Su et al conducted a prospective, multicenter randomized controlled study involving mechanically ventilated patients who tolerated a 2-hour spontaneous breathing trial and were subsequently extubated. Patients were randomized to post-extubation noninvasive ventilation (NIV) or standard medical therapy. They found that preventive use of NIV after extubation in patients who passed a spontaneous breathing trial did not show benefits in decreasing extubation failure rate or the mortality rate. However, this study differs from prior studies in that they did not select patients according to the risk of post-extubation respiratory failure. As pointed out by Figueroa-Casas, NIV has a role in the prevention of post-extubation respiratory failure in patients at risk for extubation failure, but not when it is used routinely in all patients.

Anjos et al conducted a randomized trial of noninvasive PEEP in patients with acquired immune deficiency syndrome (AIDS) and hypoxemic respiratory failure. They found that, in patients with AIDS and hypoxemic respiratory failure, there is an improvement in oxygenation to a progressive sequential increase in PEEP (up to 15 cm H2O). However, corresponding elevations in P aCO2 limit the recommended level of PEEP to 10 cm H2O. Pressure support ventilation at 5 cm H2O promoted an improvement in the subjective sensation of dyspnea regardless of the PEEP level employed. As Mehta and Lapinsky state in their editorial, the results of this study suggest that a PSV of 5 cm H2O in this patient population may reduce dyspnea, and higher levels of PEEP should be avoided to minimize the risk of hypacapnia.

Clinkscale et al compared the effectiveness of conventional chest physiotherapy to high-frequency wall compression (HFCWC) applied via a vibratory vest. Unfortunately, this study was underpowered for the primary outcome of interest (hospital stay) and hence we cannot make recommendations on the preferential use of HFCWC or conventional chest physiotherapy for intubated and non-intubated adult patients. As pointed out by Ntoumenopoulos, for several reasons this study may not provide us with the much-needed evidence on the optimal airway clearance therapy for hospitalized patients.

The prevalence of sleep-disordered breathing (SDB) in patients receiving prolonged mechanical ventilation (PMV) is unknown. The aim of the study by Diaz-Abad et al was to assess the frequency of SDB in patients admitted to a long-term acute care hospital who weaned from PMV. They report a high prevalence of unrecognized SDB in patients who are candidates for decannulation after weaning from PMV. As Johnson and Johnson suggest in their editorial, further studies are needed to assess the incidence of SDB in ventilator dependent patients and to determine whether optimal management of SDB in this patient population improves outcomes.

Wang et al report on the adherence to CPAP in patients with obstructive sleep apnea (OSA) in a Chinese population. They report that CPAP adherence is low in Tianjin, China. Only half of the patients remained adherent to the treatment, and the other half either never initiated the treatment or abandoned use of CPAP. To improve CPAP adherence, clinicians should make the CPAP titration a portableable experience for these patients. It is also important to provide patients education and support about CPAP use in the follow-up visits.

The influence of chronic intermittent hypoxemia and OSA on nonalcoholic fatty liver disease was investigated by Turkay et al. The duration of hypoxia during sleep was the parameter most correlated with the severity of nonalcoholic fatty liver disease. The authors concluded that the prevalence of nonalcoholic fatty liver disease was higher in patients with severe OSA, suggesting a role for nocturnal hypoxemia in the pathogenesis of fatty liver disease.

Sui et al evaluated the effectiveness of bacterial disinfectants on surfaces of mechanical ventilator systems. They found that the surfaces of ventilator systems, including faceplates, Y-pieces, and water traps, must be disinfected frequently, at least every 8 h, to control bacterial growth. Disinfection using 75% alcohol spray with air drying effectively decreased S. aureus on ventilator system surfaces. Whether this practice translates to a reduction in nosocomial infections is yet to be determined.

The maximal inspiratory pressure (P max) is sometimes measured in the process of patient evaluation during liberation from mechanical ventilation. The use of a digital pressure gauge and the time to achieve the inspiratory peak pressure was evaluated by de Souza et al. They found that, within an observation period of 60 s, the majority of patients reached the maximal inspiratory peak between 40 and 60 s. Further studies are needed to define the clinical importance of this study, in particular the role of P max in determining when patients can be liberated from the ventilator, and the importance of weakness in patients who cannot be liberated.

COPD becomes a long-term burden on family members who serve as day-to-day caregivers. Wang et al evaluated the influence of family caregiver caring behavior on patients’ self-care behavior in Taiwan. Interestingly, patients’ self-care behavior was negatively correlated with family caregivers’ caring behavior, but positively with duration of family caregiver caring behavior. The authors concluded that family caregivers’ caring behavior had a partial negative effect on COPD patients’ self-care behavior.

The effect of inhaled nitric oxide on oxidative stress and histopathological and inflammatory lung injury in a saline-lavaged rabbit model of acute lung injury was studied by Fioretto et al. They found that inhaled nitric oxide at 5 ppm attenuated oxidative stress and histopathological and inflammatory lung injury in this model. As with any animal study, the clinical implications and cost-effectiveness of this treatment strategy remain to be determined.

This month we publish a review paper on airway pressure release ventilation. We also publish case reports on the use of the Novalung pumpless extracorporeal lung assist device, hidden diagnosis of tuberculous pleurisy masked by concomitant P. oryzihabitans bacteremia, congenital pulmonary airway malformation, and utilization of hyperbaric oxygen therapy and induced hypothermia after hydrogen sulfide exposure. Our teaching cases are skin preparation process for the prevention of skin breakdown in patients who are treated with prone positioning, and an atypical presentation of neuroléptic malignant syndrome.