with FEV1 > 100%.

Non-intubated critically ill patients with acute respiratory failure are often treated with high-flow oxygen. Cuquemelle et al conducted a randomized crossover study to compare standard oxygen therapy to heated and humidified high-flow oxygen therapy. Although upper airway caliber was not significantly modified by humidified high-flow oxygen, compared to standard oxygen therapy, it significantly reduced discomfort in critically ill patients with respiratory failure. This adds to the body of knowledge related to humidified high-flow nasal cannula, as has been recently published in RESPIRATORY CARE and elsewhere. El-Khatib correctly clarifies that, although high-flow oxygen therapy has a role in the management of hypoxemic respiratory failure, future research should be directed towards understanding its mechanisms of action, as well as to identify early predictors of failure.

Despite a close relationship between PEEP and VD/VT in patients with ARDS, few clinicians titrate PEEP using changes in VD/VT. Guo et al evaluated VD/VT, arterial oxygenation, and compliance changes during PEEP titration following lung recruitment in patients with ARDS. They found that optimal PEEP could be determined by the highest compliance in conjunction with the lower VD/VT, suggesting that monitoring of VD/VT might be useful for PEEP titration.

The paper by Elizondo-Montemayor describes the clinical features of H1N1 in non-confirmed subjects according to seroprevalence status in México. They found that a third of the seropositive subjects were asymptomatic, and few had an influenza-like illness. No single symptom predicted those who were seropositive. Interestingly, there was no difference in the symptom profiles of the seropositive and seronegative groups.

Critical illness myopathy and/or neuropathy is a common alteration seen in the ICU. The objective of the study by Santos and colleagues was to evaluate the presence of diaphragmatic and peripheral myopathy and neuropathy in septic patients requiring prolonged mechanical ventilation. Consistent with previous studies, they found that critical illness myopathy and/or neuropathy was common in this population of septic patients. Inability to move the limbs against gravity was frequently associated with peripheral and diaphragmatic myopathy or neuropathy. Relevant to respiratory care, the finding of neuropathy or myopathy in peripheral electrophysiological tests was associated with diaphragmatic involvement.

The purpose of the study by Tabira et al was to investigate the influence of skeletal muscle oxygenation on systemic oxygen uptake in patients with COPD. They found that, although oxygen uptake was highly influenced by oxygen utilization in exercising muscles, the impact of skeletal muscle utilization on peak oxygen uptake varied greatly among the subjects.

This month we are pleased to publish the papers from the New Horizons Symposium “The Ventilator Liberation Process: a Fresh Look at the Evidence,” which was held on November 6, 2011, at the 57th International Respiratory Convention in Tampa, Florida. MacIntyre discusses evidence-based assessments in the ventilator discontinuation process, Hess covers the role of noninvasive ventilation in the ventilator discontinuation process, Bittner and Schmidt update the role of tracheostomy, Branson covers ventilator modes to facilitate weaning, Haas and Loik describe the evidence for ventilator discontinuation protocols, and Mendez-Tellez and Needham discuss the role for early physical rehabilitation in the ICU.

Our case reports this month cover pulmonary emboli from therapeutic sodium hyaluronate, and disseminated aspergillosis associated with tsunami lung. Our teaching cases related to Rosai-Dorfman disease of the lung and tuberculous pleural effusion.