

Original article:

Study of IUGR cases using color Doppler: Observational study

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Abstract:

Introduction: Intra uterine growth retardation (IUGR) due to fetoplacental vascular insufficiency is rampant in developing countries like India. Owing to the lack of awareness, antenatal patients often present in their third trimester for their first ultrasound examination. Alterations in the waveforms and Doppler indices of fetal middle cerebral artery (MCA), umbilical artery and bilateral uterine arteries have been extensively described in various studies in the literature.

Methodology: A prospective study was done on 40 patients of clinically suspected IUGR/high-risk pregnancies of 31–41 weeks. The cases were followed till delivery; the doppler and grey scale findings were correlated with the birth weight of the baby.

Results: Pregnancy-induced hypertension (PIH), the most common causative factor behind asymmetric IUGR, is the most common in the 21–25-years-age group. The laterality of placenta is more frequently associated with the incidence of IUGR. The highest sensitivity was found to be of HC/AC ratio, (88.99 %), the highest specificity of oligohydramnios and Cerebral/Umbilical Pulsatility ratio[C/U ratio] (100 %). The sensitivity of C/U ratio was found to be 57.61 %. Fetal MCA had the lowest sensitivity (6.8 %).

Conclusion: HC/AC ratio is very sensitive, and oligohydramnios is a very specific parameter to diagnose IUGR. However, in conclusion , the former has lower specificity, and the latter has very poor sensitivity.

Keywords : Intra uterine growth retardation , Doppler study

Introduction:

Intra uterine growth retardation (IUGR) due to fetoplacental vascular insufficiency is rampant in developing countries like India. Owing to the lack of awareness, antenatal patients often present in their third trimester for their first ultrasound examination. Alterations in the waveforms and Doppler indices of fetal middle cerebral artery (MCA), umbilical artery and bilateral uterine arteries have been extensively described in various studies in the literature. However, the role of each doppler parameter in actually predicting reduced birth weight (for gestational age) in the third trimester is often debatable and frustrating.¹

Material and methods:

Present study had been conducted in our Department for one year duration. Sample size was estimated with the help of expert statistician. We included subjects / patients routinely admitted to our hospital as emergency as well as planned for their delivery. We excluded such patients who has been further referred or discontinue their treatment due to any reason.

The admitted patients were undergo delivery either normal delivery or cesarean section. Patient history was recorded. Clinical examination was done and follow up was also noted by us.

All data were collected in Excel sheet and statistical analysis was carried out by us. In our present study total of 40 patients were included.

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Results:

Pregnancy-induced hypertension (PIH), the most common causative factor behind asymmetric IUGR, is the most common in the 20–25-years-age group. The laterality of placenta is more frequently associated with the incidence of IUGR.

Table 1) Age wise distribution of patients

S.NO.	Age range (Years)	Number of patients (N=40)
1	20-25	28
2	26-30	7
3	>30	5

The highest sensitivity was found to be of HC/AC ratio, (88.99 %), the highest specificity of oligohydramnios and Cerebral/Umbilical Pulsatility ratio[C/U ratio] (100 %). The sensitivity of C/U ratio was found to be 57.61 %. Fetal MCA had the lowest sensitivity (6.8 %).

Discussion:

The present study was done to study the role of ultrasonography in identification of IUGR in high-risk mothers to provide adequate prophylactic antenatal care thus preventing and reducing infant and maternal mortality rates as well as morbidity. Intrauterine growth restriction (IUGR) is defined as sonographic estimated fetal weight <10th percentile for gestational age.² According to the American College of Obstetricians and Gynecologists, IUGR is “one the most common and complex problems in modern obstetrics.”³

Pregnancies associated with specific risk factors have high likelihood of complicating into IUGR. Many such patients present in their third trimester for the first time for their antenatal examination. Such patients warrant a highly sensitive and specific diagnostic test which can be non-invasively applied on a large scale.^{4,5}

Thus, it may contribute to improve maternal well being and fetal health. However, there is an urgent need to standardize Doppler terminology and reference values of Doppler indices to allow direct comparison of studies that are being carried out in increasing number of cases.

Conclusion:

HC/AC ratio is very sensitive, and oligohydramnios is a very specific parameter to diagnose IUGR. However, in conclusion , the former has lower specificity, and the latter has very poor sensitivity.

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