

Our Editor's Choice paper is very relevant to respiratory care practice. Haynes conducted a randomized controlled trial of cryoanalgesia (ice bag) to reduce pain associated with arterial blood gas puncture. The treatment group had a bag of ice applied to their wrist for 3 minutes prior to arterial puncture. Ice application prior to arterial puncture was well tolerated and reduced procedure-related pain. As McSwain and Yeager point out in their editorial, this paper provides good evidence that ice pack cryoanalgesia would be an appropriate addition to routine arterial puncture procedures in a variety of clinical settings.

Although noninvasive ventilation (NIV) is increasingly used in general wards, limited evidence exists about its ability to provide effective ventilation in this setting. Olivieri et al evaluated NIV delivered in the ward and found that it was feasible and can be safely administered overnight. As emphasized by Baumann, the importance of staff training cannot be overemphasized to obtain good results. It is important to tailor the NIV management program to the local culture, which might dictate the setting for NIV use.

Guidelines suggest limiting the plateau pressure (Pplat) to less than 30 cm H<sub>2</sub>O. Chan and colleagues determined whether Pplat within the first 24 hours of intensive care unit (ICU) admission is predictive of outcome, and whether lower Pplat was associated with lower mortality. They found that lower Pplat was associated with lower mortality rate. Kallet reminds us of the importance of tidal volume reduction to lower Pplat, bearing in mind the potential impact of chest wall mechanics.

Danin et al measured the inner volume of the endotracheal tube before extubation using the acoustic reflection method. After extubation, the biofilm was studied with optical and atomic force microscopy, and bacteriological analysis was performed. They found that endotracheal tube biofilm appears quickly after intubation. Even after a soft rinse, a small but measurable part of biofilm remained strongly adhered to the lumen of the tube. Moreover, it contained potentially pathogenic bacteria.

Chung et al evaluated aerosol distribution during open suctioning and long-term surveillance of air quality in a respiratory care center. Airborne levels of particulate matter and bacteria were higher during open suctioning in mechanically ventilated patients. This emphasizes the need for the use of personal protective equipment during open suctioning or, alternatively, the use of closed suction catheters.

The aim of the study by Sidler-Moix and colleagues was to compare four different nebulizers, of three different types, with an in vitro model of albuterol delivery. Osmolality was stable during nebulization with the vibrating mesh nebulizer, but increased with the jet and ultrasonic nebulizers. Albuterol delivery was 1.6 and 2.3 times higher with the ultrasonic and vibrating mesh devices, respectively, as compared with the jet nebulizer. Particle size was significantly higher with the ultrasonic nebulizer.

Rosner and Mastropietro aimed to determine whether prior cardiac surgery was independently associated with decreased survival after infant tracheostomy. They found that cardiac surgery was independently associated with decreased survival in infants requiring tracheostomy. Clinicians and families of infants in whom tracheostomy after cardiac surgery is deemed necessary should consider this when planning long-term care.

Vaghegini et al evaluated outcomes for prolonged mechanical ventilation after cardiac surgery. They found that subjects needing prolonged mechanical ventilation after combined cardiac surgery (coronary artery bypass grafting plus

valve surgery) might have worse outcome than simple cardiac bypass surgery.

Ventilatory efficiency before and after lung volume reduction surgery (LVRS) was assessed by Armstrong and colleagues. They sought to assess  $\dot{V}_E/\dot{V}_{CO_2}$  changes with LVRS compared to controls who only received standard medical care. At 6-months, the LVRS group had significantly improved  $\dot{V}_E/\dot{V}_{CO_2}$  (improved ventilatory efficiency) and  $P_{ETCO_2}$ ; the control group did not demonstrate these changes. The changes were greatest in the subjects who improved their exercise capacity after surgery.

Shimizu et al used an ECG-based screening tool for sleep-disordered breathing to examine the usefulness of cyclic variation of heart rate score in subjects with heart failure. They found that cyclic variation of heart rate determined by Holter ECG was a useful screening index for severe sleep-disordered breathing in subjects with heart failure.

The purpose of the study by Hommerding and colleagues was to evaluate the effect of an aerobic exercise program based on verbal and written guidelines on maximum exercise capacity using a cardiopulmonary exercise test, quality of life, and the self-reported aerobic exercise practice of children and adolescents with cystic fibrosis. They found that verbal and written guidelines for aerobic exercise, together with supervision over the phone, had a positive impact on the report of regular physical exercise practice by children and adolescents. However, no improvement was found in lung function and maximum exercise capacity or domains of the quality of life questionnaire.

Zanini et al conducted a study to define minimal clinically important difference estimate for the visual analog scale component of the EuroQol Group's 5-dimension questionnaire (EQ-VAS) after pulmonary rehabilitation (PR). They found that the EQ-VAS could be a practical alternative to more time-consuming measures of health-related quality of life.

The aim of the study by Fuschillo et al was to analyze the effects of combining PR with long-term oxygen therapy and noninvasive ventilation in a homogeneous group of subjects with kyphoscoliosis. Shortly after PR, there was an improvement in 6-min walk distance and dyspnea score at the end of a 6-min walk test, but these changes were not confirmed at a 12-month follow-up visit. No significant effects of PR on arterial blood gases were observed.

Lou and colleagues evaluated the efficacy of a complex COPD health management intervention in rural communities in China. Their health management program was an effective community-based strategy for the prevention and management of COPD in China. Similar programs might be effective other places around the world.

Fortis et al hypothesized that the difference between SVC and FVC increases as a function of body mass index (BMI). They found that FVC was larger than SVC in subjects with low and normal BMI but no evidence of airflow obstruction, whereas FVC was smaller than SVC in overweight and obese individuals.

The aim of the study by Gochicoa-Rangel et al was to obtain reference values for impulse oscillometry in Mexican children and adolescents. Although these equations were generated in a Mexican population, they are probably also applicable in other Latin American populations with a similar ethnic background.

The aim of the study by Wan and colleagues was to investigate the effects of the azithromycin on the development of emphysema in smoking-induced COPD in rats. They found that azithromycin attenuates pulmonary emphysema in this experimental model.