

Abstract Title:

Early Extubation in Extremely Preterm Infants

Author Information:

Kari Bruce, MD
Neonatology Fellow, PGY-6
UC Irvine

Co-Authors:

Cherry Uy, MD, Chief, Division of Neonatology, UC Irvine Fayez Bany-Mohammed, MD,
Fellowship Program Director, UC Irvine

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Author Information: Kari Bruce, MD*; Cherry Uy, MD; Fayez Bany-Mohammed, MD

Introduction: As non-invasive ventilation becomes the standard goal of care for all preterm infants, there remains some question if this includes the most fragile of infants in the extremely preterm population. Our objective was to examine if initial early extubation increases the risk for morbidity and mortality in this population.

Methods: This is a retrospective chart review including infants born between 225/7 - 266/7 weeks' gestation during the years of 2013 - 2017 at UC Irvine Medical Center. We examined patient demographics, prenatal factors such as steroid use and rupture of membrane time, respiratory characteristics, and outcomes including severe interventricular hemorrhage (IVH), patent ductus arteriosus (PDA), necrotizing enterocolitis (NEC), spontaneous intestinal perforation (SIP), retinopathy of prematurity (ROP), chronic lung disease (CLD), mortality and length of stay.

Results: Of 113 infants, 79 were intubated in the delivery room; 28 of which had their first extubation attempt in the first 3 days of life, 41 with first extubation attempt after day 3 of life. Infants who had an initial extubation attempt in the first 3 days of life had a higher gestational age (253/7 weeks versus 245/7 weeks) and higher birth weight (756 g versus 622 g). Infants who had an initial extubation attempt after 3 days of life were more likely to be extubated from high frequency ventilation, higher mean airway pressure, higher PEEP and had a higher pCO₂ prior to extubation. The rate of successful extubation (> 72 hours) was similar between the two groups, 61% were successfully extubated with initial extubation in the first 3 days of life, 68% were successfully extubated with initial extubation after day of life 3. There was no difference in

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severe IVH, SIP, NEC, PDA, ROP or mortality between the two groups. Those that were extubated after day 3 of life were more likely to have CLD, CLD and mortality and a longer length of stay.

Conclusion: Early extubation in the extremely preterm population is safe and not associated with short term morbidities. Extubation after day of life 3 can increase the risk for chronic lung disease, chronic lung disease and mortality and is associated with a longer length of stay.