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Admissions and patterns of mechanical ventilation of critical COPD: an old and common friend, are we still prepared?

To the Editor:

Patients with chronic obstructive pulmonary disease (COPD) admitted to an intensive care unit (ICU) due to an acute exacerbation are still confronted with a substantial hospital mortality rate of 24% and worse clinical outcomes, respectively [1]. About 10% of COPD patients are at high risk for prolonged mechanical ventilation and mortality ranges 55–78% [2]. However, there is a paucity of long-term survival data regarding admissions and patterns of mechanical ventilation of critical COPD patients.

In their study, FUNK *et al.* [3] describe the impact of mechanical ventilation strategies in patients with COPD exacerbations by means of a large epidemiological survey [3]. We consider that this is an important contribution to the knowledge of mechanical ventilation patterns, especially the subdivision into non-invasive ventilation (NIV) and invasive ventilation.

However, some characteristics of this study remained untested that could further consolidate their observations. We believe that some points investigated in this study are of interest that will allow a better understanding in future, especially if the following issues are taken into consideration.

First, the impact of alternatives other than that of NIV and decannulation on shortened and improved weaning from mechanical ventilation has yet to be verified [4, 5]. Additionally, they did not consider common strategies that are based on tracheotomy.

Secondly, poor details on the aetiology of COPD exacerbations and comorbidities are given by the authors as follows: a) the presence of number of comorbidities may be of interest especially in reference to future epidemiology studies; b) physiological abnormalities at admission to ICU and development of non-respiratory organ failure are important predictors of hospital outcome of critically ill patients with acute exacerbation of COPD (AE-COPD); and c) history of previous mechanical ventilation and ICU admissions should have been mentioned [5]. Additionally, the impact of increased age is discussed controversially. It is a known fact that the mortality rate of patients aged ≥ 65 years doubles in 1 year, from 30% to 59% [6, 7]. Unfortunately, the current study lacks a strategy of how to manage this growing demand of elderly patients that need mechanical ventilation in the ICU. Normally, these patients suffer from poor nutritional status and low activities of daily living scores, which may both be further factors relevant to prolonged mechanical ventilation [8].

Thirdly, indications of NIV and IMV have not been clearly analysed. Especially the aspect of a so-called “learning curve” of NIV seems missing [9, 10]. To be specific, the following aspects should be taken into account. a) Predictors of NIV failure: it would be interesting to know the risk for AE-COPD patients of having a second episode of acute respiratory failure after an initial (first 48 h) successful response to NIV. This event is more likely to occur in patients with more severe functional and clinical disease, who are likely to have more complications at time of admission to ICU apart from a very poor in-hospital prognosis [9, 10]. b) Admission source and NIV indications are not well specified in this survey that are commonly of

relevance, to hospitals specifically for organisation models, such as the differentiation between respiratory ICU, step-down units or weaning respiratory units [10].

Fourthly, analysis of ICU beds and hospital costs in COPD is counterbalanced, and may be more efficiently balanced by a good efficiency of mechanical ventilation utilisation and ICU resources. Unfortunately, these considerations are a further aspect that is not well dealt with in this study. Respiratory high-dependence care units can, for example, provide full support especially for patients with single organ failure, which is more cost-effective than that of an ICU [10].

To conclude, we consider that epidemiological surveys are most wanted with a focus on identifying prognostic factors with ventilatory options and needs of these patients apart from optimising the organisational structures of an ICU. Currently, these are questions yet to be answered that may hopefully contribute to mechanical ventilation tools more effectively than those that are currently used. Thus, further epidemiological surveys are required and most welcomed to optimise mechanical ventilation of critically ill COPD patient.



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Mechanical ventilation in COPD, more epidemiological studies are required <http://ow.ly/mzJxh>

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