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# Role of transverse cerebellar diameter in assessment of gestational age


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**ABSTRACT** Assessment of gestational age is of paramount importance in management of high risk pregnancy. most frequently used biometric parameters include BPD,HC,AC and FL. The usefulness of these parameters in establishing GA or in assessing fetal growth is limited, mainly because of biologic variability that occurs with advancing gestational age. measurements of fetal transverse cerebellar diameter(TCD) have been shown to correlate with GA. While other foetal biometric parameter are affected by FGR, the effect on the size of cerebellum is minimal. MATERIAL & METHOD- The present study was done to assess the GA by TCD and to compare TCD with other conventional parameters. the study included 200 patients between 14-40 weeks of pregnancy. RESULTS-the correlation coefficient between period of gestation and transverse cerebellar diameter found to be +0.9612 which was statistically significant($p<0.001$). the correlation coefficient between TCH&BPD was 0.6302($p<0.001$), between TCD&HC was 0.8996($p<0.001$) which was statistically significant. CONCLUSION-TCD is not affected by FGR hence can be used in such cases where other parameters are unreliable and it is also menstrual age independent parameter so can be used in cases who are not sure about the dates.

KEYWORDS :

**Introduction**

Assessment of gestational age is of paramount importance in the management of high risk pregnancies.

The most frequently used biometric parameters include the fetal biparietal diameter (BPD), head circumference (HC), abdominal circumference (AC) and femur length (FL). Precise knowledge of gestational age is required to accurately utilize the biometric parameters.

The usefulness of these parameters in establishing gestational age in late pregnancy or in assessing fetal growth in patients with uncertain dating is limited, mainly because of biologic variability that occurs with advancing gestational age.

The FL/AC ratio has been found to be gestational age independent and a useful measure of asymmetric growth retardation. But in severe intrauterine growth retardation the size of both femur and the abdomen is affected, limiting the usefulness of this ratio in identifying the symmetrically small infant. Fetal transverse cerebellar diameter is one such parameter which remains unaffected. Measurements of the fetal transverse cerebellar diameter (TCD) have been shown to correlate with gestational age. While other fetal biometric parameters are affected by intrauterine growth retardation, the effect on the size of the cerebellum is minimal. There is a menstrual age independent relationship between transverse cerebellar diameter and gestational age

**Aims and objectives**

- o assess the gestational age by ultrasonographic foetal transverse cerebellar diameter.
- To compare the transverse cerebellar diameter with other conventional parameters like biparietal diameter, head circumference, femur length and abdominal circumference.

**Material and methods**

The present study was carried out on 52pregnant patients with clinical suspicion of IUGR attending Obstetrics and Gynaecology OPD antenatal clinic and those admitted in the labour ward of MLB Medical College, Jhansi. Details of presenting complaints, menstrual history, obstetrical history, i.e. of first trimester, second trimester, third trimester, previous and past history was taken. All measurements were made by scanning the patients using MEDISON SA 9900 & 8000 real time ultrasonographic machine

| Period of gestation in weeks | No. of cases | Means POG (Weeks) | Means TCD (mm) |
|---|---|---|---|
| 14-20 | 18.5 | 18.5 | 17.6 |
| 21-30 | 24.5 | 24.5 | 24.7 |
| 31-40 | 34.7 | 34.7 | 45.0 |

Table1 depicts relationship between transverse cerebellar diameter and period of gestation is cases of IUGR. The mean transverse diameter at 14-20 weeks was 17.6 mm, at 21-30 weeks, 24.7mm & at 31-40 weeks 45.0mm.

A positive correlation observed throughout 14-40 weeks of pregnancy with correlation coefficient between TCD & period of gestation (r TCD, POG = .9836) ($P< 0.001$). Which is statistically significant

**Discussion**

our study demonstrates that the transverse cerebellar diameter remained unaffected by fetal growth retardation whereas most biometric parameters measured sonographically were significantly affected by the overall growth retardation process. To circumvent these problems (where BPD is unreliable), cerebellar measurement was introduced as a measure for estimating gestational age (McLeay, Kuhus and Bozz, 1984; Goldstein, Reece and Pilu, 11987).

In our study measurements were showing TCD 2.4 mm less value at the same period of gestation from Goldstein suggest effect on cerebellum development of race occurs

**conclusion**

measurement of the transverse cerebellar diameter can be performed on most fetuses, independent of fetal head shape or even when the fetus is in a direct occiput posterior position. The present lack of accurate diagnostic criteria to ascertain appropriate gestational age for IUGR cases leads to an inaccurate antenatal diagnosis. Utility of the transverse cerebellar diameter may serve as an independent and reliable indicator of gestational age and a standard against which aberrations in fetal growth may be compared

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