

The relationship between; intrapartum cerebroplacental ratio and adverse perinatal outcomes in term fetuses

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Objective

The aim of this study was to assess the role of cerebroplacental ratio (CPR) Doppler during the intrapartum period, so as to identify fetuses at risk for non-reassuring status as well as other adverse perinatal outcomes.

Methods

This was a prospective, cohort study of term pregnancies from patients who, attended the labor room during the latent phase of labor. Both, Fetal Middle Cerebral Artery Pulsatility Index (MCA-PI) and Umbilical Artery Pulsatility Index (UA-PI) were measured and these values were converted to CPR values. Non-reassuring fetal status requiring operative delivery and other adverse perinatal outcomes were compared between women with normal or abnormal CPR values. Accuracy of CPR in predicting non-reassuring fetal status and abnormal fetal heart rate patterns were calculated.

Results

A total of 384 women were recruited. Lower CPR values were observed in women, who underwent operative delivery for non-reassuring fetal status. However, when dividing women into either; normal and abnormal CPR groups, using 3 different cut-off values, the rate of non-reassuring fetal status was not significantly different between the groups. There was a significantly higher rate of abnormal fetal heart rate monitoring in fetuses with CPR < 5th percentile and CPR < 1. CPR, which showed a low positive predictive value (PPV) in predicting non-reassuring fetal heart rate patterns, whereas the negative predictive value (NPV) was high.

Conclusion

In term fetuses, lower CPR is associated with non-reassuring fetal status. CPR measurements, during the intrapartum period with currently available CPR cut-off values, is not a good predictor for adverse perinatal outcomes, with the exception of abnormal fetal heart rate patterns. However, the high NPV may be used to stratify pregnant women who, may or may not benefit from continuous fetal heart rate monitoring.