International Standards for Fetal Growth

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A universal standard for monitoring fetal growth can better detect which fetuses are at risk for intrauterine growth restriction.

Even with the routine use of ultrasound in prenatal care, predicting which babies could be at risk for fetal growth restriction is difficult. Regional fetal growth charts are often used in clinical practice, but there are no standardized international charts available for tracking fetal growth. Local charts can vary widely and might only be used because they are the most convenient or are the one loaded into the ultrasound machine. A fetus whose growth is tracking as appropriate using one particular chart may be classified as growth-restricted under another.

Using the methodologies employed by the World Health Organization (WHO) in establishing the birth to 5 year growth charts as a model, a group of researchers has now developed an international fetal growth chart. The Fetal Growth Longitudinal Study (FGLS), part of the INTERGROWTH-21st Project, published their findings on fetal growth in the September 2014 edition of The Lancet. Over 4000 pregnant women from eight different countries who live in urban areas and who were considered at low risk for having a pregnancy complicated by intrauterine growth restriction were recruited for the study. Patients were also screened to ensure they were well-nourished and at low risk for any other pregnancy-related complications. Living conditions were assessed to ensure that the study participants were not exposed to hazards and potential toxins, such as pollution, cooking or tobacco smoke, or radiation, during their pregnancy.

Study participants all presented for prenatal care before 14 weeks’ gestation. After the gestational age was reliably estimated, ultrasound was used during regular prenatal care visits to measure fetal growth from 14 weeks until birth (up to 42 weeks). To standardize all the measurements, just one ultrasound machine was used to monitor patients at each of the 8 sites in the study. Approximately every five weeks, head circumference, biparietal diameter, occipitofrontal diameter, abdominal circumference, and femur length were recorded.

The hope of standardizing fetal growth charts is that doing so will help improve pregnancy outcomes, the study authors said. One way this could be achieved is by avoiding both over-treatment and under-treatment in the diagnosis of fetal growth restriction.

The study authors discovered that the 4321 healthy singleton babies born to the women in their group matched up reliably with WHO growth charts, both at birth and at one year of age. Because the WHO charts were developed with a larger sample size and with participants from a wider range of ethnicities and cultures, the overlap served as another validation of the fetal growth charts. The new fetal growth charts and the existing WHO charts offer clinicians a comprehensive tool for tracking growth in children from before birth until age 5.

Phillips Imaging, who provided both ultrasound equipment and technical support for the INTERGROWTH-21st Project, has announced that these international standards are being loaded into the software package for their new line of OB/GYN ultrasound machines. For older units already in use, Phillips advises that many of them will also be able to support the new charts. A software release, including the fetal growth charts, is currently in development and will be introduced in a phased approach.

References: