

Use of a noninvasive ventilation device following tracheotomy: an alternative to facilitate ICU discharge?

Utilização de equipamentos de ventilação não invasiva na traqueostomia: uma alternativa para alta da UTI?

To the Editor

In intensive care units (ICUs), the incidence clinical conditions that make it difficult to wean patients from mechanical ventilation is approximately 30% worldwide.

Chronic neuromuscular diseases, chronic obstructive pulmonary disease (COPD), and different types of dementias, including Parkinson's disease, are particularly challenging when weaning patients ventilators. Even rapidly identifying a patient's individual situation and using weaning protocols that are targeted to specific goals prove to be unsuccessful. Moreover, a long weaning process may prove to be unsuccessful, and various delays may lead to downgrading the patient's status or discharging the patient to an intermediate care unit or to another hospital ward. Several papers⁽¹⁻³⁾ in the last few years have investigated the use of non-invasive ventilation (NIV) in weaning difficult patients,⁽¹⁻³⁾ and these studies have demonstrated the benefit on using NIV in select ICU patients. However, further data and studies are needed to determine the impact of NIV on weaning protocols.

Ibrahim et al. presented the results from a retrospective observational study. Data were collected over a one-year period to test NIV in tracheotomy as an option to improve patient discharge from the ICU.⁽⁴⁾ In their study, 26 spontaneously ventilating patients connected to a tracheotomy were tested. Among the patients, 6.9% were discharged from the ICU, and 53.8% were later discharged from the hospital. In this remarkable study, the authors concluded that the use of NIV connected to a tracheotomy represents a strong alternative that should be considered when discharging patients who fail to wean, including tracheostomized patients who leave the ICU and eventually leave the hospital. The authors suggested a reliable weaning option for these patients and improved their discharge from the ICU and from the hospital.

However, some key factors should be considered.

First, this option can never be chosen in medical isolation. The decision should involve discussion by a multidisciplinary team that includes nurses, physiotherapists and the physicians⁽⁵⁾ who will treat the discharged patient in their departments in the hospital and thereafter.

Conflicts of Interest: None.

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Second, we should not forget the associated techniques and devices used to control secretions, such as humidification, aerosol therapy,⁽⁶⁾ cough assist, vest and high frequency chest compressions,⁽⁷⁾ to achieve our best treatment goals.

Third, some selected patients, particularly those with COPD who go on NIV after extubation, succeed with the weaning trial without needing a tracheotomy. This option should be attempted as a less invasive, more conservative and lower risk alternative before proceeding to tracheotomy.

Having confidence in and patience⁽⁵⁾ with using NIV usually leads physicians to develop new and previously unforeseen treatment options. This new technique

may be safely used; sometimes it is merely necessary to rely on NIV.

Whatever approach is taken in weaning difficult patients, the suggestion by Ibrahim et al. provides ICU physicians with a new and promising method to help discharge these patients; this method deserves further exploration and development.

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AUTHORS' RESPONSE

First, we would like to thank the reviewers for their comments as well as express our appreciation for their interest in and careful reading of our article, "Use of a noninvasive ventilation device following tracheotomy: an alternative to facilitate ICU discharge?", which was recently published in *Revista Brasileira de Terapia Intensiva*.⁽¹⁾

The comments made by Jacobo Bacariza Blanco and Antonio M. Esquinas are extremely relevant, mainly because the study focused on a quite limited population of severely ill individuals who required highly complex multidisciplinary hospital-based care while undergoing

prolonged weaning, making their hospital discharge process long and difficult.

The hindrances to mechanical ventilation (MV) weaning found in the investigated population might be associated with changes in respiratory muscles, including diaphragmatic dysfunction and atrophy in particular, i.e., so-called ventilator-induced diaphragmatic dysfunction, which represents a significant factor that can affect patients undergoing prolonged weaning.⁽²⁾

The study by Rose et al.,⁽³⁾ which was conducted at a center that specialized in the care of patients requiring prolonged MV, found that 20% of the participants

required tracheostomies and that noninvasive ventilation could serve as an alternative to invasive MV in such cases. In addition, providing integral healthcare to such patients following hospital discharge is extremely relevant because individuals subjected to long hospital stays exhibit functional disorders as well as reduced quality of life for up to 24 months following hospital discharge.⁽⁴⁾

For the abovementioned reasons, studies indicating therapeutic alternatives for patients undergoing difficult and prolonged MV weaning, regardless of tracheostomy status, must be considered in the adoption of novel clinical options for their treatment. To consider such patients inappropriate for MV weaning might be a mistake or reflect weaknesses in the current ventilator weaning protocols.

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