

## Are lung recruitment manoeuvres beneficial to ARDS patients?



Previous research suggests that lung recruitment manoeuvres (LRMs) may prevent ventilator-induced lung injury and improve survival in patients with acute respiratory distress syndrome (ARDS). Now a new systematic review indicates that LRMs in combination with a higher positive end-expiratory pressure (PEEP) ventilation strategy reduce mortality. However, confidence in this finding is limited and further randomised trials are required to confirm benefit from LRMs in adults with ARDS, according to the review and meta-analysis published in *Annals of the American Thoracic Society*.

"In summary, we conclude that LRMs improve oxygenation, particularly when combined with higher PEEP, and reduce the requirement for rescue therapy. LRMs are safe and well-tolerated. LRMs may improve survival in patients with ARDS but further research is required to definitively assess the role of LRMs in the routine management of mechanical ventilation in ARDS," the review team writes.

Ewan Goligher, MD, PhD, of the Interdepartmental Division of Critical Care Medicine and the Department of Physiology, University of Toronto, Toronto, Canada, and colleagues reviewed randomised trials comparing mechanical ventilation strategies with and without LRMs. Eligible trials were identified from among previously published systematic reviews and an updated literature search. Data on 28-day mortality, oxygenation, adverse events, and use of rescue therapy were collected, and results were pooled using random effects models weighted by inverse variance. Strength of evidence was assessed using the Grading of Recommendations Assessment, Development, and Evaluation methodology.

Six trials (1,423 patients) were found eligible for inclusion in the analysis. The type of LRM varied widely between trials, and five of the trials involved a co-intervention with a higher PEEP ventilation strategy. Risk of bias was deemed high in one trial. In the primary analysis, the only trial without a co-intervention showed that LRMs were associated with reduced mortality. Meta-analysis of all six trials also suggested a significant mortality reduction, and the use of a higher PEEP co-intervention did not significantly modify the mortality effect.

In addition, LRMs were associated with improved oxygenation after 24 hours and less frequent requirement for rescue therapy. LRMs were not associated with an increased rate of barotrauma. The rate of haemodynamic compromise was not significantly increased with LRMs.

Many clinicians cite concerns about the adverse effects of LRMs, including barotrauma and haemodynamic compromise. In the trials included in this meta-analysis, adverse events were infrequent. Barotrauma was reported in 10% of cases and a clinically significant increase in barotrauma rates from LRMs could not be ruled out due to the imprecision of the estimates.

The authors explain: "Overall, the rates of serious adverse events in our review were reassuringly low, suggesting that LRMs are generally safe and well-tolerated. Given the varied types of LRMs employed in the trials incorporated in our review, our findings do not permit firm inferences about the best approach to conducting LRMs."

Source: [Annals of the American Thoracic Society](#)

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