Using Pulmonary Artery Acceleration Time to Evaluate the Effect of Surfactant Therapy on Preterm Infants with Respiratory Distress Syndrome

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Abstract

Abstract Introduction: Pulmonary artery acceleration time (PAAT) is a reliable and noninvasive method of assessing pulmonary hemodynamics in children and adults, but it lacks validity for preterm infants. The aim of this study was to assess changes in PAAT among preterm infants with neonatal respiratory distress syndrome (NRDS) who are receiving pulmonary surfactant (PS) therapy, and to determine its potential significance in terms of respiratory outcomes. Methods: Between January and December 2019, 62 preterm infants with a gestational age of 27–31 weeks, a risk of NRDS, and who had been started on nasal continuous positive airway pressure were reviewed. Infants who received PS treatment were allocated to the PS group, and those who did not were allocated to the control group. We then studied PAAT and other ultrasonic parameters at three different time points after birth, comparing the groups' values . Results: PAAT increased after PS treatment, but over time (up to 36 weeks postmenstrual age) PAAT in the PS group increased at a slower rate than that in the control group. Conclusion: PAAT is a convenient and sensitive method of accurately assessing pulmonary vascular diseases among preterm infants. Preterm infants with NRDS might still have respiratory diseases in the late postnatal period; thus, they require full attention and long-term follow-up observation.

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