LETTER TO THE EDITOR

Non-invasive Ventilation Failure – Predict and Protect

Kambagiri Pratyusha[1], Atul Jindal[2]

ABSTRACT

Modified heart rate, acidosis, consciousness, oxygenation and respiratory rate (HACOR) score takes into consideration pneumonia, cardiogenic pulmonary edema, pulmonary acute respiratory distress syndrome (ARDS), immunosuppression, septic shock, and the sequential organ failure assessment (SOFA) score prior to non-invasive mechanical ventilation (NIV) that would impact the success of NIV and are commonly seen in patients presenting to the emergency. Propensity score matching could have been done for similar distribution of baseline characteristics. Specific objective criteria are needed to define respiratory failure requiring intubation.

Keywords: Emergency department, HACOR score, Non-invasive mechanical ventilation, Respiratory failure.

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Dear Editor,

We read with immense interest the article titled "Prediction of Non-invasive Ventilation Failure in a Mixed Population Visiting the Emergency Department in a Tertiary Care Center in India" by Mathen et al.[1] We commend the authors for their research, but we would like to express our views about this.

Authors have used the HACOR score along with high-sensitivity C-reactive protein for the prediction of NIV failure in patients presenting to the emergency department (ED).[1] The HACOR score was originally developed from the data obtained from respiratory intensive care units (ICUs) to predict NIV failure in patients with predominantly hypoxemic respiratory failure from respiratory etiology.[2,3] Several factors like pneumonia, cardiogenic pulmonary edema, pulmonary ARDS, immunosuppression, septic shock, and the SOFA score prior to NIV impact the success.[3] Even though the common indications for NIV were type I and type II respiratory failure in the study population, the above-mentioned associated conditions are more likely to be coexistent in patients presenting to ED and would impact the outcome. Hence, we suggest the use of an updated HACOR score for improved prediction. In view of the underlying baseline heterogeneity among the study population, propensity score matching could have been done for similar distribution of baseline characteristics. NIV failure is usually defined as the need for intubation. Although the decision to intubate would be as per the discretion of treating physician, the use of specific objective criteria to define respiratory failure requiring intubation could have been done like in other studies.[3,4] Serial HACOR scores could have been monitored and compared with the one at 1 hour after initiation of NIV in predicting NIV failure. We suggest the authors to consider these while planning further research.

ORCID

Kambagiri Pratyusha https://orcid.org/0000-0002-0659-0254
Atul Jindal https://orcid.org/0000-0002-0504-1077

[1,2]Department of Pediatrics, Division of Pediatric Critical Care, All India Institute of Medical Sciences, Raipur, Chhattisgarh, India

Corresponding Author: Kambagiri Pratyusha, Department of Pediatrics, Division of Pediatric Critical Care, All India Institute of Medical Sciences, Raipur, Chhattisgarh, India, Phone: +91 7009985813, e-mail: drpratyu@gmail.com

REFERENCES

1. Mathen PG, Kumar KG, Mohan N, Sreekrishnan T, Nair SB, Krishnan AK, et al. Prediction of noninvasive ventilation failure in a mixed population visiting the Emergency Department in a Tertiary Care Center in India. Indian J Crit Care Med 2022;26(10):1115–1119. DOI: 10.5005/jp-journals-10071-24338.
2. Duan J, Han X, Bai L, Zhou L, Huang S. Assessment of heart rate, acidosis, consciousness, oxygenation, and respiratory rate to predict noninvasive ventilation failure in hypoxemic patients. Intensive Care Med 2017;43(2):192–199. PMID: 27812731.
3. Duan J, Chen L, Liu X, Bozbay S, Liu Y, Wang K, et al. An updated HACOR score for predicting the failure of noninvasive ventilation: a multicenter prospective observational study. Crit Care 2022;26(1):196. DOI: 10.1186/s13054-022-04060-7.
4. Ding M, Han X, Bai L, Huang S, Duan J. Impact of HACOR score on noninvasive ventilation failure in non-COPD patients with acute-on-chronic respiratory failure. Can Respir J 2021;2021:1–7. DOI: 10.1155/2021/9960667.