

Ventilation treatment in prone position for ARDS does not provide significant survival benefit

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Despite a current suggestion that patients with acute respiratory distress syndrome be positioned lying face down while receiving mechanical ventilation, study results indicate that this positioning does not significantly lower the risk of death compared to similar patients positioned lying face up during ventilation, according to a study in the November 11 issue of *JAMA*.

Acute respiratory distress syndrome (ARDS) is a serious lung condition with a high mortality rate and may be associated with severe hypoxemia (abnormally low levels of oxygen in the blood, resulting in shortness of breath). Prone positioning is currently suggested for patients with ARDS, for whom various factors makes mechanical ventilation potentially injurious. "Moreover, prone positioning has been advocated as a rescue maneuver for severe hypoxemia, owing to its positive effects on oxygenation, which have been repeatedly documented since its first description in 1976. However, no randomized clinical trial has yet demonstrated a significant reduction in mortality rate associated with prone positioning," the authors write.

Paolo Taccone, M.D., of Fondazione IRCCS-"Ospedale Maggiore Policlinico, Mangiagalli, Regina Elena" di Milano, Milan, Italy, and colleagues conducted a trial to detect the potential survival benefit of prone positioning in patients with moderate and severe hypoxemia who are affected by ARDS. The randomized controlled trial was conducted in

23 centers in Italy and 2 in Spain. The study included 342 adult patients with ARDS receiving mechanical ventilation, enrolled from February 2004 through June 2008 and stratified into subgroups with moderate ($n = 192$) and severe ($n = 150$) hypoxemia. Patients were randomized to undergo supine (lying face up; $n = 174$) or prone (20 hours per day; $n = 168$) positioning during ventilation.

The researchers found that prone and supine patients from the entire study population had similar 28-day (31.0 percent vs. 32.8 percent) and 6-month (47.0 percent vs. 52.3 percent) mortality rates, despite significantly higher complication rates in the prone group. "Outcomes were also similar for patients with moderate hypoxemia in the prone and supine groups at 28 days (25.5 percent vs. 22.5 percent) and at 6 months (42.6 percent vs. 43.9 percent). The 28-day mortality of patients with severe hypoxemia was 37.8 percent in the prone and 46.1 percent in the supine group, while their 6-month mortality was 52.7 percent and 63.2 percent, respectively."

They authors add that median (midpoint) Sequential Organ Failure Assessment (SOFA) scores, ventilator-free days, and intensive care unit length of stay were also similar between the different groups of patients.

"Do the findings of this trial, together with those of previous studies, represent the end of the prone position technique? Undoubtedly, the data of the present trial together with previous results clearly indicate that prolonged prone positioning, in the unselected ARDS population, is not indicated as a treatment. However, its potential role in patients with the most severe hypoxemia, for whom the possible benefit could outweigh the risk of complications, must be further investigated, considering the strong pathophysiological background, the post hoc result of our previous study, the most recent meta-analysis, and the favorable trend observed prospectively in this study," the authors conclude.

More information: *JAMA*. 2009;302[18]:1977-1984.

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