USING LU SCORE TO PREDICT EXTUBATION FAILURE IN PRETERM INFANTS SHOULD CONSIDER GESTATIONAL AGE AT BIRTH

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August 28, 2020

Abstract

We explain our concerns on using plain LU score to predict extubation failure in preterm infants, as gestational age at birth can be an important confounder.

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Abstract

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Dear Editor,

We read with interest the article published in the last issue of Pediatric Pulmonology by El Amrousy D. and coworkers[1] on lung ultrasound score (LUS) as a predictor of extubation failure (EF) in neonates during the 48 hours following the discontinuation of mechanical ventilation. The authors conclude that LUS above 10 is a reliable EF marker.

Although we commend the authors for translating to the NICU a strategy already tested in adult critical care[2], we would like to express a word of caution.

Our concern regards a significant GA difference: 32 weeks (95% confidence interval (CI) 27.5-36.5 weeks) for babies failing extubation versus 35 weeks (95% CI 31.2-38.8 weeks) for infants who were not reintubated (p=0.045).

According to a previous publication [3] and our personal experience, LUS has a marked GA dependence. Compared to late preterm babies, ELBW infants tend to keep higher LUS regardless of duration of mechanical ventilation or development of bronchopulmonary dysplasia. This translates in a variable number of B lines often reaching coalescence long after extubation, regardless of the respiratory support. Preterm infants under 28 weeks without BPD may remain with similar LUS than those evolving to BPD until 4-6 weeks of age (LUS from 5-10), irrespective of the respiratory support they receive[4].

Since LUS is a reliable marker of lung aeration[5], the persistence of high scores may be due to pulmonary insufficiency of prematurity [6], a 50% to 70% loss of lung volume that makes these infants depend on non-invasive ventilation for a long time after recovering from the initial respiratory distress syndrome.

For these reasons, we believe that a single LUS extubation threshold over a wide GA span is incorrect. GA is a powerful confounder that should have been accounted for in a multivariate analysis.

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