International foetal growth standards: one size fits all

Location: Global

What we know: Foetal growth is an important determinant of infant, child and longer term health. Ultrasound is used worldwide to detect abnormal foetal growth; however there is an absence of international standards for foetal growth.

What this article adds: The multicentre, population-based Foetal Longitudinal Growth Study (FGLS) has produced international foetal growth standards for the clinical interpretation of routinely taken ultrasound measurements and for comparisons across populations. The standards are based on data from urban populations in eight countries where nutrition, health and antenatal needs of mothers were mostly met. Foetuses and newborn infants grew very similarly; recorded inter-country differences in foetal size and growth were more indicative of deprivation than geographical location.

Screening for disturbances in foetal growth is one of the main purposes of antenatal care. There is an absence of suitable international standards similar to the standards used for monitoring infant growth. Whether a particular unborn baby is judged to be too small will partly depend on the choice of foetal biometric charts used. Robust methods for foetal biometric chart development have been described since the 1990s but according to a recent ‘comment’ piece in the Lancet, many frequently used charts do not adhere to these standards. Practitioners might not be able to identify and access a methodologically superior chart easily, and instead default to what is loaded onto their ultrasound machine or follow institutional practices which – clinicians acknowledge – can vary according to where the practitioner is working on different days of the week.
The multicentre, population-based Foetal Longitudinal Growth Study (FLGS) of the International Foetal and Newborn Growth Consortium for the 21st Century (INTERGROWTH - 21st) Project provides clear direction. Led by researchers from around the world, this study has followed the methods of the WHO Multicentre Growth Reference Study, recruiting more than 4000 pregnant women from geographically defined urban populations in eight countries. Although differing in ethnicity, these women were intentionally sampled for their shared trait of being at low risk of pregnancy complications attributable to malnutrition, obesity, socioeconomic deprivation or major environmental pollution. It is argued that foetuses and newborn infants grow very similarly in these eight different research settings.

From an initial screening of 13108 women, the study achieved a sample size of 4321 which is sufficiently large to produce reliable extreme centiles that are of clinical significance. The main reasons for exclusion were low height, BMI >30 and maternal age (< 18 years or greater than 35 years). Data were collected by ultrasound measurement for five anthropometric measures (foetal biparietal diameter, head circumference, occipitofrontal diameter, abdominal circumference, and femur length) which were obtained every 5 weeks from 15 weeks to 42 weeks of gestation. Centile charts have been produced for all indicators.

Comment

The information is especially valuable for the multi-cultural societies that now exist in many European, North American and Australasian countries, which are characterised by high rates of immigration and intermarriage. To expect all foetuses to have the same growth potential irrespective of ethnic origin is simple and fair. Arguably, the Lancet comment suggests, the most important conclusion that can be drawn from the INTERGROWTH - 21st Consortium’s findings is that recorded inter-country differences in foetal size and growth are more indicative of deprivation than geographical location. Acceptance of international growth standards involves a change in theoretical approach and sets the bar for universal aspirational targets of foetal growth. Together with newborn growth standards, the new foetal standards are proposed for use worldwide to diagnose foetal growth retardation uniformly and monitor growth from early pregnancy through to the neonatal period. The authors recommend these tools for the interpretation of routine ultrasound measurements and comparisons across populations.

https://intergrowth21.tghn.org/Access the full paper, public comment and more information on the ongoing INTERGROWTH project, at:


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