AIM AND OBJECTIVES

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The aim of this research work was an effort to an accurate estimation of gestational age by assessment of fetal kidney length, as we may have antenatal mothers having no definite history of LMP (first day of last menstrual period) and who did not attend for antenatal sonographic check up and also in conditions like engaged head, ruptured membranes, breech presentation, where use of conventional fetal biometric parameters become difficult for assessment of accurate gestational age.

Ultrasound is being utilised for estimation of gestational age of the fetus by utilising different parameters like Crown rump length (CRL), Biparietal diameter (BPD), Head circumference (HC), Abdominal circumference (AC), Femoral length (FL) etc. During the first trimester, fetal maturity is estimated by evaluation of Crown rump length (CRL). It is found that CRL is the best parameter for determination of accurate gestational age in the first trimester of pregnancy but in subsequent trimesters CRL becomes fallacious as the fetus turns to fold and so it is not applicable for accurate estimation of gestational age after 1st trimester of pregnancy. In 2nd and 3rd trimester other biometric parameters like BPD, HC, AC, FL etc. which are commonly used for fetal age determination, vary in accuracy by ± 1.2 to 3.5 weeks approximately. To overcome this problem of variation a trial has been done to search for a new biometric parameter like fetal kidney length measurement to determine

the gestational age more accurately and it can be employed at any point of time during pregnancy for estimation of gestational age, as it is not affected by the factors like ruptured membranes, liquor volume, engagement of head, lie and presentation of the fetus etc. As a rule of thumb (Ref. Stephanie R.Wilson, Carol M. Rumack, *et al*, [19] in their highly esteemed text book "Diagnostic Ultrasound" Vol. 2, Second Edition (1997), Chapter 37, Page1094], it is said that the length of fetal kidney expressed in millimeter corresponds more to gestational age expressed in terms of weeks. In advanced pregnancy cases where there is no information regarding first day of last menstrual period (L.M.P), sonography was not performed during the pregnancy period or when use of other fetal biometric parameters are difficult to assess gestational age (e.g. head has engaged, membranes ruptured, breech presentation etc.), fetal kidney length measurement may play a vital role in determination of gestational age.

The process of determination of gestational age by fetal kidney length estimation is under research throughout the various countries and as no definite unanimously acceptable conclusion has been derived till now, it remains a field of extensive research which will help to determine its accuracy, particularly when compared with other traditional fetal gestational age determination parameters, as more accurate estimation of gestational age may help in various decision making processes and timely intervention by the Obstetricians to reduce the perinatal morbidity and mortality.

On the footings of the entire facts and findings, this research work has been conducted with the following objectives:

1. Sonographic estimation of gestational age of the fetus by using different conventional parameters in respect to different trimesters.
2. Sonographic estimation of fetal kidney length.
3. To find out the correlation between fetal kidney length and gestational age.
4. To reduce the perinatal mortality and morbidity rate by determining more accurate gestational age with the estimation of fetal kidney length, where application of other conventional biometric parameters are difficult or inaccurate.