ICU
MANAGEMENT & PRACTICE

VV-ECMO, Prone Position and Supine MV for Hypoxaemic ARDS

Severe acute respiratory distress syndrome (ARDS) with PaO2/FiO2 < 80 mmHg is life-threatening, and its optimal management strategy is unclear. This meta-analysis aimed to compare the effects of low tidal volumes (Vt), moderate Vt, prone ventilation, and venovenous extracorporeal membrane oxygenation (VV-ECMO) on mortality in severe ARDS.

Study researchers conducted a frequentist network meta-analysis of randomised controlled trials (RCTs) involving participants with severe ARDS who were eligible for VV-ECMO or had PaO2/FiO2 < 80 mmHg. They used the GRADE methodology to evaluate the relative effects of interventions on mortality and the certainty of the evidence.

Ten RCTs with 812 participants with severe ARDS were included. The analysis found that VV-ECMO reduced mortality compared to low tidal volumes (RR 0.77, moderate certainty) and moderate tidal volumes (RR 0.75, low certainty). Prone ventilation reduced mortality compared to moderate tidal volumes (RR 0.78, high certainty) and low tidal volumes (RR 0.81, moderate certainty). There was no significant difference between VV-ECMO and prone ventilation (RR 0.95), but this conclusion was based on indirect comparisons with very low certainty due to wide confidence intervals.

These findings show that in adults with ARDS and severe hypoxia, both VV-ECMO (with low to moderate certainty evidence) and prone ventilation (with moderate to high certainty evidence) improve mortality compared to low and moderate tidal volume strategies. However, the impact of VV-ECMO versus prone ventilation remains uncertain.

Source: Intensive Care Medicine
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