ICU
MANAGEMENT & PRACTICE

Ventilator Parameters During OR–to–ICU Transition

Lung-protective mechanical ventilation strategies are beneficial both in the operating room (OR) and the ICU. However, there are variations in ventilator management practices between these settings, leading to adjustments in ventilator parameters when patients transition from the OR to the ICU. The impact of changes in ventilator settings during transitions between these settings on ventilation intensity and patient outcomes remains unknown.

A study was conducted to understand how ventilator settings change when surgical patients move from the OR to the ICU and evaluate how these adjustments affect 28-day mortality rates.

The study analysed data from a hospital registry from 2008 to 2022, focusing on patients who underwent general anaesthesia and remained on controlled mechanical ventilation in the ICU. It evaluated ventilator settings one hour before and six hours after transitioning from the OR to the ICU.

Among 2,103 patients analysed, 10.1% (212 patients) died within 28 days. As patients transitioned from the operating room to the ICU, tidal volume (VT) and driving pressure decreased while respiratory rates increased. These changes resulted in a slight increase in mechanical power (MP) in the ICU. Adjusted analysis revealed that higher MP was associated with an increased 28-day mortality rate, with each 1 J/min increase in MP correlating with a 1.10 adjusted odds ratio for mortality. Ventilator adjustments during the transition of mechanically ventilated patients from the OR to the ICU, leading to higher mechanical power (MP), were found to be associated with an increased risk of 28-day mortality.

This study is the first to examine how adjustments in mechanical ventilation parameters during the transition from the operating room to the ICU impact 28-day mortality. On average, transitioning from the operating room to the ICU led to decreased tidal volumes (VT) and driving pressures while respiratory rates (RR) increased. This resulted in a slightly higher intensity of ventilation, measured as mechanical power. Increased mechanical power during the transition was linked to higher odds of 28-day mortality, primarily due to higher respiratory rates. While the use of low tidal volumes is supported by evidence, compensatory changes in respiratory rate may also play a role in patient survival.

Source: AJRCCM
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