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Editorial

High-Flow Nasal Cannula Oxygen Therapy vs Noninvasive Mechanical Ventilation in Adults. What does Evidence Tell us?

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High-flow nasal cannula oxygen (HFNC) is a relatively new and promising therapy used in acute respiratory failure (ARF). Already widespread in the paediatric setting, is becoming more common among adult patients.

When compared with conventional oxygen therapy (COT), HFNC has many advantages based on the capacity of high-flow rates to match the patient´s inspiratory flow rates. According to this, several studies have found that HFNC could improve comfort level, oxygenation and dyspnoea. Nevertheless, no clear consensus on treatment outcomes, such as intubation rate and mortality, has been met.

Noninvasive mechanical ventilation (NIV) has become the cornerstone for treatment of ARF in some settings as chronic obstructive pulmonary disease (COPD) exacerbation and cardiogenic pulmonary oedema (CPO). Besides this, is commonly used to prevent from invasive mechanical ventilation in ARF from any other cause. HFNC may have some advantages over NIV such as comfortability and fewer complications. Several studies have compared outcomes with HFNC, but usually excluding COPD exacerbation and CPO patients. The results have been contradictory, being difficult to decide when HFNC may be useful or when it could be harmful (e.g. COPD patients). In the same way, main clinical guidelines do not clarify the role of HFNC.

Is HNFC useless? Will it become the preferred ARF treatment? Today are questions without an answer. Some light may be found in a couple of systematic review and meta-analisis published recently [1,2]. The results key points are that, in ARF, HNFC seems to be superior to COT in avoiding intubation and invasive mechanical ventilation but it does not reduce mortality, and that it´s not superior to NIV in avoiding intubation, mechanical ventilation and mortality (even when COPD and CPO patients were excluded in most studies). The patients that seems to perform better under HNFC are those treated after extubation to prevent a new endotracheal intubation. Special attention deserves a clinical trial conducted by Frat., *et al*. [3], that enrolled patients with acute hypoxaemic respiratory failure in the intensive care unit (excluding COPD and CPO patients, once again) in which mortality is reduced compared to NIV.

Putting all together, NIV still must be consider as primary therapy in some pathologies like COPD as it has been showed repeatedly to reduce mortality. HNFC has not demonstrated reduction in mortality in any group of ARF patients when compared with COT or NIV, but may be a good and more comfortable alternative to COT and NIV in a group of patients still not totally defined. With the evidence we have, the best candidates could be after extubation and acute hypoxaemic respiratory failure patients (let´s say it for the last time, excluding chronic respiratory failure and CPO).

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