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SGA related stillbirth risk according to INTERGROWTH-21st vs. GROW fetal weight standards

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Objective: While direct comparisons of INTERGROWTH 21st (IG21) and customised GROW birthweight standards have identified the shortcomings of a one-size-fits all model, there have been relatively few comparisons of the respective fetal weight standard by these two approaches. We set out to investigate the association between SGA by ultrasound scan estimated fetal weight (EFW) according to these two standards, and stillbirth risk at term.

Design: Retrospective cohort study

Method: We studied a cohort of 220,065 pregnancies with term deliveries and one or more scan EFWs in the third trimester. Where more than one scan had been performed, we selected the last scan before delivery. SGA rates (<10th centile) were calculated according to the IG21 and GROW fetal weight standards, and assessed against the 269 stillbirths in this cohort. The GROW standard was customised for maternal height, weight, parity and ethnic origin. Significance was determined using relative risk (RR) with 95% confidence intervals (CI).

Results: The median gestational age for last scan and birth were 36+6 and 39+3 days, respectively. The IG21 standard designated 3096 EFWs as SGA (1.4%) including 12 stillbirths (RR 3.4 CI 1.9–6.0), while according to the customised GROW standard, 9145 (4.2%) EFWs were SGA, with 25 stillbirths (RR 2.4; CI 1.6–3.6). This included an additional 6224 (68.1%) SGA cases with 14 stillbirths that were not identified by IG21, and these also had an increased stillbirth risk (RR 2.0 CI 1.1–3.3). IG21 classified an additional 175 (5.7%) of EFWs as SGA, with 1 stillbirth (CI 0.7–35.1).

Conclusion: The Intergrowth fetal weight standard fails to identify over two-thirds of cases that are SGA according to GROW and at significantly increased risk of stillbirth.