Mechanical ventilation and survival without major morbidities in Very-Low-Birth-Weight Infants: a multicenter study

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Abstract

**Background:** Mechanical ventilation (MV) is a frequent lifesaving therapy in very low birthweight (VLBW) infants, although it poses risks and may present complications. **Objective:** To compare survival without major morbidity (SWMM) in VLBW infants who received MV compared to those who did not, according to duration of MV and gestational age (GA).

**Design/Methods:** Multicenter retrospective study of prospectively collected data, of premature infants weighing 500-1500g, and 24-30 weeks of gestational age (GA) born between 2010-2019 at NEOCOSUR Network centers. Baseline characteristics and neonatal outcomes were compared among ventilated and non-ventilated VLBW infants. Stratification for each week of GA was made. Adjusted odds ratios and 95% confidence intervals (CI) were calculated for main outcomes by logistic regression, adjusted for birthweight, GA, gender, mode of delivery, respiratory distress syndrome (RDS), antenatal corticosteroids, small for gestational age (SGA) and Apgar scores. **Results:** A total of 7,040 infants were included in the analysis. Among these, 4,993 (70.9%) were ventilated and 2,047 (29.1%) were not. Non-ventilated infants were larger, healthier at birth and presented less major adverse outcomes (p<0.001). SWMM in ventilated patients was 35.9%, compared to 73.4% in non-ventilated infants (OR=0.35; 95%CI=[0.31-0.40]). SWMM of ventilated infants remained lower at all GA intervals after risk adjustment. MV duration was also associated with a decrease of SWMM, each additional MV day decreased SWMM by 7.9% (OR=0.921, IC95%; 0.913 – 0.930). **Conclusions:** The use and duration of MV were associated with a significant decrease in SWMM in this population of VLBW infants, despite risk adjustment.

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