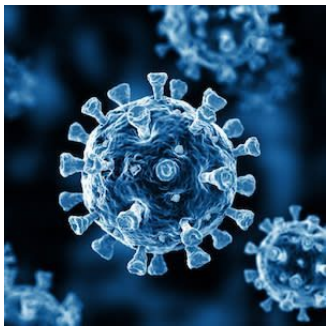
ICU
MANAGEMENT & PRACTICE

# Effects of Ventilatory Rescue Therapies in Mechanically Ventilated COVID-19 Patients



Several publications have highlighted the features of COVID-19-associated acute respiratory distress syndrome (ARDS). Patients with COVID-19 ARDS have a form of injury that resembles ARDS unrelated to COVID-19. International guidelines recommend adherence to evidence-based management strategies, including lung-protective mechanical ventilation and positive end-expiratory pressure (PEEP).

The effectiveness of ventilatory rescue strategies in patients with COVID-19 ARDS remains uncertain. There is uncertainty about the efficacy of these strategies on systemic oxygenation and insufficient data regarding their impact on cerebral oxygenation and haemodynamics. This is an important point because neurological complications are common in mechanically ventilated critically ill patients with COVID-19 and could lead to impaired cerebral hemodynamics. Respiratory rescue therapies could also have detrimental effects on brain physiology.

A study was conducted at San Martino Policlinico Hospital in Italy. Adult COVID-19 patients who underwent at least one of the following rescue therapies were included: recruitment maneuvers (RMs), prone positioning (PP), inhaled nitric oxide (iNO), and extracorporeal carbon dioxide (CO2) removal (ECCO2R). The goal of the study was to assess the early effects of different ventilatory rescue therapies on systemic and cerebral oxygenation. The secondary goal was to evaluate the correlation between systemic and cerebral oxygenation in patients with COVID-19.

Twenty-two patients were included in the study, and 45 rescue therapies were performed. Findings show that recruitment manoeuvres showed no significant changes in the systemic partial pressure of oxygen and carbon dioxide. However, cerebral oxygenation decreased quite significantly. A significant increase in the partial pressure of oxygen was observed after prone positioning. Inhaled nitric oxide increased the partial pressure of oxygen. Extracorporeal carbon dioxide decreased the partial pressure of oxygen with a reduction of cerebral oxygenation. A significant relationship was observed between oxygen saturation and cerebral oxygenation in the whole patient population.

These findings show that rescue therapies exert specific pathophysiological mechanisms and can have different effects on systemic and cerebral oxygenation in patients with COVID-19 ARDS. Cerebral and systemic oxygenation are correlated; therefore, the chosen rescue strategy should consider the needs of both the lungs and the brain.

Source: Critical Care

Image Credit: iStock

Published on : Tue, 23 Mar 2021