

LETTERS TO THE EDITOR

Noninvasive Ventilation on the Ward

To the Editor: ARCHIVOS DE BRONCO-NEUMOLOGÍA recently published a review of the treatment of chronic obstructive pulmonary disease (COPD) exacerbations. That article provides a straightforward, informative, and thorough review of the main aspects of this topic. Nevertheless, when discussing non-invasive mechanical ventilation (NIV), the authors make various claims that could seem controversial in light of available evidence.

Since the development of NIV in the 1980s, the approach in cases of COPD exacerbations requiring mechanical ventilation has gradually evolved towards a less invasive, yet equally effective concept because NIV allows for earlier ventilatory support with fewer complications than invasive ventilation does. Furthermore, it can be delivered intermittently while remaining effective, and it can be applied with simple, portable equipment. As a result, NIV has become an established treatment in the management of COPD exacerbations. It is rapidly gaining ground, and its ultimate potential has yet to be defined. We therefore feel that at least 3 points in the above-mentioned review should be addressed: the proven effectiveness of NIV; the inclusion criteria, in particular, pH levels; and staff training. NIV as a treatment for hypercapnic respiratory failure in patients with COPD is effective and safe, as has been demonstrated in numerous clinical trials, inside as well as outside the intensive care unit, and in several meta-analyses.² Currently, there is sufficient evidence to warrant the use of NIV on the general hospital ward provided that appropriate indications have been met and that the various factors affecting the prognosis are considered.

The pH level taken prior to ventilation has been demonstrated to be one of the NIV prognostic markers. However, subsequent to research by Plant et al,³ some authors continue to believe that patients on the ward with pH levels lower than 7.30 should not be ventilated. This claim should be attenuated; in fact, the authors of this British study themselves caution against accepting that attitude, as their sample size was probably too small given that their study was not designed to examine the question of pH as a prognostic factor. It is our experience that a greater prognostic value is in the pH taken after ventilation is initiated, rather than beforehand (data pending publication).⁴ This same idea is suggested by a much more extensive recent study, in which the odds ratio for the pH measured prior to NIV was 1.97 whereas the ratio for pH after 2 hours of NIV was 21.02 in the logistic regression model.⁵ Thus, in those patients with acute hypercapnic respiratory failure with respiratory acidosis and with no exclusion criteria, we recommend early

application of NIV support with rapid assessment 1 to 2 hours later in order to decide whether the treatment should be continued or not.

Another point of discussion is staff training. NIV is a ventilatory support modality that should be applied by staff with sufficient knowledge and skill. Therefore, it is important that pulmonologists have knowledge of mechanical ventilation and ventilatory support, and that nurses have experience in managing such patients and in respirator use. According to a recently published study a better-trained staff could handle a greater number of patients as well as more severely ill patients without lowering the success rate.⁶ In our study (data pending publication) lack of staff experience led to an increase in treatment failure (relative risk, 3.5; 95% confidence interval, 1.08-11.2).⁴ As a result, our patients requiring NIV are transferred to the respiratory medicine unit, where personnel experienced in NIV support are available.

Finally, NIV is an effective treatment that is influenced by many factors that should be considered to ensure a good outcome; the pH level after 1 to 2 hours of ventilation and the skill of the medical personnel are among these factors. As pulmonologists, we should endeavor to equip our hospital units with the necessary means and personnel with sufficient time and experience to apply this treatment and guarantee its success.

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