

NHFOV vs NIPPV in Preterms with RDS



Weaning premature neonates off mechanical ventilation presents a significant challenge in neonatal respiratory care. The successful transition from intubation to noninvasive support hinges on two critical factors: the selection of an effective and safe noninvasive mode to prevent re-intubation and the optimal time for weaning.

A study was conducted to compare the effectiveness and safety of two noninvasive ventilation methods, noninvasive high-frequency oscillatory ventilation (NHFOV) and noninvasive positive pressure ventilation (NIPPV), as respiratory support after extubation in preterm infants with respiratory distress syndrome (RDS). Additionally, the study compared the lung ultrasound findings associated with these modalities and assessed the use of the lung ultrasound score (LUS) as a predictor of extubation outcome.

This was a randomised controlled trial with 60 preterm neonates with RDS. Patients were divided into one of two groups: those receiving NIPPV or NHFOV as post-extubation noninvasive respiratory support. The two groups were compared with respect to several outcome measures, including the incidence of extubation failure within 72 hours post-extubation, oxygen requirements, duration of noninvasive ventilation, length of hospital stay, safety parameters, and mortality rates. Lung ultrasound assessments were conducted both before extubation and 2 hours post-extubation.

The study did not reveal any significant difference in the re-ventilation rates between the NHFOV group (23.3%) and the NIPPV group (30.0%). Oxygen requirements were significantly lower in the NHFOV group compared to the NIPPV group. No statistically significant differences were observed between the two groups in terms of the duration of noninvasive ventilation utilisation, CO₂ concentration levels, LUS findings, or mortality rates. However, a significant correlation was observed between LUS and extubation outcome.

The findings of this study suggest that NHFOV is a feasible noninvasive ventilation modality for providing respiratory support to premature infants following extubation. Additionally, it underscores the value of LUS as a reliable predictor of extubation outcome in neonates.

Source: [Journal of Neonatal-Perinatal Medicine](#)

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Published on : Tue, 26 Sep 2023