ICU
MANAGEMENT & PRACTICE

Protective Ventilation and Outcomes in Patients with COVID-19

The coronavirus pandemic continues to be a global health issue. Clinical outcomes data of patients from China, Europe and the U.S. show high mortality among critically ill patients with COVID-19, especially those who required mechanical ventilation.

Among patients with COVID-19, approximately 5% develop respiratory failure that requires ventilatory support. However, very little is known about the impact of mechanical ventilation in this disease, and it is still unclear whether respiratory mechanics and ventilatory parameters are associated with clinical outcomes.

A study was conducted to explore and define baseline characteristics, ventilatory parameters and outcomes of critically ill patients with COVID-19. The primary outcome of the study was 28-day survival. Secondary outcomes included duration of mechanical ventilation, need for renal replacement therapy or vasopressors, and hospital survival at 60 days.

Researchers included 1503 patients (mean age 60 ± 15 years; 59% male). Of these patients, 984 received invasive mechanical ventilation during the first 24 hours of stay in the ICU. 82% of the patients were ventilated with protective ventilation (tidal volume < 8 ml/Kg and plateau pressure less than 30 cmH_2O). Noninvasive ventilation was used in 21% of patients, and prone was used in 36%. All patients were followed up for at least 28 days or until hospital discharge, or transfer was complete.

Protective ventilation was associated with survival with a hazard ratio of 0.763. In the multivariable analysis, protective ventilation remained associated with increased survival. 35% of the patients needed renal replacement therapy, 73% required vasopressors, and 19% had a thromboembolic event. At the end of the 28-day follow-up period, 666 patients died. Overall, hospital mortality was 44% at 28 days and 44% at 60 days.

Findings show that critically ill patients with COVID-19 often required mechanical ventilation, and mortality was high. Therefore, there is an association between the mechanical ventilation strategy and mortality. This highlights the importance of protective ventilation for patients with COVID-19.

Source: Annals of Intensive Care

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