

Ultrasound Parameters That Predict Foetal Distress In Labour

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Background

Low cerebroplacental ratio (CPR) and estimate foetal weight (EFW) individually and together predict adverse obstetric and perinatal outcomes when measured in late pregnancy in low risk women. Though it has been suggested that EFW is more important than CPR for both operative intervention for intrapartum foetal compromise (IFC). Other ultrasound parameters routinely collected including amniotic fluid index (AFI) and abdominal circumference (AC) have also been indicated in IFC.

Aims

The aim of this study was to investigate which ultrasound parameters including Doppler and ultrasound indices assist in identification of risk of IFC and obstetric intervention. Secondary outcomes will include neonatal outcomes and perinatal death.

Methods

This was a retrospective cohort study of low risk, singleton pregnancies delivering between January 2000 and April 2017 who underwent an ultrasound after 32 weeks gestation. Primary outcome was operative delivery for IFC. Associations between parameters were explored as well as their screening performance for operative delivery and neonatal outcomes.

Results

- The prevalence of women who had an operative delivery for IFC was 5.4% (n = 924).
- Neonates that required operative delivery were more likely to have EFW <10th centile (15% vs 5.3%, adjusted odds 1.32) and AC <10th centile (4.5% vs 0.8, adjusted odds 2.01).
- Infants delivered via operative delivery were more likely to have UAPI >95% (11.4% vs 5.1%, adjusted odds 1.58) and CPR <10th centile (21.5% vs 11.5%, adjusted odds 1.41).
- When combining biometry and doppler parameters EFW <10th with UAPI >95th centile was more predictive (adjusted odds of 2.64) than EFW <10th and CPR <10th (adjusted odds of 2.23) while AC <10th with UAPI >95th (adjusted odds 3.13) was more predictive than AC <10th with CPR <10th (adjusted odds 2.61) of operative deliveries.
- Operative deliveries were more likely to have had an ultrasound within 1 week of delivery.

Conclusions

This study demonstrates that using a combination of foetal biometry and ultrasound doppler improve prediction of emergency CS for IFC particularly in those with an ultrasound within one week to delivery.