

Our Editor's Choice paper, from Kallet and the ARDSnet collaborators, evaluated the association between pulmonary dead-space fraction ( $V_D/V_T$ ) and mortality in subjects with ARDS enrolled in a clinical trial incorporating lung-protective ventilation. They found that markedly elevated  $V_D/V_T$  ( $> 0.60$ ) in early ARDS was associated with higher mortality. They suggest that measuring  $V_D/V_T$  may be useful in identifying patients with ARDS at increased risk of death.

Mireles-Cabodevila et al compared the effects of conventional mechanical ventilation using a lung protective strategy with mid-frequency ventilation (MFV) in a porcine model of lung injury. MFV is a mode of pressure control ventilation based on an optimal targeting scheme that maximizes alveolar ventilation and minimizes  $V_T$ . Their results suggest that MFV allows the use of higher respiratory frequencies and lower  $V_T$  than conventional ventilation to maximize alveolar ventilation. In his editorial, Marini urges caution. Its performance in other models, over longer periods of observation, and in lungs that are more severely injured cannot be assumed. As the authors themselves point out, translation directly to clinical practice cannot be advised on the basis of these pilot data alone.

Bolzan and colleagues conducted a randomized controlled trial to evaluate the clinical impact of the volume-time curve on endotracheal tube cuff management. For cuff volume management, they used minimal occlusive volume in 222 subjects and the volume-time curve from the ventilator graphics in 228 subjects. The volume-time curve technique resulted in a significantly lower cuff pressure, as well as a lower incidence and severity of sore throat. As Richard and Mercat point out, however, the cuff pressures reported were relatively high even in the volume-time group (mean 31 cm H<sub>2</sub>O), which might be hazardous in patients ventilated for longer periods of time.

Oto et al evaluated ventilation efficacy of a video-laryngoscope equipped with a ventilation feature in a lung model study. They found that video-laryngoscopes equipped with a ventilation feature provided effective  $V_T$  in simulated clinical scenarios. As with all bench studies, clinical study is required to validate these findings.

The study by Duan and colleagues compared the predictive accuracy of reintubation by voluntary cough peak flow (V-CPF) and involuntary cough peak flow (IV-CPF). To measure the IV-CPF, 2 mL of saline was rapidly instilled into the endotracheal tube. They found that IV-CPF underestimates cough strength in subjects with high V-CPF. However, in uncooperative patients, the best method is unclear.

Vargas et al developed a double-lumen endotracheal tube (DLET) to improve airway management and ventilation during percutaneous dilational tracheostomy (PDT). In a bench model, they compared the DLET with and without a bronchoscope, and standard endotracheal tubes. They found that the use of the DLET during PDT allows fiberoptic bronchoscopy without imposing an excessive airway resistance. A reduced tube resistance during this procedure may confer additional safety, but this will need to be validated in a clinical study.

In another study related to PDT, Sanabria conducted a systematic review of methods that have been described in the literature (multiple dilator, progressive dilator, forceps dilation, screw-like dilation, balloon dilation and translaryngeal). The

Blue Rhino was found to be less difficult, has higher minor bleeding events, and physicians have more experience using this method. However, available trials are underpowered to define the best method.

The significance of changes in PaCO<sub>2</sub> during long-term NIV on prognosis is unclear. Tsuboi and colleagues aimed to clarify whether stabilizing PaCO<sub>2</sub> during NIV had a favorable prognostic effect. Data from 190 subjects with restrictive thoracic disease and who received long-term NIV were retrospectively studied. They found that a decrease in the annual change of PaCO<sub>2</sub> during long-term NIV was a significant favorable prognostic factor. Thus, efforts to reduce PaCO<sub>2</sub> should be made during long-term NIV.

The aim of the study by Papaioannou et al was to investigate associations of demographic, clinical, laboratory and functional parameters with length of stay (LOS) for subjects admitted with COPD exacerbations, and to provide a score for the prediction of the need for prolonged hospitalization. Seven parameters evaluated on patient admission were included in a simple score named AECOPD-F. The authors found that the AECOPD-F score could accurately predict LOS in hospitalized COPD patients.

Wibmer et al compared walk distance and lung volumes measured before and after a 6-min walk test (6MWT) in subjects with stable COPD. With the exception of FEV<sub>1</sub>, lung volumes measured immediately after 6MWT were more closely related to exercise limitation than baseline volumes measured before 6MWT. Consideration should be given to performing pulmonary function testing immediately after exercise for the assessment of exercise induced ventilation constraints to physical performance that cannot be adequately assessed from baseline PFT at rest.

The 6-min walk distance (6MWD) in exclusive narghile smokers (ENS) was evaluated by Ben Saad et al. Compared with healthy nonsmokers, the subgroup of ENS has a significantly lower 6MWD. It would thus appear that narghile use might play a role in reducing the sub-maximal aerobic capacity.

Kamps and colleagues evaluated the accuracy of a newly developed Childhood Asthma Score in predicting requirement for bronchodilator nebulization. Compared to routine clinical assessment, they found that the Childhood Asthma Score accurately predicted the requirement for bronchodilator nebulization in children with acute asthma without use of auscultative findings.

The ability of health care professionals to demonstrate the correct use of commonly used inhalers was assessed by Basheti and colleagues. With the exception of specialists, health care professionals in Jordan need to be updated on their inhaler technique skills – specifically the newer dry powder inhalers. A single effective educational workshop on inhaler technique can significantly improve skills.

The aim of the study by Garcia-Olivé et al was to describe the relationship between influenza and climatic parameters with severe hemoptysis that required bronchial artery embolization (BAE). Consecutive subjects with at least one episode of hemoptysis that required BAE during a 5-y period were included. There was a strong relationship between severe hemoptysis and low mean temperature. A weak association of hemoptysis with influenza activity was also seen.