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Role of cerebroplacental ratio in normal growing foetus for the detection of abnormal perinatal outcomes

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Objective

To evaluate the role of third trimester cerebroplacental ratio (CPR) in predicting abnormal perinatal outcomes in foetuses growing over the 10th centile.

Methods

This was a retrospective study of 1, 190 non-small foetuses attending the foetal medicine unit for a routine third trimester ultrasound at 35-41 weeks' gestation. All foetuses had an estimated foetal weight greater than 10th centile at the moment of the scan. Abnormal CPR results were defined as those values bellow 5th percentile for gestational age. To calculate the detection rate of CPR either alone or combined with other variables for the prediction of abnormal perinatal outcomes, an univariate or multivariate logistic regression analysis was used. Abnormal perinatal outcomes were defined as a composite outcome: new-born weight bellow 10th centile, neonatal death, abnormal intrapartum foetal heart rate, Apgar score <7, abruption placentae and postpartum admission to neonatal unit.

Results

There were 166 pregnancies with normal growing foetuses who had altered CPR. This group was associated with lower rate of gestational age at delivery and higher proportion of small gestational age new-born < 10th centile (18. 9% vs 8. 4%; p<0. 05) and abnormal intrapartum foetal heart rate (3. 6% vs 1. 1%; p<0. 05). On the other hand, the incidence of abnormal perinatal outcomes was 12, 6% (n=151). The CPR <5th centile detection rate was 21. 5% for a false positive rate of 10%, however a combined model including maternal age, parity, estimated foetal weight and CPR had a sensitivity of 46. 4%.

Conclusion

This study confirm that CPR performed in normal growing foetuses is associated with higher rate of abnormal perinatal outcomes.