Type and Timing of Ventilation in the First Postnatal Week is Associated with Bronchopulmonary Dysplasia/Death.

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Abstract

The type and timing of respiratory support in the first week affecting bronchopulmonary dysplasia (BPD)/death have not been evaluated. We compared outcomes of premature infants on nasal intermittent positive pressure ventilation (NIPPV) or nasal continuous positive airway pressure (NCPAP) to those on endotracheal tube (ETT). We retrospectively reviewed data (1/2004 to 6/2009) of infants ≤ 30 weeks’ gestational age (GA) who received NIPPV in the first postnatal week. National Institutes of Health consensus definition was used for BPD. Infants were categorized into three groups based on their being on a particular respiratory support mode for majority of days in the first week. There was no difference in the mean GA and body weight in the three groups: ETT (N = 65; 26.7 weeks; 909 g), NIPPV (N = 66; 27.1 weeks; 948 g), and NCPAP (N = 33; 27.4 weeks; 976 g). Use of surfactant was significantly different. In multivariate analysis, compared with ETT, NIPPV (P < 0.02) and NCPAP (P < 0.01) groups were less likely to have BPD/death. Infants on ETT (N = 97) during 1 to 3 days were more likely to have BPD/death compared with those on NIPPV (N = 38): 67% versus 47% (P = 0.035). Infants on ETT (N = 30) during 4 to 7 days were more likely to have BPD/death compared with those extubated to NIPPV (N = 36): 87 versus 53% (P = 0.003). Extubation to NIPPV or NCPAP in the first postnatal week is associated with decreased probability of BPD/death.