Category :**Respiratory: other**

**A81 -** ***Use of rox index in predicting the failure of non-invasive respiratory support for patients with covid-19***

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## Introduction:

COVID-19 patients are at risk of respiratory deterioration requiring higher level of care. Decisions around timing of intubation and invasive ventilation remain a challenge. NEWS2 is a well-established physiology scoring system used to detect the deteriorating patient[1]. New evidence suggests ROX index may be more reliable than NEWS2 to identify patients at risk of treatment failure of non-invasive respiratory support (NIRS) [2]. Another study has suggested the use of a nomogram for predicting NIRS failure[3].

## Methods:

Data was collected retrospectively from 81 COVID-19 patient admitted to a general critical care unit. Vasopressor use, comorbidities and worst physiological parameters in the first 24 hours of instituting NIRS were recorded and used to calculate NEWS2, ROX index, nomogram scores and P/F ratio. NIRS failure, length of therapy and survival status at the end of critical care admission were recorded.

## Results:

Area under the receiver operating characteristic (AUROC) curves were calculated for NIRS failure prediction. For nomogram AUROC was 0.701 (95% CI 0.584 – 0.818) p=0.0033, ROX index AUROC 0.810 (95% CI 0.708 – 0.908) p=<0.0001, NEWS2 AUROC 0.688 (95 CI 0.574 – 0.802) p = 0.0051, P/F AUROC 0.748 (95% CI 0.638 – 0.858).

## Conclusion:

ROX index is an easily calculated score and a better predictor of NIRS failure than nomogram, NEWS2 scores and P/F ratio. NEWS2 is not calibrated for this patient population and is not specific for those requiring respiratory support. The ROX index is easier to calculate than a recently developed nomogram [3] and performs better. Patients in respiratory support units (RSU) in the United Kingdom do not have arterial lines sited routinely. ROX-index would therefore be a useful score to help predict treatment failure of NIRS in RSU's and facilitate decision making for escalation of care.

## References:

**1** Pimental M et al. Resuscitation 134: 147-156, 2018.
**2** Prower E et al. E Clinical Medicine 35: 100828, 2021.
**3** Liu L et al. The Lancet 3: e166-174, 2021.