LETTER TO THE EDITOR

Author Response: Beyond the Nasal Prongs: A Joust of Oxygen Delivery Methods in Post-op Hypoxemia

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Keywords: Hypoxemia, Oxygenation, P/F ratio.
Indian Journal of Critical Care Medicine (2024): 10.5005/jp-journals-10071-24740

Dear Editor,

We thank Dr Gangireddy and Dr Jindal for their interest in our study and insightful comments.

We included postoperative adult patients aged between 18 and 65 years with hypoxemia who were kept for monitoring in a postanesthesia care unit (PACU) after undergoing surgeries.[1] All cases recruited were only after elective surgeries without anemia. As of now, partial pressure of oxygen (PaO_2) is the only standard way to measure hypoxia. No other method is available to measure pO_2 directly at the tissue level.

In our study, selection was normally distributed and not skewed. It was an open-label random study to remove selection bias. The primary outcome variable was a change in the PaO_2 to the fraction of inspiratory oxygen concentration (FiO_2) (P/F) ratio represented as mean and standard deviation. The comfort score may be subject to individual variation. Thus, the data for the comfort score was represented as a median.

Block or stratified randomization would have been possible if all the subjects had been identified before the group assignment, which was not the case in our study.[2] Patients with covariates that could influence the outcome of our trial were excluded. So, we took simple randomization for its ease of implementation.

All three 3 oxygen delivery vehicles (ODVs), i.e., non-invasive ventilation (NIV), high-flow nasal cannula (HFNC), and venturi mask (VM), are used for oxygen delivery in the PACU depending upon the clinician preferences. No similar study has been done to date in the Indian scenario on postoperative adult patients. The conditions mentioned by Gangireddy et al. occur in critical care patients admitted to the intensive care unit, not after elective surgeries.

We agree that the short-term effects of oxygen-delivery devices may not truly reflect their long-term effectiveness. In our study, patients not showing improved arterial blood gas (ABG) analysis parameters were either shifted to ICU or the ODV was changed according to the patient's pathophysiology. We opted for a random selection of ODV rather than patient-tailored management, as suggested by Gangireddy et al., which would have been more beneficial. Our main goal was not to treat the pathophysiology but to improve oxygenation when the patient stays at PACU.

We followed up with the patients for two hours instead of longer durations. However, the patients who required a longer duration of ODV or deteriorated were shifted to the ICU for further management. Those who showed improvement and no longer required the support of ODV were shifted to wards with an oxygen face mask or on room air, making it pointless to follow up. Since the average holding time in PACU at our institute is approximately 2 hours, this was the rationale behind the primary outcome, i.e. a change in the PaO_2/FiO_2 ratio after 2 hours of oxygen use.[3] In postoperative patients, hypoxemia occurs due to basal atelectasis and inadequate recovery from anesthesia. After surgery under general anesthesia, patients have kept nil orally for 2 hours to prevent aspiration till they completely recover from anesthesia. As per enhanced recovery after surgery (ERAS) protocol, patients should mobilize as early as possible.[4]

In our study, the settings of the ODV were fixed and not patient-tailored, which has already been mentioned as a limitation. Because patients were kept nil by mouth during the postoperative period, the ease of taking oral fluids or an oral diet utilizing various ODVs could not be tested, which is also a limitation of our study.

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How to cite this article: Mishra S, Kothari N, Sharma A, Goyal S, Rathod DK, Meshram T, *et al*. Author Response: Beyond the Nasal Prongs: A Joust of Oxygen Delivery Methods in Post-op Hypoxemia. Indian J Crit Care Med 2024;28(6):626–627.

Source of support: Nil

Conflict of interest: None

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