

Insights from the P_{RO}VENT-COVID Study



Mortality in patients with COVID-19 is much higher in patients who need invasive ventilation for acute respiratory distress syndrome (ARDS). COVID-19 patients with ARDS are a heterogeneous group with diverse evolutions that could be due to different phenotypes and response to care, including invasive ventilation strategies.

The Practice of VENTilation in COVID-19 (P_{RO}VENT-COVID) study was conducted to investigate changes in the severity of ARDS and association with outcomes in patients with COVID-19 ARDS. The researchers hypothesised that ARDS severity in patients with COVID-19 might change over the first two calendar days of invasive ventilation, and this could potentially have an impact on patient outcomes.

Researchers compared outcomes in 895 patients with mild, moderate or severe ARDS at day 1 and after reclassification on day 2. The primary endpoint of the study was 28-day mortality. They also observed ventilatory parameters that were associated with the presence of severe ARDS on day 2 and day 4.

Findings of the study show that on day 1, 8.5% of patients had mild ARDS, 60% had moderate ARDS, and 31.4% had severe ARDS on day 1. This increased to 13.5%, 72.6% and 13.9%, respectively, on day 2. With respect to the primary outcome, 28-day mortality was 25.3% in patients with mild ARDS, 31.3% in patients with moderate ARDS and 32% in patients with severe ARDS at day 1, which changed to 28.6%, 29.2% and 44.3% respectively on day 2. The investigators did not find any independent association with the presence of severe ARDS at day 2 or day 4.

These findings show that in COVID-19 ARDS patients, the severity of ARDS and mortality between severity classes changed quite significantly over the first four days of ventilation. This suggests that reclassification could help identify patients that could benefit from alternative treatment approaches and strategies. This was also observed in the LUNG SAFE study, where increased contrast in 90-day mortality between ARDS severity groups was seen with the reclassification of ARDS severity. In the LUNG-SAFE study, severe ARDS on day 2 of ventilation was associated with a 90-day mortality of 57%, which is similar to the findings reported in the P_{RO}VENT-COVID study.

The researchers advise healthcare providers to reclassify ARDS severity after day 1 in order to become more aware of the patient's mortality risk. This could also help healthcare providers consider alternative treatment strategies for high-risk patients such as ECMO.

Source: [Journal of Critical Care](#)

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