Introduction

• Fetal adrenal gland responds to chronic hypoxia and labour by activation of hypothalamic axis leading to adrenal fetal zone enlargement
• Adrenal total gland volume (TGV) and fetal zone (FZ): TGV ratios have been described as potential useful predictors for preterm labour
• Adrenal gland measurements are being described as a novel marker in small for gestational age (SGA) fetuses
• We aim to assess fetal adrenal gland measurement in normal and SGA fetuses as a marker of fetal compromise

Methods

• Prospective cohort study of 50 consecutive SGA fetuses (<10th centile in EFW) and 100 controls (≥10th centile in EFW) at 17-34 weeks gestation
• Fetal adrenal gland was measured in 3 orthogonal planes sagittal (S), transverse (T) and coronal (C). Formula for TGV: S * T * C  FZ/TGV RATIO: FZ/TGV * 100
• Two operator measurements (one blinded) were combined for the analysis
• TGV and FZ/TGV were compared between the normal and SGA(EFW) groups (t test)
• ROC curves were used to assess the performance of FZ/TGV in identifying SGA

Results

• Increase in TGV and FZ/TGV ratio with gestational age in normal pregnancy
• TGV (p = 0.018) and FZ/TGV ratio (p = 0.01) were significantly higher in SGA when compared to normal pregnancy
• There is high inter-operator correlation for all adrenal measurements except for transverse fetal zone
• Antenatal FZ/TGV has a moderate ability to identify SGA fetus (AUC 0.7)

Conclusion

• Fetal adrenal TGV and FZ: TGV were significantly different in the two groups (normal growth and SGA)
• Adrenal FZ/TGV has a reasonable sensitivity and specificity for predicting SGA
• Further study in fetal growth restriction is indicated to see the value of the measurements in detecting a compromised fetus