

High-Flow Nasal Cannula Noninferior to NIV for Preventing Respiratory Failure and Reintubation



A multicentre randomised trial that evaluated high-flow nasal cannula in patients at high risk of reintubation found that it was not inferior to noninvasive ventilation. The results are published in *JAMA*.

The advantages of high-flow conditioned oxygen therapy delivered through nasal cannulae include patient comfort, lower cost and additional physiopathological mechanisms such as conditioning the air.

The [High-flow Conditioned Oxygen Therapy Versus Non-invasive Ventilation: Prevention of Post-extubation Failure trial](#) was carried out in three intensive care units in Spain between September 2012-October 2014, and included 604 critically ill patients who had received mechanical ventilation for more than 12 hours and who were ready for planned extubation with at least one factor making them at high risk for reintubation, who received for 24 hours after extubation either high-flow conditioned oxygen therapy or NIV.

Results

High-flow oxygen:

- 290 patients
- 60 (19.1%) did not require reintubation
- 78 (26.9%) experienced respiratory failure postextubation
- 49 patients (16.9%) required reintubation (excluding reintubation for nonrespiratory reasons)

NIV:

- 314 patients
- 66 (22.8%) did not require reintubation
- 125 (39.8%) experienced respiratory failure postextubation
- 50 (15.9%) required reintubation (excluding reintubation for nonrespiratory reasons)

There was no significant difference between the groups in time to reintubation. However, 42.9% of patients in the NIV group had the therapy withdrawn after adverse effects, as against none in the high-flow oxygen group.

These results are similar to studies using conventional oxygen, note the researchers. However, the reintubation rate for the NIV group (19%) was slightly higher than in previous studies, which ranged from 11-16%. This may be due to underuse of both treatments in the 24-hour protocol in this study, they suggest, as well as not allowing sedatives to increase NIC tolerance. In this study 22 patients were followed up until hospital discharge to ensure that delayed reintubation was recorded - shorter follow-up in other studies might have underestimated reintubation rates by missing delayed episodes.

While a prolonged period (48 hours) of high-flow conditioned oxygen therapy or NIV could improve extubation, the researchers say that protocols with variable duration based on clinical parameters instead of fixed periods increase the risk of delayed reintubation in cases where deterioration is masked.

The results of the [trial with low-risk patients were published earlier](#) in the year in *JAMA*- the use of high-flow nasal cannula oxygen compared with conventional oxygen therapy reduced the risk of reintubation within 72 hours.

Source: [JAMA](#)

Image credit: Wikimedia Commons

