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## Respiratory Management Strategies for AHRF



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Acute hypoxaemic respiratory failure (AHRF) is one of the most common causes of admission to the ICU. It has a mortality rate of nearly 30%. Non-invasive respiratory management strategies are recommended to avoid the risk of endotracheal intubation. However, patients with de novo acute hypoxaemic respiratory failure (AHRF) are often at high risk of treatment failure. De-novo AHRF refers to a condition that occurs without prior chronic respiratory disease. Most patients with this condition have pneumonia or ARDS. Non-invasive ventilation is associated with higher ICU mortality and is thus not recommended in these patients.

There is very little data on the effect of non-invasive ventilation evaluated according to ventilation modes in these patients. Also, there are no meta-analyses that compare non-invasive respiratory management strategies with invasive mechanical ventilation.

In this network meta-analysis, researchers have compared the efficacy of non-invasive ventilation according to ventilation modes with high-flow nasal oxygen (HFNO), standard oxygen therapy (SOT), and invasive mechanical ventilation (IMV) in patients with AHRF.

The researchers included 25 randomised clinical trials (RCT) with 3,302 participants. The RCTs included adults with AHRF and compared two respiratory management strategies - continuous positive airway pressure (CPAP) and pressure support ventilation (PSV) - (HFNO, SOT or IMV). The primary outcomes of the analysis were short-term mortality measured at the longest time point reported in the follow-up period, ICU discharge and hospital discharge. The secondary outcome was the incidence of intubation during the ICU stay.

Findings showed that with SOT as the reference, CPAP was associated with a significantly lower risk of mortality. Compared with SOT, PSV and HFNO were not associated with a significantly lower risk of mortality. Compared with IMV, no non-invasive respiratory management strategy was associated with a significantly lower risk of mortality. CPAP was found to have the highest probability of reducing short-term mortality, followed by PSV and HFNO. IMV and SOT were similar in terms of worst outcomes.

Overall, these findings show that performing non-invasive ventilation in patients with AHRF should avoid excessive tidal volume and lung injury. Pressure support should be applied with caution as this can lead to excessive tidal volume and lung injury.

Source: [Critical Care](#)

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