



## CORRESPONDENCE

## COVID-19 pneumonia and ROX index: Time to set a new threshold for patients admitted outside the ICU. Authors' reply



We thank Dr. Garnier and Dr Blez for their careful reading of our study<sup>1</sup> and their useful comments<sup>2</sup>

We agree with them that we may have misinterpreted their setting of High Flow Nasal Cannula (HFNC), and we apologize for the misunderstanding. It makes obviously sense that the flow was delivered at 60 L/min.<sup>3</sup>

Concerning the point of respiratory rate, we think that it is a matter of wording. We believe our statement "ROX H12 had a greater predictive value than respiratory rate alone, in contrast with Blez et al." is true, because in their article, the authors reported an AUROC of RR of 0.81, that is superior to 0.78 (AUROC of ROX). It is a matter of mathematics, despite not being statistically significant. On the other hand, we are a bit concerned about the title of their manuscript "...better look at the respiratory rate". We strongly believe that "two is better than one" in particular in patients with COVID-19 infections. The pathophysiology of Acute Respiratory Failure during this pandemic is complex and not fully understood. Everyone dealing with these patients has noticed that the respiratory frequency and tidal volume may be affected differently in specific subgroups of patients. Increases in tidal volume are presumably due to higher recruitment of respiratory premotor neurons, whereas changes in frequency may be related to the network activity of the neurons located in the pre-Botzinger complex. In addition, COVID-19 patients with similar oxygenation efficiency may have markedly different compliance. This makes the combination of respiratory pattern and respiratory mechanics complex and multifactorial. Not surprisingly, a consistent group of patients may show the so-called "non-dyspnoenic acute hypoxia" while others, for the same level of PaO<sub>2</sub>, show an important distress. Obviously respiratory pattern may influence the PaO<sub>2</sub>/FiO<sub>2</sub> ratio,<sup>4</sup> but SaO<sub>2</sub> is also determined by the efficiency of the a-c membrane. So to make a long story short, it is not only a matter of "less is more".

Indeed, Drs Garnier and Blez argued that the ROX H12 "is a time point too late to really impact management in case of failure". The median time of HFNC failure, however, has

been reported to vary but it is on average >24 h.<sup>5-7</sup> Thus, this may suggest that a ROXH12 may give the clinician a better overview of the patient's outcomes, than a more praecox measurement.

### Conflict of Interest

The authors have no conflicts of interest to declare

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