

LETTER

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# Early versus late proning in non-intubated COVID-19 pneumonia

Vijo Poulose<sup>1\*</sup>

In a recent issue of *Critical Care*, Kaur et al. published an interesting study comparing the outcomes of early (EP) vs late proning on awake, non-intubated COVID-19 patients with hypoxemic respiratory failure [1]. The study is a post hoc analysis of a meta-trial on awake proning in COVID-19 pneumonia, which was published in August 2021 issue of the *Lancet* [2]. This “meta trial” (a novel trial design) of 6 randomised, controlled trials involved 6 nations and 1126 patients and showed that proning (versus standard care) reduced the need for intubation, but had no effect on mortality.

The primary outcomes in the Kaur study were 28-day mortality and intubation rates. The results showed that EP had a substantial mortality benefit (26% vs 45%), but with no difference in intubation rates.

Now this raises a question which the authors did not elaborate on. If EP is so effective in reducing mortality, why did it not lower intubation rates? The primary benefit of proning (as compared to supine position) is achieving better oxygenation via a variety of proposed mechanisms (better pleural pressure gradients, less weight of the heart and abdominal contents, more uniform perfusion). If EP helps in the initial exudative phase of ARDS (as the authors theorize), why did it not provide an intubation benefit?

One has to assume that all or most of the cases in the EP arm that needed intubation had worsening respiratory failure. Can this slightly confusing message be attributed

to the inherent weaknesses of a post hoc analysis and the fact that being a small sample size (125 patients), the trial was probably underpowered?

I look forward to hearing from the authors for further clarification.

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## Authors' reply to “Early versus late proning in non-intubated COVID-19 pneumonia”

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We thank Dr. Poulose for his interest in our work. We agree with Dr. Poulose that early use of awake prone positioning should have led to an improvement in the intubation rate. However, as we reported in our study, a higher number of patients in the late awake group (18.2% vs 7.6%) died without being intubated [1]. We believe this could have been one of the contributing factors to there being no difference in the intubation rate. We agree with Dr. Poulose that the sample size was not sufficient to detect significant differences of intubation between the early versus late prone positioning group. Future randomized controlled trials are warranted and would address the limitations of our post hoc analysis. Additionally, as this randomized controlled trial [2] was conducted in the

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height of the pandemic, there were wide variations in intubation practices [3, 4]. Due to concerns for aerosol transmission with the use of high flow nasal cannula therapy and non-invasive ventilation, an early intubation strategy was commonly utilized during the initial phase of the study trial. Early intubation may have impacted our ability to truly detect a difference in intubation rate based on the early initiation of awake prone positioning.

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##### Consent for publication.

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