

Study develops new equation for estimating gestational age

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In a study to be presented on Feb. 6 at the Society for Maternal-Fetal Medicine's annual meeting, The Pregnancy Meeting, in Atlanta, researchers will present findings from a study titled, The NICHD Fetal Growth Studies: Development of a contemporary formula for estimating gestational age from ultrasound fetal biometrics.

Accurate assessment of [gestational age](#) is an important variable affecting perinatal morbidity and mortality. The most commonly used [formula](#) for estimating gestational age has been Hadlock's formula which uses biparietal diameter, [head circumference](#), femur length and abdominal circumference. If gestational age is not accurately estimated, induction of labor may be performed inappropriately. A smaller premature fetus may be thought to have [fetal growth restriction](#) and undergo induction of labor, which can produce prematurity. A fetus wrongly thought to be post term may also undergo induction of labor, which is an unnecessary intervention. It is important to accurately estimate gestational age.

Researchers used fetal biometric data from the National Institute of Child Health and Human Development Fetal Growth Studies. They sought to develop and validate a new gestational age estimation equation and compare its accuracy to Hadlock formula created in 1984.

Healthy women from four racial/ethnic groups comprised of 614 (26%) non-Hispanic whites, 611 (26%) non-Hispanic blacks, 649 (28%) Hispanics and 460 (20%) Asians. All were low-risk for altered [fetal growth](#) and reported a sure last menstrual period, underwent serial

ultrasound every four weeks starting at an average of 19.7 weeks.

Biparietal diameter (BPD) which is one of the basic biometric parameters to assess fetal size, abdominal circumference (AC), femur length (FL) and head circumference (HC) were used to develop a formula for estimating gestational age. The formula was validated using 50% training and test set paradigm; a 50% random sample was used to develop the predictor and the remaining 50% was used to evaluate predictive accuracy. This procedure was run one thousand times and the predictive accuracy measures averaged. Comparative formula accuracies were assessed using the standard deviation of prediction derived from the predicted versus actual population gestational ages.

Daniel W. Skupski, M.D., one of the researchers of the study who is with New York Presbyterian Queens in Flushing, N.Y. and will present the findings said, "We have developed and validated a new equation for estimating gestational age from fetal biometrics measured between 14 and 22 weeks gestational age using a multi-racial/ethnic population, certified sonographers and modern ultrasound units." The study shows a slight improvement in this newly developed formula over the traditional Hadlock with accuracy of less than nine days versus less than 10 days for Hadlock. It also validates the establishment of this new formula in a large, high-quality multi-center study.

Provided by Society for Maternal-Fetal Medicine

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