Discussion
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The present study was conducted with the aim of evaluating certain ultrasonic parameters of growth and maturity in cases of normal pregnancy between 28-40 weeks and also in pregnancies with high risk or clinical suspicion of Intra uterine growth retardation. This study consisted of a total of 164 scans of which 60 were performed on the IUGR group. These 60 scans consisting of serial scanning of 30 IUGR pregnancies fare reasonably as compared to a cross sectional data of 104 scans on control cases. These parameters were evaluated so that timely interference and termination of pregnancy could be done to improve foetal well being, survival and reduce the incidence of perinatal mortality and mordidity associated with IUGR.

Early reports on the sonographic evaluation of the fetus were focused on BPD as a function of gestational age (Sabbage et al, 1978 and Kurtz et al 1980) later abdominal circumference and thoracic circumference, areas and long bone measurements were used for evaluating the fetus.

All the patients in group II had a fundal height at least 3 weeks less than that corresponding to the period of gestation, while 93.34% of patients had a weight gain less than 250gm/week. Two patients who had a
weight gain per week of more than 250mg/week suffered from pre-eclampsia and the weight gain could be due to oedema.

Patients in group II were evaluated for any risk factor predisposing to IUGR and it was observed that no risk factor could be found in 20.07% cases. Low et al (1971) reported that in 48% of patients of IUGR no etiology could be detected.

Galbraith et al (1978) reported that one third of IUGR cases from pregnancies that had no apparent risk factors.

In Ounsted’s series (1963) 31.5% of patients were reported to have hypertension while Galbraith et al (1979) reported that 35% of patients with severe PET suffered from IUGR. In our study 23.33% of patients had PET.

Galbraith (1979) and Carrera (1980) noted a higher incidence of bad obstetric history in their patients. In the present study 3 patients (6.66%) had a bad obstetric history.

In this study there were no still births or intrauterine deaths. In group II there was one neonatal mortality, the baby dying of broncho pneumonia. The incidence of normal vaginal delivery was more in group I i.e. 77.88% as compared to group II 53.33%. The incidence of low forceps delivery and lower segment caesarean section was greater in group II. (26.67% and 20%) respectively. The higher incidence of operative delivery in IUGR group (II) as compared to deliveries in group
I (control) could be explained by the higher incidence of acute and chronic foetal distress and due to various maternal factors led to IUGR in the first place.

The difference in mean birth weight and the Apgar at birth was found to be statistically significant between group I and II. They being significantly lower in group II.

**ULTRASONIC PARAMETERS:**

**BPD—**

In our study too the mean BPD values have shown a uniform increasing patterns with minor variation at 32 weeks and 39 weeks of gestation and a flattening in the growth curve in the latter part of gestation.

The difference in mean BPD of group I and II was found to be statistically \( t=4.295, \ p<.001 \) significant. The BPD in group II also correlated very well with gestational age. The BPD of the foetal skull is an excellent means of estimating gestational age in the III trimester.

According to work done by Doublief and Benson in 1993 BPD at 28 weeks is 70mm & at 40 weeks 93mm. In my study BPD at 28 weeks is 71.5 mm & at 40 weeks is 93mm.

**FETAL FEMUR LENGTH:**

The fetal femur length was also found to be significantly correlated \( p<.001 \) to gestational age in both group I and II. The mean FFL in group
I ranged from a minimum of 51.7mm at 28 weeks to 72.60mm at 40 weeks of gestation and showed a weekly rising pattern with a minor variation at 35 weeks of gestation. The maximum predicted FFL in our study at 40 weeks 73.00mm compared to predicted values at 40 weeks by workers in the west namely 87mm Jently et al, 1981. 80 mm Hadlock et al 1981, 76mm Hadlock et al 1982. The difference could again be explained on the basis of the difference in race genetic potential and socioeconomic status the group II had lesser mean values of FFL at most periods of gestation the difference was found to be statistically insignificant (t=1.412.p>.05)

It is found out that FFL is a reliable indicator of gestational age but it is not a useful parameter for prediction of fetal growth retardation.

**ABDOMINAL CIRCUMFERENCE**

Normal variability in abdominal circumference at various stage in pregnancy has been evaluated by several investigators the data of Dater et (1982) and Hadlock et al (1982) holding the maximum validity at present. The predicted values of our study compared favourably with those of their study. At 28 weeks our predicted value was 219 mm while it was 230mm & 239 mm in the study of Deter and Hadlock respectively.

**HC/AC**

HC/AC ratio is more in all Gest age in IUGR babies as compared to (N) fetus because Abdominal circumference is more affected than head
circumference because Vital organs like Brain, heart, blood supply is least affected this ratio compares most pressured organ in malnourish fetus; brain with most compromised liver. So it is of significance value in of IUGR. More HC/AC at 28 weeks in our study is 1.31 in GR I compared with HC/AC at 28 weeks is 1.08±25 evaluated by (Halock) FP Deter, RL, Harrist RB 1983) & at 40 weeks in our study it is 0.94 in (N) fetus. It is compared with HC/AC at 40 wks is 0.98 evaluated by (Hadlockk, Deter, Harrist, 1983).

**FL/AC:**

FL/AC ratio is more in Gr II as compaed to Gr I in all gestational ages because abdominal circumference affected more than femur length as described previously. So FL/AC will increase in IUGR incomparision to (N) fetus.

Acc. to Hadlock Deter, harrits 1998 FL/AC at 28 weeks is 0.23 ± 0.25SD & at 40 weeks 0.214

In our study FL/AC at 28 weeks is 0.232 & 40 weeks is 0.22 in Gr I patient.

It is proved that FL/AC (N) value 22±2 of upper limit of 23.5(90") percentile) has specificity of 90% by fernaldo.