

Ultra-Low Tidal Volume Ventilation for COVID-19-ARDS



A new study aimed to evaluate the effectiveness of ventilation with ultra-low tidal volume (ULTV) compared to low tidal volume (LTV) in patients suffering from COVID-19-related acute respiratory distress syndrome (ARDS). COVID-19-related ARDS is associated with a high mortality rate and extended mechanical ventilation duration.

The study was conducted in ten ICUs in France and included patients who were 18 years or older, required invasive mechanical ventilation for COVID-19, had ARDS, a partial pressure of arterial oxygen to inspiratory oxygen fraction ($\text{PaO}_2/\text{FiO}_2$) ratio of 150 mm Hg or less, a tidal volume (VT) of 6.0 mL/kg predicted body weight or less, and received continuous intravenous sedation.

Study patients were randomly assigned in a 1:1 ratio to receive either ULTV with a target VT of 4.0 mL/kg predicted body weight (intervention group) or LTV with a target VT of 6.0 mL/kg predicted body weight (control group). The primary outcome was all-cause mortality at day 90 and the number of ventilator-free days among patients alive at day 60.

A total of 215 patients were included in the study. 27% were female, and 73% were male, with a median age of 68 years. One hundred and six patients were assigned to the ULTV group, and 109 were assigned to the LTV group.

As per the findings, the primary outcome did not show a significant difference between the ULTV and LTV groups. By day 90, 44% of 105 patients in the ULTV group and 39% of 109 patients in the LTV group had died. However, the ULTV group had a higher rate of severe respiratory acidosis within the first 28 days than the LTV group.

The study found that among patients with moderate-to-severe COVID-19-related ARDS, there was no significant difference between ULTV and LTV ventilation strategies based on mortality and ventilator-free days among patients alive at day 60. Hence, these results do not support the routine use of ULTV in patients with COVID-19-related ARDS.

Source: [The Lancet Respiratory Medicine](#)

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