



Third trimester growth velocity in detection of late-onset FGR

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Objective

To evaluate potential benefits of third trimester ultrasound examinations in management of late-onset fetal growth restriction (FGR) Setting: Perinatal center with over 5, 000 deliveries per year.

Methods

Prospective cohort study, unselected population. Patients with singleton pregnancies (n=525) were investigated at 30-32 weeks – biometry, estimated fetal weight (EFW), EFW centile (EFWc30), doppler measurements. And then at 36-37 weeks – biometry, EFW, EFW centile (EFWc36), doppler measurements, EFW centile difference ($\Delta\text{EFWc} = \text{EFWc30} - \text{EFWc36}$). Delivery and neonatal data were collected. Exclusion criteria: multiple pregnancy, early-onset FGR (<32 weeks), premature delivery (<32 weeks), fetal abnormalities, no consent given. Fetal biometry and newborn size evaluated using Intergrowth-21st international standards. FGR diagnose based on Consensus definition of fetal growth restriction: a Delphi procedure (Gordijn S. J. et al., Ultrasound Obstet Gynecol. 2016). Timing of delivery based on Stage-based Protocol (Figueras F., Gratacos E., Prenat Diagn 2014). Statistical analysis was performed using IBM SPSS 25.

Results

Out of 525 newborns: mean gestational age at delivery 39. 0w (min 32, max 42), median 39. 0w (Q1 = 38, Q3 = 40), mean newborn weight 3, 350g (min 1, 390, max 5, 100), median 3, 360g (Q1 = 3, 070, Q3 = 3, 650), mean newborn weight centile 57. 18 (min 0. 8, max 100), median 60. 58 (Q1 = 34. 8, Q3 = 80. 5), only 40 newborns (7. 6%) were below 10th centile according to Intergrowth-21st. We encountered 1 case of stillbirth. There were 19 (3. 6%) cases of late-onset FGR based on Consensus definition. In total, mean ΔEFWc was 12. 2 (min -19. 9, max 64. 4), median 9. 8 (Q1 = 0. 1, Q3 = 23. 7). In FGR fetuses mean ΔEFWc was 29. 3 (min -9. 2, max 64. 4), median 26. 5 (Q1 = 18. 3, Q3 = 43. 3). In non-FGR fetuses ΔEFWc was 11. 7 (min -19. 9, max 54. 5), median 9. 2 (Q1 = -0. 2, Q3 = 22. 0). ΔEFWc correlates with the diagnose of FGR (Mann-Whitney test, $p < 0. 001$).

Conclusion

Fetuses with stunted growth are at higher risk of adverse outcome. Estimating fetal growth velocity by subtracting estimated fetal weight centiles (ΔEFWc) seems to be an easy tool to identify fetuses at risk in unselected population.