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EVALUATION OF OXYGEN SATURATION INDEX (OSI) AS NON-INVASIVE TOOL AND COMPARISON WITH OXYGENATION INDEX (OI) IN HYPOXEMIC RESPIRATORY FAILURE IN NEONATES: A PROSPECTIVE OBSERVATIONAL STUDY

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ABSTRACT

INTRODUCTION

Oxygenation index (OI) is routinely used as a marker of severity of hypoxemic respiratory failure in neonates and to decide management in these babies. But it is an invasive procedure requiring Vascular puncture and also confers cost, cumbersome for continuous monitoring.

IMPORTANCE OF STUDY

As Oxygen saturation Index (OSI) is a non-invasive method of monitoring, evaluating it's efficacy with OI which requires frequent ABG sampling, will provide a better tool for monitoring of these babies specially in resource limited set up where ABG is not available. It is more cost effective and provide continuous monitoring of hypoxemia.

OBJECTIVES :To determine the correlation between OSI and OI and to validate the values of OSI against defined severity of OI as mild, moderate and severe 10-15, 15-20 and above 20 respectively.

METHODOLOGY

The Study design was Prospective Observational cross-sectional Study conducted at Dept of Neonatology, Chengalpattu Medical College and Hospital (CMCH) Chengalpattu, Tamil Nadu from May 2022 – April 2023 (1 year) and include 41 **Neonates with Hypoxemic Respiratory Failure**

RESULT

A total of 257 paired OI and OSI measurements from 41 infants median gestational age 37 weeks; mean birth weight 2.8 kg were recorded during the study. The median (interquartile range) number of samples was 5 (4-7) per patient. Overall, OSI values showed strong correlation (r = 0.91) with OI.

The predictive derivative equation showed a strong linear association and good agreement in both derivation and validation data sets, with strong accuracy measures of OSI for OI cutoffs of 10- 15,16- 20, 21-25 and >25.

Conclusion

A strong correlation of OSI with OI was found. OSI was strongly predictive of severity of HRF in the ventilated neonates and was in agreement with the OI values which correlated with modification in treatment like change in mode of

ventilation, need for Sildenafil and iNO

KEYWORDS: *Is Oxygen saturation index (OSI) is a valid and reliable marker of Neonatal hypoxemic respiratory failure as compared to Oxygenation index (OI) and can it add in taking decision in the Management of illness ?*

What is Already Known?

Oxygenation Index (OI) is the usual standard method for assessment of severity of Hypoxic Respiratory failure (HRF)/PPHN in Neonates which is a invasive, costly method and required skill.

What this Study will Add ?

Oxygen saturation Index (OSI) can be used reliably as surrogate marker of HRF/PPHN in neonates which does not require vascular puncture, cost effective and easily monitored continuously.

We have also taken steps in correlation of OSI in need of modification of treatment like change of ventilator mode, requirement of sildenafil and iNO and correlation with the corresponding OI values in HRF babies on ventilatory support.