

Our Editor's Choice paper this month deals with the effects of condensate in the exhalation limb of neonatal circuits on airway pressure during bubble CPAP. Using an anatomically accurate nasal airway model of a preterm infant, Youngquist et al measured the effects of up to 20 mL of condensate. Condensate in the exhalation limb of the patient circuit during bubble CPAP significantly increased pressure delivered to the patient. This informs the practice of emptying fluid from the exhalation limb every 2 to 3 hours.

Robinson and colleagues evaluated patient-ventilator asynchrony in traumatically injured mechanically ventilated subjects. Subjects with asynchrony were more commonly set on SIMV mode; SIMV with set breathing frequencies ≥ 10 breaths/min were associated with increased asynchrony rates. There was, however, no difference in ventilator days, ICU or hospital stay, percent discharged home, or mortality between the asynchronous and non-asynchronous subjects.

Whether early tracheostomy can improve the clinical outcomes of critically ill patients remains controversial. The study by Shan et al aimed to investigate the potential benefits of early tracheostomy compared to late tracheostomy with a meta-analysis of observational studies. The retrospective observational studies included in this meta-analysis suggest that early tracheostomy performed between days 3 and 7 after intubation had some advantages, including decreased mortality and reduced ICU stay, hospital stay, and mechanical ventilation duration.

Freeman and colleagues examined the association between institutional resource expenditure and mortality in ARF patients managed with tracheostomy. Their analytic models employed the University Health Systems Consortium database of 4,776 patients who underwent tracheostomy. They were unable to demonstrate a positive relationship between resource expenditure and outcome in patients with acute respiratory failure managed with tracheostomy.

The effect of nebulized furosemide as an adjunct to the conventional treatment of patients with COPD exacerbation was studied by Sheikh Motahar Vahedi et al in a randomized double-blinded clinical trial. They found that dyspnea severity and measures of respiratory function were improved in patients receiving inhaled furosemide.

Brusasco and colleagues tested the efficiency of 7 heat and moisture exchangers (HMEs) designed for spontaneously breathing tracheostomized patients, in a normothermic model, at different minute ventilations and supplemental oxygen flows. They found that the efficiency of HMEs in terms of temperature and absolute humidity was significantly affected by O_2 supplementation and minute ventilation.

Growth-arrest-specific protein 6 (GAS6) is a vitamin K-dependent protein expressed by endothelial cells and leukocytes participating in cell survival, migration, and proliferation and involved in many pathological situations. Diehl et al assessed its implication in ARDS and its variation according to PEEP setting. GAS6 plasma level was elevated in subjects with ARDS and a high-PEEP strategy was associated with a decrease in GAS6 and IL-8 plasma levels at day 3, without significant differences in day 28 mortality between the 2 groups.

Ide and Tabira investigated the effects of moderate-intensity exercise on the sympathetic nervous system in male smokers. Smokers exhibited a greater degree of sympathet-

ic nervous system activity, and reduced parasympathetic activity after exercise. The authors suggest that the increased sympathetic nervous system activity, including thermoregulatory activity, might contribute to cachexia in smokers.

Geha and colleagues evaluated the quality and reporting of randomized trials in cardiothoracic physical therapy. Their data suggest that there is great potential to improve the quality of the conduct and reporting of trials evaluating the effects of cardiothoracic physical therapy.

Cortes et al evaluated the effects of abnormal blood pressure on arterial sampler filling times, specifically, the time required to fill a vented arterial sampler. Filling was much slower for venous than for arterial puncture. They found that, regardless of arterial pressure, the arterial sampler filling time can be used as an indicator of a successful arterial puncture at the bedside.

Boussien et al evaluated 8 transport ventilators in a bench study under normal resistance and compliance conditions, ARDS conditions, and obstructive conditions. The most recent turbine ventilators outperformed the pneumatic ventilators. The best performers among the turbine ventilators proved comparable to modern ICU ventilators.

Inspiratory capacity correction for the total lung capacity, defined as inspiratory fraction (IF), may be functionally more representative than other traditional indices in some patients. Yan Zhang et al investigated the association between IF and exercise capacity in patients with stable, moderate to severe COPD. Compared to FEV₁, IF was a robust factor to reflect lung hyperinflation and to estimate exercise capacity.

Caihong Zhang et al developed and validated a 51-item COPD Self-Management Scale (CSMS), including 5 domains (symptom management, daily life management, emotion management, information management, and self-efficacy). They found that the CSMS is reliable, valid, and sensitive for evaluating the self-management status of COPD patients. They suggest that this could be an important instrument for assessing and improving the self-management of COPD patients, particularly, those in the Hunan region of China.

Chon and colleagues prospectively gathered data on all in-hospital cardiac arrests in the general ward over a two year period. Not surprisingly, witnessed in-hospital cardiac arrests in the general ward had a higher rate of survival to hospital discharge. Respiratory insufficiency was a major preventable cause of in-hospital cardiac arrest.

Waugh et al determined whether variables such as inhaled gas composition, gas flows delivered via non-rebreather mask, and mouth open or closed affect measurements of end-tidal CO_2 . They found that, in normal subjects, end-tidal CO_2 measurements were not affected by heliox or gas flow at 10 or 15 L/min through a non-rebreathing mask.

Botana-Rial et al analyzed whether choosing the point of entry for closed pleural biopsy with thoracic ultrasound assistance influences the diagnostic yield in malignant pleural effusion. They found that selecting the point of entry for closed pleural biopsy using thoracic ultrasound increases the likelihood of obtaining pleural tissue and the diagnostic yield. They recommend ultrasound-assisted closed pleural biopsy to investigate pleural effusion, since the diagnostic yield of a pleural biopsy with an Abrams needle increased by $> 17\%$ in subjects with malignant pleural effusion.