

Abstract Title:

Can Point of Care Ultrasound be Useful in Assessment of Bronchopulmonary Dysplasia?

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Abstract Description:

Purpose of Study: Use of POCLU in neonatal intensive care units (NICU) has been limited to evaluation of acute lung pathophysiology. Our study aims to evaluate the utility of POCLU to assess severity of bronchopulmonary dysplasia (BPD) in premature infants.

Methods Used: Premature infants (<34 weeks) admitted to a quaternary level academic NICU were enrolled at 36-37 weeks CGA if they met NIH criteria for BPD. POCLU was performed with a Sonosite II ultrasound machine by a single investigator. Longitudinal and transverse views of bilateral upper and lower anterior and lateral lung fields were obtained using a linear 10-12 Hz transducer. 2 blinded co-investigators scored each view from 0-3 using a scoring system adapted by De Luca et al from an adult ICU index, for a total of 0-18 points (with higher score for worse lung disease). Scores were averaged between the two raters and interrater reliability was calculated. Further statistical analysis has not yet been performed due to small sample size.

Summary of Results: 4 subjects (mean GA 25+2 mean BW 711g) have been enrolled thus far in this ongoing study (goal 20 subjects). 3 were clinically diagnosed with moderate BPD and 1 with severe BPD. 108 total images were viewed. Scores for moderate BPD subjects ranged from 0.5 to 4, while the subject with severe BPD had a score of 3.5. There was moderate interrater reliability for scoring ($\kappa = 0.417$).

Conclusions: Although limited by small sample size, our study is the first to examine utility of POCLU in assessment of BPD severity in a typical NICU cohort. As we include additional

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subjects, we aim to determine if modifications to the scoring system are necessary to optimize the ability of POCLU to characterize BPD severity.