

In our Editor's Choice paper, Moreno Franco et al report a comparative effectiveness study of rescue strategies in 1,000 subjects with severe hypoxemic respiratory failure. Extracorporeal membrane oxygenation (ECMO), prone positioning, high frequency oscillatory ventilation (HFOV), and inhaled vasodilators were considered rescue strategies. None of the strategies individually or in combination had a significant association with hospital mortality after adjusting covariates. Vasudevan suggests that, in the absence of high quality evidence to support the effectiveness of rescue strategies, the decision to use them is a complex process made on a case-by-case basis.

González-Pizarro and colleagues determined pneumothorax pressures in a model of healthy piglets under general anesthesia. Based on this model, the authors concluded that pneumothorax does not seem to occur in the clinically relevant inspiratory pressures < 50 cm H₂O. Bhalla and Khemani comment that these data suggest that a recruitment maneuver should be well tolerated in mechanically ventilated newborns with normal lungs. However, it is important to note that these findings should not be applied to children with ARDS.

Natalini et al conducted a physiologic study to assess factors related to auto-PEEP. The variable with the strongest effect on auto-PEEP was flow limitation. Interestingly, breathing frequency, expiratory time, tidal volume, and minute ventilation were not independently associated with auto-PEEP. Ku points out that the factors involved in the development of auto-PEEP do not occur equally. Thus, it is important to prioritize and manage auto-PEEP in patients receiving mechanical ventilation.

The aim of the study by Bell and colleagues was to determine how well respiratory assessments for ventilated neonates and children correlated when performed simultaneously by 2 respiratory therapists, either face-to-face or via telemedicine. Telemedicine evaluations highly correlated with face-to-face for 10 out of 14 aspects of standard bedside respiratory assessment. Poor correlation was noted for more complex, patient-generated parameters.

Using a lung model simulating an extremely low birth weight neonate, Ivanov evaluated the impact of Y-piece/endotracheal tube connector pairs with reduced instrumental dead space on CO₂ elimination. A reduction in instrumental dead space led to improvements in ventilation of the lung model. Negative effects on resistance and work of breathing appeared minimal. These data should be confirmed in humans.

The objective of the study by Grzelewski et al was to evaluate spirometry-adjusted F_{ENO} in children, adolescents and young adults with asthma. They propose new lung function/lung inflammation ratios that may make it possible to diagnose asthma in children and adolescents on the basis of their spirometry and F_{ENO} measurements.

Minasian assessed predictors of pulmonary function impairment in subjects with chronic heart failure according to the lower limit of normal in comparison to conventional cutoff values. They found that the lower limit of normal identifies more predictors of diffusion impairment and airway obstruction compared to conventional cutoff values in subjects with chronic heart failure with left ventricular systolic dysfunction. However, lowering the conventional cutoff points yielded similar results as the lower limit of normal.

Inspiratory muscle strength and endurance in children and adolescents with cystic fibrosis (CF) was studied by Vendrusculo

and colleagues. Children and adolescents with CF, without colonization by *Pseudomonas aeruginosa* and normal lung function, had increased inspiratory muscle strength and decreased endurance compared to healthy individuals. Strength was related to pulmonary function parameters, while endurance was associated with airway resistance.

The objective of the study by Flores et al was to evaluate clinical outcomes and prognostic factors in a cohort of adult subjects with CF after 7 year follow-up, and to evaluate changes in clinical scores, spirometry, 6-min walk test performance and pulmonary artery systolic pressure (PASP) as estimated by Doppler echocardiography. Poor outcomes were reported in 20% of subjects. PASP ≥42 mm Hg and FEV₁ ≤ 30% were the most significant prognostic predictors of poor outcomes.

Arisoy et al evaluated the relationship between obstructive sleep apnea (OSA) and myeloperoxidase activity, the oxidative stress index, total antioxidative capacity, and total oxidative capacity. There were no differences in studied parameters between control and OSA groups.

The study by Sunnetcioglu et al evaluated oxidative damage in COPD, lung cancer, and OSA. Oxidative damage was observed in all three diagnoses. As a response to oxidative stress, antioxidant mechanisms were also active in these diseases.

Valenza and colleagues analyzed the predictive power and identified the cutoffs of physical activity in their different domains (household, leisure time, and sport) for the absence of frailty in acute and stable COPD. They found that physical activity predicted the absence or presence of frailty in subjects with either stable or acute COPD.

The purpose of the study by Wang et al was to assess the count scale number (CSN) for translation of exercise test response to training intensity. For CSN, subjects inhaled maximally and then counted from 1 to the maximum number they could reach in one breath while exhaling. They found that exercise guided by the CSN alone could result in a given heart rate response, suggesting that the CSN is a simple and practical tool in translating exercise test results into individualized training intensity. Using CSN as the intensity indicator, patients may be able to exercise safely and effectively.

The aim of the study by Messika and colleagues was to characterize the clinical features and microbial etiologies of non-community acquired pneumonia (NCAP) in subjects who were not mechanically ventilated, to assess the impact of microbiological investigation on management. Their results suggest that integrating microbiological investigation into the complex clinical diagnostic workup of patients suspected of NCAP is important.

Pilarczyk evaluated the safety of percutaneous dilatational tracheostomy (PDT) in subjects who underwent thoracic organ transplantation. They found that PDT could be safely performed on subjects with acute respiratory failure after thoracic organ transplantation.

The aim of the study by Çaglayan and colleagues was to assess serious complications related to convex-probe endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) and determine the complication rate in a large group of subjects. They found that convex-probe EBUS-TBNA was generally a safe procedure. Serious complications including infections are encountered, albeit rarely. Thus, all precautions should be taken for complications before and during the procedure.