Automated fetal femur length measurement by five-dimensional ultrasound

R.M. Abdelrahman, A.R.M. Ramy, A.I. Abdelmegeed and A.M. Bassam

Objective: To evaluate Five-Dimensional Ultrasound in automated measurement of the fetal femur length at third trimester of pregnancy.

Methods: This prospective study included 90 singleton pregnancies at third trimester of gestation. Multiple pregnancies, fetuses with fetal anomalies, and mothers with underlying medical disorders were excluded. The femur length (FL) was measured by Two-Dimensional Ultrasound (2D US) and Five-Dimensional Ultrasound (5D US). The accuracy and precision of 2D or 5D US was alternatively assessed by calculation of the systematic error and random error, respectively, for the signed and absolute error as well as for the signed and absolute percentage error.

Results: 5D US estimation of gestational age showed non-significant difference (P > 0.05) with 2D US for estimation of gestational age. The paired Student t test showed that 5D US is accurate as the 2D US in measurement of femur length. The Pitman t test showed that 5D US is precise as the 2D US in estimation of gestational age based on measurement of femur length.

Conclusion: The results of the study showed the usefulness and accuracy of femur length measurement by five-dimensional ultrasound.