

ESAN



XVI REUNIÓN DE  
INSUFICIENCIA  
CARDÍACA Y  
FIBRILACIÓN  
AURICULAR



# Ventilación Mecánica no Invasiva en Insuficiencia Cardíaca Aguda

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ZARAGOZA

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ALTERNATIVA DE REUNIÓN DE COLEGIADOS DE ZARAGOZA

# Soporte ventilatorio sin intubación vía aérea

## ❑ **Objetivos:**

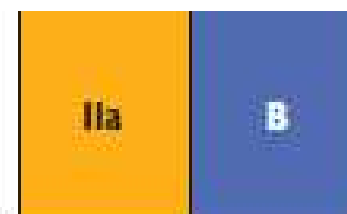
- Disminuir trabajo respiratorio:
  - Mejora disnea
- Aumentar la ventilación alveolar:
  - Mejorar pH
  - Aumentar oxigenación

## ❑ **Indicaciones en IRA:(nivel A)**

- Reagudización EPOC
- **Edema agudo pulmón**
- Fallo respiratorio inmundeprimidos, destete EPOC

## ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure 2012

Non-invasive ventilation (e.g. CPAP) should be considered in dyspnoeic patients with pulmonary oedema and a respiratory rate >20 breaths/min to improve breathlessness and reduce hypercapnia and acidosis. Non-invasive ventilation can reduce blood pressure and should not generally be used in patients with a systolic blood pressure <85 mmHg (and blood pressure should be monitored regularly when this treatment is used).



### 12.2.2.1 Ventilation

#### Non-invasive ventilation

Continuous positive airway pressure (CPAP) and non-invasive positive pressure ventilation (NIPPV) relieve dyspnoea and improve certain physiological measures (e.g. oxygen saturation) in patients with acute pulmonary oedema. However, a recent large RCT showed that neither type of non-invasive ventilation reduced mortality or the rate of endotracheal intubation when compared with standard therapy, including nitrates (in 90% of patients) and opiates (in 51% of patients).<sup>217</sup> This result is in contrast to the findings of meta-analyses of earlier, smaller studies.

Non-invasive ventilation may be used as adjunctive therapy to relieve symptoms in patients with pulmonary oedema and severe respiratory distress or who fail to improve with pharmacological therapy. Contraindications include hypotension, vomiting, possible pneumothorax, and depressed consciousness.

**-MEJORA DE LOS SÍNTOMAS.**

**-MEJORAR LA HIPOXEMIA.**

**-MEJORAR LA PERFUSIÓN DE LOS ÓRGANOS.**

**-MEJORAR LA PERFUSIÓN TISULAR.**

**-MINIMIZAR EL DAÑO CARDIACO Y RENAL.**

**-DISMINUIR EL TIEMPO DE ESTANCIA HOSPITALARIO.**

# Evidencia

Cochrane Database Syst Rev. 2013 May 31;5:CD005351. doi: 10.1002/14651858.CD005351.pub3.

## **Non-invasive positive pressure ventilation (CPAP or bilevel NPPV) for cardiogenic pulmonary oedema.**

Vital FM, Ladeira MT, Atallah AN.

**MAIN RESULTS:** We included 32 studies (2916 participants), of generally low or uncertain risk of bias. Compared with standard medical care, NPPV significantly reduced hospital mortality (RR 0.66, 95% CI 0.48 to 0.89) and endotracheal intubation (RR 0.52, 95% CI 0.36 to 0.75). We found no difference in hospital length of stay with NPPV; however, intensive care unit stay was reduced by 1 day (WMD -0.89 days, 95% CI -1.33 to -0.45). Compared with standard medical care, we did not observe significant increases in the incidence of acute myocardial infarction with NPPV during its application (RR 1.24, 95% CI 0.79 to 1.95) or after (RR 0.70, 95% CI 0.11 to 4.26). We identified fewer adverse events with NPPV use (in particular progressive respiratory distress and neurological failure (coma)) when compared with standard medical care.

**AUTHORS' CONCLUSIONS:** NPPV in addition to standard medical care is an effective and safe intervention for the treatment of adult patients with acute cardiogenic pulmonary oedema. The evidence to date on the potential benefit of NPPV in reducing mortality is entirely derived from small-trials and further large-scale trials are needed.

**Cardiogenic pulmonary edema** — There is high quality evidence from meta-analyses and randomized trials that NPPV decreases the need for intubation and improves respiratory parameters (eg, heart rate, dyspnea, hypercapnia, acidosis) in patients with cardiogenic pulmonary edema [62,66-72]. Several studies suggest that NPPV may be particularly beneficial to patients with hypercarbia [73,74].

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### Potential indicators of success in noninvasive positive pressure ventilation

Younger age
Lower acuity of illness (APACHE score)
Able to cooperate, better neurologic score
Less air leaking, intact dentition
Moderate hypercarbia (PaCO <sub>2</sub> >45 mmHG, <92 mmHG)
Moderate acidemia (pH <7.35, >7.10)
Improvements in gas exchange and heart respiratory rates within first two hours

### Contraindications to noninvasive positive pressure ventilation

Cardiac or respiratory arrest
Nonrespiratory organ failure
Severe encephalopathy (eg, GCS <10)
Severe upper gastrointestinal bleeding
Hemodynamic instability or unstable cardiac arrhythmia
Facial or neurological surgery, trauma, or deformity
Upper airway obstruction
Inability to cooperate/protect airway
Inability to clear secretions
High risk for aspiration