

This month's Editor's Choice is a prospective trial of frequent versus infrequent monitoring of endotracheal tube cuff pressure in ventilated subjects. Letvin and coworkers found no difference in ventilator-associated events, ventilator-associated pneumonia (VAP), or hospital length of stay. Interestingly, the 30-d hospital readmission rate was lower for the infrequent monitoring group, but this finding is unexplained. Meli and others discuss the 'less is more' principle as it relates to airway management in an accompanying editorial. They point out that many procedures such as ventilator circuit changes have evolved to less frequent intervention. Management of the endotracheal tube and cuff pressures as it relates to VAP using continuous cuff pressure control requires further investigation. In the interim, this trial demonstrates that more frequent monitoring does not translate into improved outcomes.

Fitz-Clarke provides an analysis of gastric insufflation during manual ventilation via face mask. Unique to this work is the finding that the duration of inspiration impacts gastric insufflation based on the duration of time in which airway pressures exceed esophageal opening pressures. Previous work has always favored low flow and longer inspiratory time. Barnes and Ward describe the importance of these findings in an accompanying editorial. Manual ventilation has the capacity to help and to harm, based on the attention and skills of the operator.

Interprofessional education (IPE) has become an important component of training individuals to work effectively as a team. Zamjahn and others looked at IPE among respiratory therapy, occupational, and nursing students with respect to patient transfers. This simulation study demonstrated that knowledge of other professions' roles and responsibilities enhanced future collaboration. Clark editorializes that IPE helps break down historical practice silos and enhances accountability. IPE represents another tool for educators that should be implemented into already crowded curriculums.

Eltorai and colleagues contribute 2 papers on incentive spirometry (IS). The first is a survey of health care providers on the perceived effectiveness of IS and the second is a survey regarding adherence with IS. They report that >90% of respondents found IS essential to patient care and that it should be used routinely post-operatively. Beliefs of caregivers regarding IS were common, but not uniformly supported by evidence. In the second study, respondents believed that adherence was poor and that patients were often a limiting factor in the success of IS. Clearly, IS continues to be a commonly employed therapy with emotional support by caregivers. However, beliefs and important components of IS are not supported by high quality evidence. The AARC guidelines on IS have been clear on many of these points for over a decade.

Cough assist or mechanical insufflation-exsufflation (MI-E) has become a standard therapy in neuromuscular diseases to facilitate secretion clearance. Andersen and co-authors provide some novel observations on the impact of MI-E on laryngeal function in amyotrophic lateral sclerosis (ALS). ALS disease progression was associated with a number of adverse laryngeal events during insufflation. They point out that high insufflation pressures in ALS can become counterproductive as the disease progresses. Titrating pressure to individual patients is likely important to the efficacy of MI-E.

Fernandez-Zamora et al describe the relationship of prolonged mechanical ventilation (PMV) and mortality following cardiac surgery. This retrospective analysis finds that ICU mortality is associated with severity of illness, bypass time, surgery, time and PMV. In subjects requiring PMV, sepsis was the leading cause of death while cardiogenic shock was responsible

in subjects not on PMV. These data likely demonstrate that PMV is a function of severity of illness and outcome, as such PMV and mortality go hand in hand.

Pediatric home mechanical ventilation has grown markedly in the last 2 decades as devices have improved and hospital survival rates climb. Amirmovin and colleagues describe their pediatric home mechanical ventilation cohort over a period of 26 years. In this report, neuromuscular disease accounted for half the subjects requiring mechanical ventilation followed by chronic pulmonary disease (a third of subjects). Two-thirds of subjects were cared for at home with the remainder cared for in a skilled nursing facility. The number of subjects receiving PEEP at discharge increased significantly over time, likely reflecting improvements in understanding of pathophysiology and enhanced performance characteristics of devices.

Dionísio et al evaluated the impact of mouthpiece design on the results of impulse oscillometry (IOS) in normal subjects. While subjects did not perceive any difference in comfort related to mouthpiece design, there were differences in measurements of lung mechanics. They found that the mouthpiece with the lowest resistance value was less likely to impact IOS results. Studies using IOS should include the mouthpiece used to assure consistency.

Chronic thromboembolic pulmonary hypertension is an orphan disease representing one of the most common causes of precapillary pulmonary hypertension. Evaluation of disease progression is often based on new symptoms. Inagaki and coworkers evaluated heart rate (HR) and oxygen saturation ( $S_{pO_2}$ ) during the 6-min walk test in a group of 31 subjects with thromboembolic pulmonary hypertension. They found that subjects with more severe disease had longer HR acceleration and longer  $S_{pO_2}$  recovery times. These findings were associated with pulmonary hemodynamics, suggesting that the 6-min walk test could be a noninvasive method for following disease progression.

COPD is a progressive disease primarily treated with therapies aimed at symptom relief. Dyspnea is perhaps the major symptom burden in COPD. Daynes et al devised a high frequency airway oscillating device intended to reduce dyspnea in these patients. They enrolled 23 subjects with COPD in a respiratory muscle training program that included the device over an 8-week period. This small trial demonstrated improvements in maximal inspiratory and expiratory pressures and a reduction in Medical Research Council score from 4 to 3. Adequately powered randomized controlled trials are needed to verify these findings.

This 5th annual Thomas L Petty Memorial Lecture at the AARC Congress was delivered by MeiLan Han. The lecture is named for Dr Tom Petty, a pioneer in COPD care and home oxygen therapy. The accompanying paper by Criner and Han deftly covers the epidemiology, economic burden, health disparities, and out-patient management of COPD. They also review the importance of curbing readmission rates through a series of interventions, including discharge bundles and electronic order sets. COPD is a burgeoning burden on resources, caregivers and patients. This review highlights important initiatives that should be quickly implemented.

Sahni and Wolfe review progress in the last year related to respiratory care in neuromuscular diseases. They focus on advances in noninvasive ventilation, covering noninvasive ventilation timing, modes of support, mask fit, and monitoring. Cough augmentation is reviewed along with complex treatment of sialorrhea. Finally, issues in end-of-life care in this population with progressive disease are detailed.