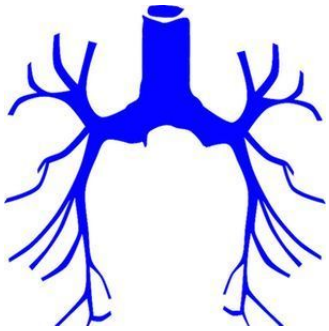
ICU
MANAGEMENT & PRACTICE

Noninvasive Helmet Ventilation Associated with Lower Mortality, Intubation Rate, Complications



A systematic review and meta-analysis of studies on noninvasive ventilation (NIV) for patients with acute respiratory failure (ARF) comparing use of helmet with face mask techniques found that helmet use was associated with lower hospital mortality, intubation rate and complications. The study is published in Critical Care.

See Also: Helmet-Based Ventilation Had Better Results than Facemask for ARDS Patients

11 studies (621 patients), both randomised controlled trials and case-control studies, were included in the analysis, by Qi Lui from the Department of Pulmonary and Critical Care Medicine, the First Affiliated Hospital of Zhengzhou University, China. The main outcomes were hospital mortality, intubation rate and complications. Secondary outcomes included length of intensive care unit (ICU) stay, gas exchange and respiratory rate.

Results

Mortality

- Helmet NIV group: 17.53%
- Control group: 30.67%

Intubation rate

- Helmet NIV group: 16.85%
- Control group: 37.26%

Subgroup analysis showed that helmet use reduced mortality mainly in hypoxaemic ARF patients. Randomised trials showed a lower intubation rate, and the authors write that fewer complications with helmet use may be restricted to case-control trials. In addition, the effect of the helmet on PaCO2 [SUBSCRIPT] was influenced by type of ARF and ventilation mode. The helmet was effective as a face mask in gas exchange. The authors acknowledge some limitations, particularly the risk of performance bias, as helmet use rules out blinding in trials.

The authors conclude that large randomised controlled trials are needed to provide more evidence. They write: “It should be noted that there is not sufficient scientific evidence to recommend it in designated patients due to the limited number of trials available.”

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