

In the Editor's Choice paper for this month, Delisle et al compared neurally adjusted ventilatory assist (NAVA) to pressure support ventilation (PSV). With NAVA the absence of over-assistance during sleep coincided with absence of central apneas. In her editorial, Moss points out that, in addition to physiologic outcomes improvements, outcomes such as decreased number of ventilator days and fewer complications of mechanical ventilation will be necessary for widespread adoption of NAVA.

Rodriguez et al describe changes in transpulmonary pressure (P_{tp}) and gas exchange during a decremental PEEP titration maneuver in subjects with ARDS. They suggest that PEEP selection based on P_{tp} and V_D/V_T may be helpful in these situations. In his editorial, Piraino comments that, although decremental PEEP titration is attractive, questions remain about whether or not this approach improves outcomes. It is currently unknown whether any approach to PEEP selection is superior to others.

In 2008 the Cystic Fibrosis (CF) Foundation launched the Respiratory Therapy Mentoring Program, which pairs a respiratory therapist (RT) relatively new to CF (apprentice) with a highly experienced RT (mentor) from a similar CF care center. A preliminary evaluation of the effectiveness of this program is reported by Richards et al. Their initial analysis suggests that the mentoring program has achieved its short-term goal of increasing CF-specific knowledge among RTs. Volsko observes that the process described in this paper can be used to support RTs as they transition from novice to experienced professionals.

The study by Luján and colleagues assessed the reliability of V_T provided by 5 ventilators. All ventilators underestimated V_T and there was a direct relationship between leak and underestimation in 4 ventilators. A ventilator including an algorithm that computes the pressure loss through the circuit as a function of flow exiting the ventilator had the minimal effect of leaks on the estimation of V_T .

Gupta et al performed a retrospective review of patients with respiratory failure treated with NIV to determine whether extended use of NIV is associated with worse clinical outcomes. In the group of subjects with no indication for NIV, the presence of contraindications was associated with a higher rate of intubation. Their results support the extended utilization of NIV for subjects without contraindications, and for those with indications despite contraindications.

Hsu et al evaluated interpretation strategies and bronchodilator response in pediatric patients with normal baseline spirometry. Compared to the percent of predicted interpretation strategy, lower limit of normal was more likely to report a test as normal. About 1 in 10 subjects with normal baseline spirometry showed a substantial bronchodilator response.

A computer-aided audit system for respiratory therapy consult evaluations is by Kester and Stoller. There were similar degrees of concordance between the audited care plans and the gold standard care plans using the old and new audit systems. The new computer-aided system increased capacity to audit more RTs performing consults while preserving accuracy as an audit tool.

Ueta et al evaluated the influence of humidification on comfort during NIV with a helmet. Interestingly, for patient comfort and mucosal humidification during CPAP using a helmet, the authors found that the most desirable conditions were obtained by leaving the water in the humidifier chamber at room temperature.

The effect of early respiratory therapy on postoperative atelectasis in children undergoing lung resection was studied by Kaminski and colleagues. They evaluated a standardized protocol that included a mask with a positive expiratory pressure of 10 cm H_2O , expiratory rib cage compression, coughing, lifting the upper limbs, and ambulation, starting within the first 4 hours after surgery and continuing 3 times each day. The protocol decreased atelectasis, but did not reduce the time of chest tube removal or the duration of hospital stay.

The purpose of the study by Lee et al was to develop an equation for optimal CPAP in Asians with obstructive sleep apnea, and to compare this new formula with the Hoffstein formula. They found that although their equation better predicted optimal CPAP level in Asian subjects, its usefulness was limited in some clinical settings because it did not accurately predict the prescribed CPAP level.

Prognostic models of COPD do not include sufficient indicators of right ventricular (RV) function to enable accurate assessment of changes in RV function over time. The aim of the study by Tanaka and colleagues was to test the hypothesis that it would be useful to include noninvasive markers of RV function in the routine assessment and prognostic models of early stage COPD with or without pulmonary hypertension. Their results support the assessment of RV function in the evaluation of physical status in patients with COPD.

The study by Fu et al was designed to define microscopic structural features of lung injury following high frequency oscillatory ventilation (HFOV) with a high lung volume strategy in newborn piglets with acute lung injury. HFOV with high lung volume strategy improved oxygenation and reduced pulmonary polymorphonuclear leukocyte infiltration, hemorrhage, alveolar edema, and hyaline membrane formation.

Kapur et al used data from the Cardiovascular Health Study to estimate the association of body mass index and S_{pO_2} . They found a narrow distribution of S_{pO_2} values in a community-based sample of ambulatory elderly subjects. Obesity was a strong independent contributor to a low S_{pO_2} , with effects comparable to or greater than other factors clinically associated with lower S_{pO_2} .

The aim of the study by Czcell and colleagues was to analyze complications and survival after percutaneous endoscopic gastrostomy (PEG) tube placement performed with NIV. PEG tube insertion was associated with minimal peri- and post-procedural complications, which was attributed to the systematic use of procedural NIV in ALS subjects.

Because the reliability of $P_{0.1}$ as an index of respiratory motor output has not been sufficiently investigated, Kera et al examined the reliability of $P_{0.1}$ in healthy subjects. The 95% CIs indicated that it is necessary to determine the average value of 3 or more measurements and a minimum of 4 repeat measurements to obtain valid results.

Güngör et al assessed whether the 6-min walk distance (6MWD) or the percent-of-predicted 6MWD is a better reflection of the respiratory function of patients using home NIV due to chronic hypercapnic respiratory failure. The percent-of-predicted 6MWD was better correlated with respiratory function than actual 6MWD for subjects using home NIV due to chronic hypercapnic respiratory failure with COPD, obesity hypoventilation syndrome, kyphoscoliosis, and parenchymal lung disease.