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## Reply to: Efficacy and safety of high-flow nasal cannula oxygen therapy in moderate acute hypercapnic respiratory failure

*Resposta para: Eficácia e segurança da oxigenoterapia com cânula nasal de alto fluxo na insuficiência respiratória hipercápnica moderada aguda*

### To the Editor

We thank Dr. Esquinas and Reazaul for their interest in our study and their thoughtful commentaries about some aspects of the methodology and the generalizability of the results.

The protocol of the use of high-flow nasal cannula (HFNC) was extracted from published studies on hypoxemic failure.<sup>(1)</sup> High-flow nasal cannula was used continuously, without interruptions, including nighttime until gas exchange and respiratory distress were reversed. Parameters of HFNC were adjusted depending on oxygen saturation (fraction of inspired oxygen) and respiratory rate (flow), as other more specific surrogates of breathing effort (esophageal pressure-time product) were not measured.<sup>(2)</sup>

Regarding the types of patients with hypercapnia, they are described as a mixed population of chronic obstructive pulmonary disease (COPD), congestive heart failure and sleep-related or obesity hypoventilation. A large proportion (20 out of 30) became hypercapnic after being ventilated and extubated for reasons not related to their comorbid condition. Therefore they are not exclusively hypercapnic failure due to acute on chronic decompensation of COPD patients. This is why we do not restrict our conclusions to a specific patient population or disease, but to deranged physiology leading to hypercapnia.

You can get the data about time to control hypercapnia and clinical improvement from our results (Table 1 - Clinical and gas exchange parameters, p. 159). What we can not draw any conclusion is about the successful management of patients with noninvasive mechanical ventilation after HFNC failure, because there was only one patient in this category.<sup>(3)</sup>

As we have stated in the manuscript, the results of our study due to its observational nature and small sample size, have to be considered preliminary and need to be tested in rigorous clinical trials.<sup>(4,5)</sup> Nonetheless, we think they represent one of the first series of successful use of this therapy in patients with hypercapnia. We only advocate the use of HFNC in patients with moderate hypercapnia that do not tolerate or have contraindications for non-invasive ventilation. So far, this ultimate mode has to remain the standard and first-line ventilatory treatment for hypercapnic respiratory failure.<sup>(6)</sup>

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