

Title of Abstract:

Extubation to Nasal CPAP is Associated with a Decrease in Reintubation when Compared to Non-Invasive NAVA or NIMV

Name of Abstract Submitter:

Yona Nicolau, MD - Assistant Professor of Pediatrics

Organization:

University of California Irvine

Co-Author / Co-Investigators:

Tri C Nguyen, MD ; Andrew Sumnicht (medical student); Andrew Hopper MD ; Douglas Deming MD

Abstract Description:

Background: Decreasing days on invasive mechanical ventilation while increasing non-invasive ventilatory support has become the standard of care for premature infants. Centers are using different non-invasive extubation support modalities with varying success. Neurally adjusted ventilatory assist (NAVA) is the only synchronized non-invasive device available. Our center has implemented the use of non-invasive NAVA post extubation for the last 3 years.

Objective: The objective of this study was to evaluate the effect of bubble CPAP (BCPAP), nasal intermittent mandatory ventilation (NIMV), and NAVA on the proportion of extubation failure and long term outcomes: chronic lung disease (CLD), necrotizing enterocolitis (NEC), intraventricular hemorrhage (IVH) and retinopathy of prematurity (ROP) in very low birth weight infants (VLBW).

Design/Methods: Intubated infants <30 weeks gestation born at our center in the last 3 years (n=142) were analyzed retrospectively. Patients were divided in 3 groups according to their post extubation support (CPAP vs. NAVA vs. NIMV). Statistical analysis was performed with SPSS-24. One-way ANOVA, Paired sample T-test and Post Hoc Test- Scheffe were used to determine whether there were significance differences in base line newborn and maternal characteristics, as well as long term comorbidities (CLD, IVH, NEC and ROP).

Results: Baseline neonatal characteristics (mean gestational age, birthweight, postnatal steroid doses, caffeine and surfactant) and maternal characteristics (antenatal steroids, chorioamnionitis and pre-eclampsia) showed no significant differences in all 3 groups. However, the mean airway pressure (MAP) values immediately before extubation were significantly higher in NAVA group

CAN: Cool Topics in Neonatology

March 3-5, 2017

compared to BCPAP and NIMV. Babies who were extubated to BCPAP had the lowest proportion of extubation failure (26.2%) when compared to NAVA (55.6%) or NIMV (95.6%). Also extubation to BCPAP was associated with the lowest proportion of CLD (BCPAP 25.4% vs. NAVA 73.5% vs. NIMV 57.1%). In addition non-invasive NAVA was associated with the highest proportion of ROP (88.2%) when compared with CPAP (48.2%) or NIMV (64.1%).

Conclusion(s): Extubation to BCPAP in VLBW infants is associated with less need for reintubation and less CLD; however there were no statistical differences in the proportions of ROP, NEC and IVH when compared to non-invasive NAVA or NIMV. Extubation to NAVA did show a significant increase in the proportion of babies who developed ROP.

Funding Acknowledgement (if applicable):

None