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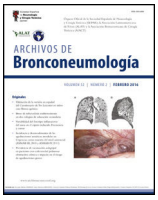

Letters to the Editor

## Non-Invasive Mechanical Ventilation Compared to Positive Airway Pressure in Cardiogenic Pulmonary Edema☆

### *Acerca de la ventilación mecánica no invasiva frente a la presión positiva en la vía aérea en el edema pulmonar cardiogénico*

*Dear Editor,*

We read with interest the article by Belenguer-Muncharaz et al.,[1] published recently in *Archivos de Bronconeumologia*, in which the authors compared the effectiveness of non-invasive mechanical ventilation (NIMV) with continuous positive airway pressure (CPAP) in patients hospitalized for cardiogenic pulmonary edema. The authors analyzed a series of 110 patients admitted to an intensive care unit (UCI) and followed up for 28 days or until hospital discharge. We believe that the inclusion of patients was rather selective, since individuals with chronic obstructive pulmonary disease (COPD) or respiratory infection were excluded, whereas COPD occurs concomitantly in over 30% of patients who present with acute heart failure in hospital emergency departments (ED)[2] and respiratory infection is a precipitating factor in almost 40% of patients.[3] This would make it difficult to extrapolate the study results to the usual profile of patients with acute heart failure requiring NIMV in EDs who are subsequently admitted to the ICU.

It is also worth pointing out that 2 non-mechanical systems with different harnesses and masks were used to deliver CPAP, factors that might affect the tolerance of the patient to the technique, while the same ventilator model (BiPAP Vision®) and oronasal interface were used in all patients in the NIMV group.

Our attention was drawn to the fact that on ICU admission, patients were randomized to one or other arm, irrespective of the treatment administered in the ED; if CPAP was started in the ED and the patient was randomized to the NIMV group, an EPAP value similar to the positive pressure initiated in the ED would have to be maintained to avoid undesirable derecruitment.[4] As for patients who began NIMV in the ED who were randomized to the CPAP arm, it would have been of interest to know how many of them had hypercapnia on starting NIMV, and how many had to switch modality or be intubated due to failure of the technique, as this may reveal some association between switching modality for randomization purposes and failure of the technique.

Belenguer-Muncharaz et al.[1] selected a tidal volume of 8–10 ml/kg/ideal weight for their study design, which is the rate currently recommended for this type of patient. However, a recent publication that analyzes the risk factors for failure in patients receiving non-invasive ventilation in an ICU found an association between high tidal volumes and the risk of failure of orotracheal intubation and death.[5] It is true the latter study analyzes patients with acute respiratory distress syndrome, who by definition do not present acute heart failure-cardiogenic pulmonary edema as the etiology of their acute respiratory failure, and it is difficult to define the ideal weight of patients with different phenotypes, factors that from our point of view should be taken into account or explored in more depth in further studies.

Finally, we would like to point out that in the group of hypercapnic patients receiving CPAP, the duration of ventilation was shorter (13 h vs 32 h in the NIMV group); it would have been more interesting to know how many of these patients failed on therapy, and to analyze if early withdrawal might confer a greater risk of failure.[6]

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