

# Foetal Renal Parameters to Assess Gestational Age in AGA and SGA Foetuses

JJ Kansaria\*, SV Parulekar\*\*

## Abstract

The foetal kidney parameters; kidney length, diameter and circumference were measured and the difference in values of foetal kidney parameters of AGA and SGA foetuses for varying gestational ages were assessed. In SGA or IUGR foetuses, the foetal kidney length is not affected but the foetal kidney diameter and circumference tend to show a lag in comparison to the foetuses of AGA group. The fetal kidney length is an accurate ultrasonographic parameter for gestational age dating in normal pregnancies and in pregnancies complicated with IUGR and wrong dates. The ratio of AC/KL helps to predict intrauterine growth restriction, as the ratio tends to remain constant or decreases in SGA foetuses from the period (gestational age) of insult to the foetus.

## Introduction

Accurate knowledge of gestational age is the key to successful antepartum care of patient and critical in interpretation of antenatal tests and successful planning of appropriate treatment or intervention. A number of methods may be employed to determine an accurate gestational age. Unfortunately, the last menstrual period (LMP) cannot be used for all patients because 10 to 40% of all patients seen in the antenatal clinics have no knowledge of their LMPs, a history of irregular menstrual cycles or have been on oral contraceptives within 2 months of their LMP. Various ultrasonic parameters commonly used to calculate the gestational age are the biparietal diameter (BPD), head circumference (HC), femur length (FL) and abdominal circumference (AC). However, while these parameters are reliable in the early II<sup>nd</sup> trimester, they are not as reliable in the late II<sup>nd</sup> and III<sup>rd</sup> trimester scans

especially in cases with intrauterine growth restriction. The composite gestational age prediction in the third trimester does not give with great accuracy the actual gestational age taking into consideration the discrepancies of late trimester scan and possibility of growth restriction.

Thus there is a need for reliable parameters for ultrasound dating especially in patients with wrong dates, dates not known, with late antenatal registration and compounded with Intrauterine growth restriction. Recent studies by Konje *et al*<sup>1,2</sup> have shown that foetal kidney parameters, that is, kidney length, kidney diameter and kidney circumference may be used for dating. Kidney length correlates well with gestational age and thus may be used as parameter for gestational dating. On the other hand, foetal kidney diameter and circumference are significantly greater for appropriate gestational age foetuses than in growth restricted foetuses. Foetal kidney length appears to be unaffected in growth restricted foetuses and proves to be an important tool to estimate gestational age, though the exact reason why foetal

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\*Lecturer, \*\*Professor and Head of Department, Department of Obstetrics and Gynaecology, Seth G S Medical College, K E M Hospital, Parel, Mumbai.