

Author Response: Oxygenation Indices in Adult COVID ARDS Patients

Sonali MR Vadi¹, Neha Sanwalka², Durga Suthar³

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Dear Editor,

We thank Palanidurai S et al.¹ for their interest in our recently published study on oxygenation indices in invasively ventilated coronavirus disease-2019 (COVID-19) acute respiratory distress syndrome (ARDS) adult patients.² We are pleased to respond to their comments and clarify certain queries raised by them.

Of essence was the oxygenation status to monitor and titrate ongoing treatment at bedside. All patients underwent arterial blood gas analysis, an objective method to quantify oxygenation status given the severity of their lung injury and their overall clinical status, to guide further management. Hence, any doubt about SpO₂ values was always cross-checked with SaO₂ values.

First, as an extension of the concerns raised by you on the reliability of pulse oximetry to overlook instances of occult hypoxemia, SpO₂ may not be a formidable parameter to replace PaO₂ especially in patients with skin pigmentation and local or global hypoperfusion.³ With regard to invasively ventilated patients (our cohort), titration of ventilator parameters in a larger perspective requires arterial blood gas analysis as a quotidian investigation, at the least. For these reasons, the global definition of ARDS does not materialize as robust enough to replace the Berlin definition, which in turn needs to be revisited.^{4,5} Additionally, it is unfitting to have multiple definitions-global definition of ARDS (patients do not require positive end-expiratory pressure), Kigali modification of Berlin definition of ARDS (only 21 patients received mechanical ventilation), a heterogeneous syndrome, without being validated by larger prospective studies.^{4,6}

Second, PaO₂/FiO₂*PEEP (P/FP) ratio seemed like an intriguing proposal. Consequently, we performed a secondary analysis on our study group looking at P/FP ratio, submission of which is under review. We observed oxygen index and oxygen saturation index had higher sensitivities as compared to PaO₂/FiO₂ ratio and P/FP ratio.

Third, we ran a multivariate regression analysis in the secondary analysis and noted only oxygenation index to significantly impact mortality ($p < 0.05$). S/F ratio and P/FP ratio had no significant impact on mortality ($p < 0.05$).

ORCID

Sonali MR Vadi  <https://orcid.org/0000-0002-7341-2407>

Neha Sanwalka  <https://orcid.org/0000-0003-3428-3144>

Durga Suthar  <https://orcid.org/0000-0002-9533-1069>

¹Department of Intensive Care Medicine, Kokilaben Dhirubhai Ambani Hospital & Medical Research Institute, Mumbai, Maharashtra, India

²Department of Nutrition and Biostatistics, Nutri Canvas, Mumbai, Maharashtra, India

³Department of Intensive Care Medicine, Sudha Hospital & Medical Research Centre, Kota, Rajasthan, India

Corresponding Author: Sonali MR Vadi, Department of Intensive Care Medicine, Kokilaben Dhirubhai Ambani Hospital & Medical Research Institute, Mumbai, Maharashtra, India, Phone: +02242696969, e-mail: sonalivadi@hotmail.com

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