



## Fetal Doppler Study of Umbilical Artery ,Middle Cerebral Artery And Uterine Artery as a Predictors of Adverse Perinatal Outcome in Fetal Growth Restiction

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**ABSTRACT**

Early and accurate diagnosis of IUGR may reduce the mortality and morbidity of fetuses with this condition. Doppler ultrasound of the umbilical , middle cerebral and uterine artery were noted. Aim of the study is to evaluate the predictive value of Doppler studies in IUGR with relevance to perinatal outcome.

**KEYWORDS :** Umbilical , Cerebral , Doppler

**INTRODUCTION:**

Intrauterine growth is an important sign of fetal wellbeing. Early and accurate diagnosis of IUGR may reduce the mortality and morbidity of fetuses with this condition. successful perinatal outcome depends on proper management in the antepartum ,intrapartum and neonatal period. The obstetricians must weigh the balance between Conservative management in a potentially hostile environment Vs Intervention which may lead to neonatal morbidity.

**AIMS AND OBJECTIVES:**

(a) To study the association between the severity of IUGR and abnormal Doppler velocimetry of the umbilical , middle cerebral and uterine artery.

(b) To evaluate the predictive value of Doppler studies in IUGR with relevance to perinatal outcome

(c) To evaluate the efficacy of Doppler in the management of patients with IUGR.

**MATERIALS AND METHODS:**

His prospective observational study was carried out in the antenatal cases who delivered at the department of obstetrics and gynaecology,Madurai medical college Madurai during 2010 to 2011. All singleton pregnant women irrespective of age or parity complicated by IUGR which is diagnosed either clinically or ultrasonographically. Antenatal pregnant women complicated by IUGR were identified by clinical examination. Ultrasound was done in these cases and the following parameters fetal biometry , estimated fetal weight , AFI and Doppler ultrasound of the umbilical , middle cerebral and uterine artery were noted.

**CASE DISCUSSION :**

Among the 100 patients studied 36 patients had abnormal Doppler of uterine artery , with 15 patients having unilateral notch and 3 having bilateral notch. There were 24 patients with abnormal umbilical artery Doppler , with 6 of them having absent end diastolic flow and 8 having reversal of diastolic flow. The sensitivity , specificity , positive predictive and negative predictive value of uterine artery in predicting perinatal outcome is 68.75% , 54.68% , 61.1% and 84.37%. The sensitivity , specificity , positive predictive and negative predictive value of umbilical artery in predicting perinatal outcome is 70.37% , 93.15% ,79.16% and 89.47%. The sensitivity , specificity , positive predictive and negative predictive value of MCA in predicting perinatal outcome is 63.63% , 100 % , 100 % and 90.69 %.

**TYPES OF UTERINE ARTERY ABNORMALITY AND ASSOCIATED PERINATAL OUTCOME.**

DOPPLER FLOW PATTERN	PERINATAL OUTCOME			
	NORMAL	ABNORMAL		
		TOTAL	MORTALITY	MORBIDITY
NORMAL (64)	54	10	3	7
ABNORMAL (36)	14	22	11	10
U/L HIGH RESISTANCE	10	7	1	6

B/L HIGH RESISTANCE	6	5	2	3
U/L NOTCH	5	10	4	6
B/L NOTCH	0	3	3	0

**MIDDLE CEREBRAL ARTERY DOPPLER VALUE DISTRIBUTION AND PERINATAL OUTCOME**

MCA DOPPLER	PERINATAL OUTCOME	
	NORMAL	ABNORMAL
NORMAL (86)	78	8
ABNORMAL (14)	0	14

**TYPES OF UMBILICAL ARTERY ABNORMALITY AND ASSOCIATED PERINATAL OUTCOME.**

DOPPLER FLOW PATTERN	PERINATAL OUTCOME			
	NORMAL	ABNORMAL		
		TOTAL	MORTALITY	MORBIDITY
NORMAL (76)	68	8	4	4
ABNORMAL (24)	5	19	15	4
HIGH RESISTANCE (17)	5	12	6	6
ABSENT END DIAS-TOLIC FLOW (6)	0	6	6	0
REVERSE DIASTOLIC FLOW (8)	0	8	8	0

**CONCLUSION:**

Doppler abnormality of umbilical and MCA is a better predictor of fetal growth restriction and perinatal outcome. It can be an important adjunct to conventional antepartum surveillance tests on patients with IUGR fetuses. Diastolic notch in uterine artery is a better indices in predicting preeclampsia.Once an abnormal Doppler finding is identified the obstetrician is made well aware of the possible complications that can set in and the delivery should be planned in a tertiary care centre with good neonatal facilities.

**REFERENCES:**

1. Ahmed Alexander Baschat, S.G.Gabbe, obstetrics normal and problem pregnancies, 5th edn, chapter 29, pg 771-806
2. Wolfe HM, Gross TL,Sokol RJ: Recurrent small for gestational age birth: perinatal risks and outcomes. Am J Obstet Gynecol 157:288, 1987
3. Brosens I,Dixon HG, Robertson WB: Fetal growth retardation and the arteries of the placental bed. Br J Obstet Gynaecol 84:656, 1977.
4. Doppler and ultrasound Williams Obstetrics , Jame Lcht et al, Appleton and Large Stamford