LUNG ULTRASOUND COULD BE USED AS A SCREENING FOR HEMODYNAMICALLY SIGNIFICANT PATENT DUCTUS ARTERIOSUS (HPDA) – PROSPECTIVE STUDY

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Aims Determining whether a PDA is hemodynamically significant or not (non-hsPDA) is clinically relevant to evaluate the risk of associated morbidities and to determine subsequent management courses such as the need for intervention. A known consequence of hsPDA is pulmonary edema.

The aim of the study is to evaluate whether the assessment of pulmonary edema by lung ultrasound is a reliable sonographic indicator of hsPDA. Lung ultrasound could then be an accessible bedside tool used to evaluate if a PDA is hemodynamically significant and to assist with decision-making regarding its management along with other clinical and echocardiographic indicators.

Methods We conducted a prospective study of 20 infants in the Neonatal Intensive Care Unit at the Jim Pattison Children’s Hospital, Canada, between July 2019 to October 2020. Inclusion criteria were very preterm infants (gestational age less than 32 weeks) with low birth weight (less than 2500 grams) who had an echocardiogram and a bedside lung ultrasound assessment within their first two weeks of life.

The infants were divided into two groups based on their echocardiogram findings: infants with a non-hsPDA (no PDA or non-hsPDA) and infants with a hsPDA. Differences in clinical characteristics, echocardiogram findings, and lung ultrasound scores were evaluated.

A bedside lung ultrasound was done on the same day as the echocardiogram to assess for the presence of pulmonary edema. Lung ultrasound scoring was used to evaluate oxygenation needs.

Results The echocardiographic and lung ultrasound scores of infants included in this study are summarized in table 1. Six patients (6/20) did not have a PDA (2/6) or had a non-HsPDA (4/6) while 14 patients (14/20) had an HsPDA based on echocardiogram findings.

LUS score was significantly higher (10.6) in the HsPDA group compared to the non-HsPDA group (6.0), and these indices correlated with echocardiographic parameters.

Conclusion • This study demonstrates that LUS scoring can be used as a sonographic indicator of hsPDA. However, given significant limitations – further studies with a larger population size are required.