ICU
MANAGEMENT & PRACTICE

Respiratory support in ARDS: an expert opinion

Acute respiratory distress syndrome (ARDS) is a common condition in intensive care unit patients and remains a major concern, with mortality rates of around 30-45% and considerable long-term morbidity. In an opinion document published in the journal Critical Care, international experts review the available clinical evidence related to ventilator support and adjuvant therapies in order to provide evidence-based and experience-based clinical recommendations for the management of patients with ARDS.

According to the panel of experts, several decades of intensive research, collecting a huge amount of animal and human data, have helped modify the clinical management of patients with ARDS with a probable decrease in the overall mortality.

"The main goal of management should be to reduce as much as possible any potentially harmful effects of mechanical ventilation while ensuring adequate gas exchange," the panel says.

To minimise the risks of ventilator-induced lung injury (VILI) in ARDS patients and thus optimise outcomes, several interventions have been proposed, including use of low tidal volume ventilation, application of sufficient positive end-expiratory pressure (PEEP) and, in severe cases, prone positioning, neuromuscular blocking agents and extracorporeal membrane oxygenation (ECMO).

The experts note: "However, even simple low tidal volume ventilation is not always applied." A recent large international survey showed that tidal volume was kept at < 7 ml/kg predicted body weight (PBW) in only about 50% of patients with ARDS. Also, it was recently suggested that tidal volume should be scaled to compliance using the driving pressure (ΔP = plateau pressure – PEEP). Driving pressure predicts outcomes better than any other ventilatory parameters in patients with ARDS, with values exceeding 15 cmH2O of particular concern.

Targets of oxygenation, PEEP levels and use of adjuvant therapies, such as prone positioning or neuromuscular blockers, should be individualised in each patient, according to the opinion document. Use of ECMO should be considered in selected patients with reversible disease. In addition, sedation should be reduced and partial ventilator support can be used to promote respiratory muscle activity whenever gas exchange, respiratory mechanics and haemodynamic status have improved.

As a patient's condition improves, the weaning process should be started based on a local protocol, the document says. The main goal of weaning is to achieve liberation from mechanical ventilation as soon as possible while limiting the risks of extubation failure.

For patients at high risk for extubation failure, the document says noninvasive ventilation (NIV) is recommended after extubation as this may significantly reduce the ICU length of stay and mortality.

Source: Critical Care
Image Credit: British Columbia Institute of Technology (BCIT)

Published on : Tue, 19 Sep 2017