

We begin 2010 and the 55th volume of RESPIRATORY CARE with the papers from the 44th Journal Conference, Respiratory Care Controversies II. As pointed out by co-chairs Neil MacIntyre and Richard Branson in their foreword, the evidence base for many respiratory care diagnosis and management strategies is often incomplete and thus open to dispute. To address this, a unique pro-con format was used to frame controversial clinical questions. The presenters were asked to explore the extremes of each clinical question and then work towards a common ground. The papers that result from these presentations should prove clinically useful for the readers of the Journal as they explore these clinical questions in their own practice.

Healthcare screening for disease and the associated controversies are well known by anyone who reads a newspaper, watches the daily news on television, or listens to news on the radio. Thus, it is timely that this conference begins with MacIntyre and Selecky addressing the question, is there a role for screening spirometry? There is little controversy that spirometry is needed to diagnose chronic obstructive pulmonary disease (COPD). In addition, the severity of COPD is typically graded on the basis of spirometry results. One of the more important points made in this paper is that spirometry should be considered a medical test and not simply a vital sign that anyone can perform. The authors correctly conclude that the value of spirometry is increased when it is used in high-risk populations as a case-finding rather than a screening tool.

A very controversial topic that is discussed in the intensive care unit is whether or not steroids should be used. This is addressed by Sessler and Gay, who deal with the question, are corticosteroids useful in late-stage acute respiratory distress syndrome (ARDS)? As they note, the pathophysiologic features of ARDS may be responsive to corticosteroids, but early high-dose, short-duration therapy has proven ineffective. Randomized controlled trials (RCTs) have demonstrated improved oxygenation and shorter duration of mechanical ventilation with methylprednisolone. Although these physiologic improvements are attractive, the more important question is whether or not this translates to a survival benefit. There were virtually identical 60-day and 180-day mortality rates for methylprednisolone and placebo in the largest RCT. Nonetheless, experts differ in their recommendations regarding corticosteroids for late-stage ARDS. If corticosteroids are administered, the authors wisely recommend infection surveillance, avoidance of neuromuscular blockers, and gradual taper of corticosteroids.

The determination of optimal timing of extubation requires a thorough assessment of many clinical variables. Should patients be able to follow commands prior to extubation? Even with the best judgment, 5–20% of extubations fail and require re-intubation. The timing of extubation is particularly controversial in patients with depressed mental status and inability to follow commands. This is debated on

a regular basis in the ICU. As King, Moores, and Epstein indicate, although extubation failure is a risk factor for poor overall outcome in heterogeneous populations, its impact on the patient failing with neurologic dysfunction has not been adequately determined. The authors recommend that many patients who are unable to follow commands, but have the ability to clear pulmonary secretions, can be safely extubated. They also make the important plea for an RCT using a specific definition of *following commands* to help remove the uncertainty of extubation timing in this patient population.

The high prevalence of obstructive sleep apnea (OSA) and the consequences of untreated OSA have received much attention in recent years. This has resulted in increased referrals of patients for sleep-laboratory polysomnography, which has become a lucrative practice. In addition, portable devices have been approved for home polysomnography. But, are sleep studies appropriately done in the home? This controversial topic is addressed by Gay and Selecky. Although many studies have supported a strong correlation between the findings from home polysomnography and sleep-laboratory polysomnography, limited data are available from outcomes-oriented studies. Until the results of such studies are reported, controversy will continue to surround home polysomnography in the diagnosis of OSA.

Another controversial topic debated daily in the ICU is the correct timing of tracheostomy. Should tracheostomy be performed as early as 72 hours in patients requiring prolonged mechanical ventilation? This question is addressed by Durbin, Perkins, and Moores. If intubation is projected to be longer than several weeks, tracheostomy is often recommended. But, as the authors point out, while there have been many RCTs on timing of tracheostomy, most were insufficiently powered to detect important differences. The authors recommend early tracheostomy in all patients projected to require prolonged mechanical ventilation. There is little debate around this recommendation, but unfortunately, it is difficult to identify such patients with precision. Based on their review of the literature, the authors propose an early-tracheostomy decision algorithm. This algorithm may prove useful, but ideally this should be validated in a clinical study.

Prone positioning is one of the rescue therapies considered in patients with ARDS and refractory hypoxemia. It is accepted that prone positioning can improve gas exchange in patients with severe hypoxemia refractory to standard ventilatory manipulations. But, should prone positioning be routinely used for lung protection during mechanical ventilation? This question is addressed by Fessler and Talmor. There are theoretical reasons why prone positioning may be a form of lung-protective ventilation. For example, alveolar recruitment may be more uniform and the stress of mechanical ventilation better distributed with prone position. However, RCTs of prone positioning have failed to show improvements in survival of patients with ARDS. Whether or not prone positioning should be used as rescue therapy for patients with severe ARDS remains controversial.