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Prenatal ultrasound evaluation of fetal kidney length in a Nigerian population

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Aim: To determine the relationship between gestational age and longest bipolar kidney length. To establish a nomogram of normal kidney length in-utero and to compare the mean fetal kidney length of the subjects studied with other known biometric parameters and that of the Caucasians.

Methodology: The kidney lengths of 247 fetuses between 20 and 40 weeks gestational age in normal singleton pregnancies were measured sonographically.

Findings: Results indicate that the kidney lengths range from 2.0 to 4.2 cm. Growth rate was fastest between 25-28 weeks. There was positive correlation between gestational age and mean renal length. The two variables are linearly related and the regressional analysis is represented by the equation Y(GA)=7.9098(RL)+3.973. There was also positive correlation between fetal renal length and other biometric parameters like Biparietal Diameter (BPD), Femoral Length (FL), Abdominal Circumference (AC) and Transverse Abdominal Diameter (TAD). Renal lengths in Nigerian fetuses at different gestational ages exhibited similar linear increase in length to that of the Caucasians.

Conclusion: The study showed that as the gestational age increases, the mean renal length also increases for both groups. The measurement is easy to make and could therefore be easily incorporated into the model for dating pregnancies using the equation Y(GA)=7.9098(RL)+3.973. However, the normal values of the mean renal length were significantly different for both races. The values were consistently shorter for our fetuses compared with earlier reports in Caucasians but are consistent with neonatal measurements in some published studies. It was concluded that the nomogram from this study has provided the needed baseline data on normal fetal kidney length in this locality and that fetal renal length is linearly related to fetal gestational age. The study also showed that racial difference exists in fetal kidney length *in utero*.

Biography

Daniel Chimuanya Ugwuanyi has received his Bachelor of Science degree in Biotechnology at Nnamdi Azikiwe University and also completed his Masters. He has his expertise and passion in developing implantable devices for controlled drug delivery. His research interest is new areas in radiography.

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