

In our Editor's Choice paper this month, Bowton and colleagues report the results of a clinical study on the impact of a tapered-cuff endotracheal tube on the incidence of ventilator-associated pneumonia (VAP). They found that, in the setting of a VAP rate very near the average of ICUs in the United States, and where there was high adherence to a VAP prevention bundle, the use of a tapered-cuff ETT was not associated with a reduction in the VAP rate. As Fernandez and Restrepo state in their editorial, each ICU should evaluate their VAP rate and VAP bundle adherence before considering more expensive technologies related to the endotracheal tube.

Maggiore et al evaluated the impact of implementing guidelines consistent with the AARC clinical practice guidelines related to endotracheal suctioning during mechanical ventilation. They found that adverse effects of suctioning were reduced with the implementation of these guidelines. This has important clinical implications for anyone who performs this common procedure. As Ntoumenopoulos appropriately points out in his editorial, further work is needed to investigate controversial strategies such as suction catheter size, saline instillation, and the use of open versus closed suction.

We publish 2 papers this month related to long-term oxygen therapy (LTOT). A comparative study of 3 portable oxygen concentrators during a 6-minute walk test was conducted by LeBlanc et al. From their results, they suggest that users of portable oxygen concentrators should be appropriately tested during all activities of daily living, to ensure adequate oxygenation. Martí et al evaluated whether oxygen-conserving devices are effective for correcting exercise hypoxemia. Although these oxygen-conserving devices corrected exercise hypoxemia in most subjects with COPD and interstitial lung disease (ILD), correction was not achieved in about 20% of subjects with severe COPD, regardless of the device, and in nearly 40% of the subjects with ILD using the pulse demand oxygen delivery system. Pruitt points out that the complexity of these devices calls for a knowledgeable and experienced clinician to assess and decide on which of these options should be used in a patient receiving LTOT. *A Guide to Portable Oxygen Concentrators*, recently published by the AARC, is a valuable tool for making decisions regarding LTOT and should be kept handy by anyone caring for patients receiving LTOT.

Emergency department management of suspected carbon monoxide poisoning with the use of a pulse oximeter that measures carboxyhemoglobin ( $S_{pCO}$ ) is reported by Sebbane and colleagues. The 95% limits of agreement for  $S_{pCO}$  measurements compared to blood carboxyhemoglobin (COHb) was  $-6.7\%$  to  $6.3\%$ . The authors conclude that  $S_{pCO}$  was not a substitute for standard blood COHb measurement. These results should

give pause when  $S_{pCO}$  is used to screen for carbon monoxide poisoning.

High flow humidified oxygen by nasal cannula has been used increasingly in recent years. One of the mechanisms associated with this therapy is positive airway pressure. Parke and McGuinness compared the airway pressure generated during different phases of the respiratory cycle in patients receiving nasal high flow oxygen therapy at various gas flows. The mean nasopharyngeal airway pressures were about 1, 2, and 3 cm  $H_2O$  at flows of 30, 40, and 50 L/min. Whether or not these pressures have clinical relevance is yet to be determined, but may account in part for some of the clinical effects seen with high flow nasal cannula.

Pathak and colleagues evaluated the role of nicotine replacement therapy (NRT) in the ICU. Although ICU stay and ventilator days decreased in those receiving NRT, the study was underpowered and the differences were not statistically significant. It is important that we publish studies of the use of NRT in the ICU, but unfortunately this study does little to inform the use of NRT in patients admitted to the ICU.

Most portable bi-level positive airway pressure devices are not equipped with air-oxygen blenders. Dai et al investigated in vitro noninvasive ventilation (NIV) parameters and their effects on  $F_{IO_2}$ , particularly the effect of the oxygen injection site. They found that the oxygen injection site closest to the patient (on the mask) had the higher  $F_{IO_2}$ .

Lv and colleagues evaluated a visual sputum suctioning system (VSSS) in a laboratory setting. They report that suctioning with the VSSS is feasible and, because of its real-time imaging guidance, the efficiency of the VSSS procedure was greater than that of the conventional single-lumen catheter. This system may provide a new platform for sputum suctioning. As this was a bench study, we await reports of the clinical effectiveness of this system.

The relationship between spontaneous expiratory flow-volume curve pattern and air-flow obstruction in elderly COPD patients was evaluated by Nozoe and colleagues. They report that concavity of the spontaneous expiratory flow-volume curve obtained during tidal breathing may be a useful test for determining the presence of very severe obstruction in elderly patients unable to perform a satisfactory forced vital capacity maneuver.

This month we also publish 4 papers from the 2012 New Horizons Symposium on the topics of evidence-based respiratory care, the scientific basis for protocol-directed respiratory care, the evidence for airway clearance therapy, and the evidence for oxygen use in hospitalized patients. We also publish a clinical practice guideline on blood gas analysis and hemoximetry. Finally, in this issue are found the abstracts that will be presented at the AARC Congress 2013 to be held in Anaheim next month.