UMBILICAL ARTERY DOPPLER INDICES IN IUGR PREGNANCIES

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Abstract: Background and objectives: Doppler velocimetry studies of placental and fetal circulation can provide and important information regarding fetal wellbeing providing an opportunity to improve fetal outcome. The present cross sectional study was undertaken to evaluate the role of umbilical artery blood velocity waveforms, Systolic/Diastolic ratio (S/D), Pulsatility Index (PI), Resistance Index (RI) as predictor of perinatal outcome in intraterine growth retardation (IUGR) pregnancies in II\textsuperscript{nd} and III\textsuperscript{rd} trimester. Methods: In the study group, 50 cases of IUGR were studied in II\textsuperscript{nd} and III\textsuperscript{rd} trimester. They were first subjected to ultrasonography biometry and then umbilical artery Doppler sonography. Results: In both control and study group the values of S/D ratio, PI and RI in umbilical artery decline during II\textsuperscript{nd} to III\textsuperscript{rd} trimester. The decline was less and the values were high in the study group as compared to the control group. Thus the present study predicts that; a) S/D ratio greater than 3 and RI greater than 0.7 after 26\textsuperscript{th} weeks of pregnancy was found to be abnormal. b) Absent End Diastolic Velocity (AEDV) & Reverse End Diastolic Velocity (REDV) were predictive of poor fetal outcome. Interpretation and conclusion: The umbilical artery indices were valuable for predicting the outcome of IUGR pregnancies. Key words: Adverse outcomes, fetal growth restriction, umbilical artery Doppler sonography. Abbreviations: Absent End diastolic velocity (AEDV), Intrauterine Growth Restriction / Retardation (IUGR), Pulsatility Index (PI), Resistance Index (RI), Reverse End Diastolic Velocity (REDV), Systolic/Diastolic Ratio (S/D).

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Introduction

"Nations Health is Nations Wealth". The young ones are said to be the pillars of the nation’s future. It is therefore very important to concentrate on the healthy birth and healthy growing of the fetus. As the pregnancy advances the growth of the fetus also increases in proportion of the age of gestation. The growth of the fetus depends upon the nutrition supplied by placenta. So adequate functioning of placenta is essential for the appropriate growth of the fetus.

The high risk pregnancy has a multifactorial etiology. Its incidence is high in developing countries as compared to the developed countries. The high risk pregnancy continues to represent a significant and growing problem in perinatal morbidity and mortality. Since there does not seem to be any practical way to present these problems, the only realistic approach seem to be early diagnosis.

The development of ultrasound and its application to the obstetrics was a revolutionary event in the history of perinatology. One of the main goals of the prenatal testing is to identify the fetuses at increased risk for prenatal morbidity and mortality.

The first Doppler Ultrasound Study of the fetus was done by D.E. Fitzgerald and J.E. Drumm in 1977 specifically on the umbilical artery. He demonstrated that both the