NOVEL MYOCARDIAL VELOCITY MEASURES IN PRETERM INFANTS - SPECKLE TRACKING IMAGING

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Background: Speckle tracking Echocardiography is a novel technique to measure myocardial velocities. In adults these parameters provide insight into systolic and diastolic dysfunction. Significant haemodynamic changes occur during fetal-neonatal transition and may impact on diastolic function. Speckle tracking imaging is a novel tecnique to evaluate diastolic function in neonates.

Aims: To evaluate speckle tracking imaging to measure of myocardial velocities in preterm infants.

Methods: Preterm infants < 32 weeks gestation underwent transthoracic echocardiography by a single observer (KA) using the GE Vivid I in the first 48 hours of life. 2 -D cine-loop recordings of apical 4 chamber, were stored for off line analysis using ECHOPAC 7 software.

Results: Five neonates with, gestational ages 27+3 - 30+3 are included. In apical 4 chamber view systolic peak velocities (S) showed decreasing values from base to apex (3. 41 - 1.73cm/sec) at the septal and lateral LV walls (1.29 - 0.61cm/sec). This is similar to findings reported in children. Early (E) diastolic peak velocities across all measures were lower than late (A) diastolic peak velocities. Early diastolic velocities decreased from base to apex (2.43 - 1.73 cm/sec) at the septal LV wall and lateral wall (2.59 - 1.17cm/sec). Late diastolic velocities showed a similar pattern.

Conclusions: To our knowledge this is the first report of Speckle Tracking Imaging in neonates. This was feasible in 4 chamber views. Differences in systolic and diastolic velocities need further study to establish normal ranges. In the long term correlating LV function with outcome is vital.