

STUDY OF DOPPLER USG CHANGES –
CEREBRO PLACENTAL RATIO IN GROWTH RESTRICTED FOETUS &
AGA FETUS AND IMPLICATION IN PERINATAL OUTCOME

INTRODUCTION ;

FETAL GROWTH RESTRICTION- Intrauterine fetal growth which results in the birth of an infant weighing less than its genetic growth potential.

SGA is often defined as an estimated fetal weight or abdominal circumference less than 10th centile and severe SGA as EFW or abdominal circumference less than the 3rd centile. fetal growth restriction is defined as “SGA with abnormal Doppler indices such as umbilical artery pulsatility index above the 95th centile or mean uterine artery PI above 95 th centile.

(CPR) is the ratio of the fetal middle cerebral artery (MCA) pulsatility index (PI) to umbilical artery (UA) PI.

Recent studies indicate that an abnormal CPR appears to identify IUGR fetuses at increased risk for adverse intrapartum and neonatal complications. It is believed to be a proxy for suboptimal fetal growth given it quantifies both suboptimal placental function and subsequent fetal circulatory adaptations. It is believed that the CPR better predicts adverse perinatal outcomes than its individual components and better than conventional anthropometry.

AIMS AND OBJECTIVES

To evaluate the distribution of Ratio of Doppler pulsatility index (PI) measurements of the middle cerebral artery to umbilical artery (Cerebroplacental ratio) values in patient IUGR and AGA coming to tertiary care centre, govt theni medical college.

To evaluate the distribution of this Doppler parameter between these two groups with neonatal outcome .

To emphasize on the importance of altered cerebroplacental ratio in predicting the adverse perinatal outcome in patients with abnormal cerebroplacental ratio and timely intervention in these fetus to prevent adverse perinatal outcome.

STUDY DESIGN	COMPARATIVE CASE CONTROL STUDY
STUDY PERIOD	OCT2016-SEP2018
PLACE OF STUDY	GOVT. THENI MEDICAL COLLEGE HOSPITAL, THENI
STUDY POPULATION	ALL BOOKED CASES OF 32-40WKS
CASE GROUP (100)	PATIENTS WITH GROWTH RESTRICTION&ASSOCIATED RISK FACTORS LIKE GES.HT,CHRONICHT, NON SEVERE PRE ECCLAMPسيا,GDM H/O IUGR ,HEART DISEASE,SEVERE ANAEMIA
CONTROL GROUP (100)	PATIENTS WITH AGA FETUS WILLING TO PARTICIPATE IN STUDY.
SAMPLE SIZE	200

METHODOLOGY

Using a 3.5-MHz duplex Doppler system, growth-retarded fetuses will be studied between 30 to 41 weeks' gestation. Velocity recordings were obtained from the middle cerebral artery and umbilical artery to calculate the ratio between the two pulsatility indexes.

The cerebral-umbilical Doppler ratio is usually constant during the last 10 weeks of gestation. Therefore, a single cut off value (1.0) was used, above which velocimetry was considered normal and below which it was considered abnormal.

RESULTS

Abnormal CPR at term was associated with increased need for operative delivery 77% for presumed fetal compromise and admission to the NICU. The CPR has been shown to be a good predictor of the fetal oxygenation status at birth and can be used to identify pregnancies that are at risk for adverse outcomes. 68% has low APGAR scores even @5min. Study suggest that the CPR is superior to the MCA pulsatility index alone in predicting adverse perinatal outcomes because it reflects acute changes more accurately.

Accurate measurement of the CPR is important.

CPR is more effective in predicting adverse perinatal outcomes compared 72% babies need NICU admission as against only 8% in patients with normal CPR need NICU admission with the individual doppler parameters of MCA and UA.

CPR being an independent predictor any operative delivery for intrapartum fetal compromise, irrespective of fetal size. Conversely, a normal CPR was more likely to be associated with spontaneous vaginal delivery 76%. This study indicate that an abnormal CPR appears to identify IUGR fetuses at increased risk for adverse intrapartum and neonatal complications.

Because the majority of these AGA foetuses have a normal Doppler resistance (PI, RI, or S/D ratio) of the UA, the physician may falsely conclude that there is no increased risk for adverse outcome, even though an abnormal CPR may be present but not measured. Therefore, it is imperative that Doppler assessment of the MCA must be done.

To identify those at risk for perinatal complications. there a role for late third-trimester evaluation of all fetuses, given the ability to detect AGA fetuses outcome when they have an abnormal CPR. Because these fetuses may not be identified using traditional clinical tools such as fundal height measurements, evaluation of the amniotic fluid, or antepartum testing.

CONCLUSION

The data from the would suggest that third-trimester routine ultrasound might be of value for identifying those fetuses at risk for adverse outcome during labor and subsequent neonatal complications. Whose weights are greater than the 10th centile but are at risk for adverse outcome because of an abnormal CPR .

CPR identified more fetuses with adverse outcome than did the biophysical profile. Because the cost of ultrasound equipment is decreasing, portable ultrasound machines can be purchased these machines allow the clinician to use color Doppler to identify the UA and MCA and acquire pulsed Doppler waveforms in which the UA and MCA PI and are automatically measured and the CPR computed. Although further studies may be considered before this becomes accepted protocol, clinicians might

consider this as an option to refine the predictability of adverse outcome high-risk fetuses undergoing antepartum testing. In conclusion, the CPR should be considered as an assessment tool in fetuses undergoing third-trimester ultrasound examination, irrespective of the findings of the individual umbilical artery and middle cerebral artery measurements in all fetuses.

Key words : CPR, middle cerebral artery, umbilical artery, IUGR,

neonatal complications

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