

ROX index to predict the outcome of HFNC

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Abstract

Background: The use of high-flow nasal therapy (HFNT) to treat COVID-19 pneumonia has been greatly debated around the world due to concerns about increased health care worker transmission and delays in invasive mechanical ventilation (IMV). Herein, they analyzed the utility of the noninvasive ROX (ratio of oxygen saturation) index to predict the need for and timing of IMV.

Objective: the study aimed to assess whether the ROX index can be a useful score to predict intubation and IMV in patients receiving HFNT as treatment for COVID-19-related hypoxemic respiratory failure.

Methods: This is a retrospective cohort analysis of 129 consecutive patients with COVID-19 admitted to Temple University Hospital in Philadelphia, PA, from March 10, 2020, to May 17, 2020. This is a single-center study conducted in designated COVID-19 units (intensive care unit and other wards) at Temple University Hospital. Patients with moderate and severe hypoxemic respiratory failure treated with HFNT were included in the study. HFNT patients were divided into two groups: HFNT only and intubation (ie, patients who progressed from HFNT to IMV). The primary outcome was the value of the ROX index in predicting the need for IMV. Secondary outcomes were mortality, rate of intubation, length of stay, and rate of nosocomial infections in a cohort treated initially with HFNT.

Results: Of the 837 patients with COVID-19, 129 met the inclusion criteria. The mean age was 60.8 (SD 13.6) years, mean BMI was 32.6 (SD 8) kg/m², 58 (45%) were female, 72 (55.8%) were African American, 40 (31%) were Hispanic, and 48 (37.2%) were nonsmokers. The mean time to intubation was 2.5 (SD 3.3) days. An ROX index value of less than 5 at HFNT initiation was suggestive of progression to IMV (odds ratio [OR] 2.137, P=.052). Any further decrease in ROX index value after HFNT initiation was predictive of intubation (OR 14.67, P<.001). Mortality was 11.2% (n=10) in the HFNT-only group versus 47.5% (n=19) in the intubation group (P<.001). Mortality and need for pulmonary vasodilators were higher in the intubation group.

Conclusions: The ROX index helps decide which patients need IMV and may limit eventual morbidity and mortality associated with the progression to IMV.

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Biography

Bayan Almarzoog is a respiratory therapist in King Fahad Medical City, Sudi Arabia. She has been graduated from Imam Abdulrahman Bin Faisal University. She has attended

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