

Category : **Respiratory: mechanical ventilation**

**A78 - Predictors of poor outcome in patients admitted to intensive care following failed high-flow nasal oxygen therapy**

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**Introduction:**

We investigated whether there were any predictors of poor outcome amongst patients who were admitted to the Intensive Care Unit (ICU) following treatment with high-flow nasal oxygen (HFNO) in Medical HDU (MHDU) at a tertiary hospital in Glasgow. Delayed intubation as a result of initial treatment with HFNO has been shown to worsen ICU outcomes, including mortality, extubation success and length of ventilation [1]. Identification of factors that predict poor ICU outcome during HFNO therapy could aid decision-making regarding escalation and timing of intubation to avoid delayed intubation.

**Methods:**

Between January 2016 and January 2019, there were 106 patients admitted to MHDU who were treated with HFNO, deteriorated and were admitted to ICU. Data were collected from the patient record, including demographics and physiological parameters. Severity of respiratory failure was calculated using the ROX index [2], measured after one hour of HFNO therapy and immediately prior to ICU admission. Chi-square tests were conducted to assess whether demographics, length of HFNO therapy or ROX index were associated with poor ICU outcome.

**Results:**

The majority (62%) of patients were male and median age was 59 years. Median MHDU length of stay was 0.79 days (IQR 0.34-1.91) and patients received a median of 12 hours HFNO (IQR 5-29.5 hours) prior to admission to ICU. Once admitted to ICU, 85.8% received invasive ventilation. Hospital mortality was 43.4%. In a regression analysis, only age and quartile of ROX index at ICU admission were significantly associated with ICU outcome, with  $p$  values of 0.009 and 0.03 respectively.

**Conclusion:**

Age and low ROX index on admission to ICU are predictors of poor outcome in patients admitted to MHDU receiving HFNO.

**References:**

1. Kang et al. Intensive Care Medicine. 41, 623-632, 2015.
2. Roca et al. Journal of Critical Care. 35, 200-205, 2016.