

CORRESPONDENCE



Early prone position for COVID-19 patients with severe hypoxia: reduces the mortality but increases the intubation risk?

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Dear Editor,

We have read with interest the study by Zang et al. [1] recently published in *Intensive Care Medicine*, which showed greater 90-day survival in the group of non-intubated COVID-19 patients with severe hypoxia who performed early prone position (56.5%) compared to the group who did not (24.3%). This result is an important differential in relation to the several studies previously published. The study was the first to show improvement in a clinically relevant outcome, in addition to the reduction in hypoxia and respiratory rate already demonstrated previously [2–4].

Therefore, we were very intrigued by a result seen in the supplementary material, not mentioned in the main text by the authors. Although there is not a significant difference, we found in Table S3 [1] that a greater number of patients in the early prone position group required invasive mechanical ventilation (34.8%) when compared to the non-prone position group (10.8%). However, what draws the most attention is that many patients who died in the non-prone position group did not receive invasive mechanical ventilation (Table S2—88.9%) [1]. What is the explanation for that? Usually, patients with more severe ARDS need endotracheal intubation and invasive mechanical ventilation. Was the tracheal intubation of these patients not considered due to any severity criterion not reported by the authors? Is non-intubation a cause associated with high mortality in the non-prone position group?

This is an important discussion, since one of the main concerns regarding the use of awake prone position is whether it actually prevents intubation and the damage associated with invasive mechanical ventilation or if it simply delays intubation. Although the ideal time for intubation and mechanical ventilation for patients with ARDS is not known, delayed intubation has been associated with increased mortality in these patients [5]. Ding et al. [3] demonstrated more severe hypoxia in patients who were intubated despite early prone position when compared to patients who performed awake prone position and did not require intubation. Thus, the authors suggested the application of early prone position especially in patients with moderate ARDS and baseline $SpO_2 > 95\%$. Controversially, the patients selected by Zang et al. [1] had severe hypoxia.

Finally, an important limitation not mentioned by the authors is the possibility of methodological bias since the method in which patients were allocated to the groups was not described. Although we recognize the importance of the study by Zang et al. [1], we hope that results from ongoing randomized controlled trials (e.g., NCT04383613, NCT04359797, NCT04350723, NCT04347941, NCT04477655 and NCT04344587) demonstrate greater certainty about the effects of the early prone position in non-intubated COVID-19 patients with hypoxia on intubation and mortality rates.

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