

In our Editor's Choice paper, Kheir et al present a pilot study that compared the acute effects of 2 commonly used lung recruitment maneuvers on lung volume, gas exchange, and hemodynamic profiles in children with ARDS. They found that a staircase recruitment strategy was effective in alveolar recruitment and was well tolerated hemodynamically. However, during this recruitment maneuver they noted a significant increase in dead-space ventilation, a decrease in CO₂ elimination, an increase in PaCO₂, and a decrease in respiratory system compliance. Also, within minutes following lung recruitment, derecruitment occurred when PEEP was lowered beyond the closing pressure. As pointed out by Shepard and Brilli, before such a strategy can become part of routine clinical practice, a larger randomized controlled trial with a patient-important outcome is necessary.

The aim of the study by Rehder and colleagues was to report a series of patients bridged to lung transplant with extracorporeal membrane oxygenation (ECMO) and to examine the potential impact of active rehabilitation and ambulation during pre-transplant ECMO. They found that bridging selected critically ill patients to transplant with ECMO is a viable treatment option, and active participation in physical therapy, including ambulation, may provide a more rapid post-transplantation recovery. As stated by Hodgson and Fan, this study helps to build the case for awake and ambulatory ECMO as a safe and feasible option for pre-transplant rehabilitation as a bridge to transplant and recovery.

Tremblay et al assessed whether smoking cessation counseling practices and related psychosocial characteristics among respiratory therapists (RTs) improved between 2005 and 2010. Although the proportion of RTs trained in smoking cessation counseling during and after formal training increased between 2005 and 2010 (from 3% to 14%, and from 17% to 29%, respectively), sustained efforts are needed to increase the number of trained RTs, so that this translates into positive observable changes in counseling practices. Boone correctly points out that there are many reasons why respiratory therapists should embrace the role of smoking cessation specialist.

The study by Huang and Yu assessed the predictive value of usual variables for extubation outcome in patients receiving prolonged mechanical ventilation. In this population of patients who tolerate spontaneous breathing trials and are ready for extubation, ineffective cough was the best predictor of extubation failure. In this study, extubation failure was associated with mortality.

Filtering devices are used during mechanical ventilation to avoid dysfunction of flow and pressure transducers or for airborne microorganism containment. The objective of the study by Tonnelier et al was to evaluate the influence of nebulization and active humidification on the resistance of expiratory filters. They found that expiratory limb filtration is likely to increase expiratory filter resistance due to the humidification circuit type, rather than to nebulization. If filtration is mandatory while using an unheated circuit, a dedicated filter should be used for ≤ 24 hours; otherwise a heated HEPA filter should be used.

The objective of the study by Dellweg and colleagues was to develop a system that samples air from the nasal cavity and analyzes its humidity, and to investigate nasal humidity during pre-nasal and intra-nasal oxygen application, with and without humidification. Pre-nasal administration of dry oxygen achieves levels of intranasal humidity similar to those achieved by intranasal administration in combination with a bubble through humidifier. Pre-nasal oxygen simplifies application and may reduce therapy cost.

The study by Golpe et al was designed to test the hypothesis that work during the 6-min walk test (6MWT) is a better predictor of mortality than distance walked during the 6MWT. They found that 6MWT work was not more useful than 6MWT distance to predict mortality. This study confirms that 6MWT distance and dyspnea on exertion are key elements in prognostic evaluation in COPD, while the value of exercise oxygen desaturation is less clear.

The objectives of the study by Kosciuch and colleagues were to assess the bronchial lumen and wall dimensions in asthma and COPD patients, in relation to disease severity, and to compare the airway dimensions in patients with asthma and COPD. Their results indicate that bronchial walls are thicker in patients with asthma than in patients with COPD, and they suggest that high-resolution computed tomography might be a useful tool in the assessment of airway structure in obstructive lung disease.

The aim of the study by Chiang et al was to assess the relationships among polymorphisms, clinical phenotypes, and the serum levels of transforming growth factor β1 (TGF-β1) and tumor necrosis factor α (TNF-α). They found that the genetic polymorphisms of TGF-β1 and TNF-α are associated with asthma. TGF-β1 modulates atopy. Both TGF-β1 and TNF-α modulate clinical severity and airway obstruction, in an additive manner.

The paper by Song et al describes the use of a self-expanding endobronchial occluder in bronchoscopic lung volume reduction. The results of the study demonstrate early significant improvements in pulmonary function, 6-min walk distance, dyspnea score, BODE index, and quality of life after placement of the self-expanding endobronchial occluder in bronchoscopic lung volume reduction. Its placement also proved both easy and safe. However, the initial improvements were maintained long-term for only a minority of subjects.

Paisani and colleagues compared the effects of volume-oriented incentive spirometry and flow-oriented incentive spirometry on thoracoabdominal mechanics and respiratory muscle activity in healthy volunteers. Volume-oriented incentive spirometry was found to promote a greater increase in chest wall volume, with a larger abdominal contribution and lower respiratory muscle activity, than flow-oriented incentive spirometry.

This month we are pleased to publish the paper by Nava from the 39th Donald F Egan Scientific Memorial Lecture, "Behind a Mask: Tricks, Pitfalls, and Prejudices for Noninvasive Ventilation." We are equally pleased to publish the paper by Myers from the 28th Philip Kittredge Memorial Lecture, "Thinking Outside the Box: Moving the Respiratory Care Profession Beyond the Hospital Walls."