Diagnostic utility of bedside 'Point of Care Lung Ultrasound' in Predicting the need for NICU admission in late preterm and term newborns having respiratory distress soon after birth in the transition period.

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August 28, 2024

Abstract

Background: Point of care Lung ultrasound (POC-LUS) is a rapid and simple method to evaluate neonates with respiratory distress. POC-LUS has lately been reported as a predictor of need for NICU admission in late preterm and term babies born with respiratory distress in the transition period. **Objectives:** The Primary objective was to determine whether the POC-LUS score is a good predictor for need for NICU admission in late preterm and term babies born with respiratory distress when performed within the first 2 hours of life. The secondary objective was to find a correlation between the LUS score and the clinical respiratory distress severity score during this transition period. **Methods:** A prospective observational study was carried out in a tertiary care neonatal unit (Level III-B) over 1 year on 97 late preterm and term neonates having respiratory distress at birth. POC-LUS was performed in a transition nursery area within 2 hours of birth and LUS Score was recorded as per a pre-validated LUS scoring system. The decision for NICU admission was independently taken by the medical team based on clinical criteria, and blinded to the LUS findings. A receiver operating characteristic (ROC) curve was generated to predict NICU admission based on the LUS score. LUS score was also analyzed for correlation with clinical respiratory distress severity scoring i.e Silverman Anderson Score (SA score) during transition. **Results:** The mean gestational age of the babies in the study was 37.45 weeks ± 1.88 weeks. 43 percent of neonates in the studied population needed admission to the NICU. LUS Score >5/18 within 2 hours after birth as a 'cut-off' was determined to be an excellent predictor of NICU admission in late preterm and term babies who are born with respiratory distress. (Area under ROC Curve 0.903, sensitivity 64%, specificity 98%, positive likelihood ratio 35 and p-value <0.001). LUS score also had a positive correlation with the SA score in the study population (Pearson correlation, r = 0.325; p-value = 0.001). **Conclusion:** The study predicted an optimal LUS score cutoff of 5/18 in deciding the need for NICU admission of late preterm and term neonates with respiratory distress at birth and also has a positive correlation with clinical respiratory distress score.

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