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Angiogenic factors versus fetomaternal Doppler for fetal growth restriction at term: an open-label, randomized controlled trial

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Abstract

Small fetuses, with estimated fetal weight (EFW) below the tenth percentile, are classified as fetal growth restriction (FGR) or small for gestational age (SGA) based on prenatal ultrasound. FGR fetuses have a greater risk of stillbirth and perinatal complications and may benefit from serial ultrasound scans to guide early delivery. Abnormal serum angiogenic factors, such as the soluble fms-like tyrosine kinase-1 (sFlt-1):placental growth factor (PlGF) ratio, have shown potential to more accurately distinguish FGR from SGA, with fewer false positives. This randomized controlled trial compared a management protocol based on the sFlt-1:PlGF with EFW and Doppler ultrasound in avoiding adverse perinatal outcomes in small fetuses after 36 weeks of gestation. A total of 1,088 pregnant women with singleton pregnancies were randomized to either the Doppler-based (control) or the sFlt-1:PlGF-based (intervention) protocol. The primary outcome, neonatal acidosis or Cesarean delivery as a result of abnormal cardiotocography, was assessed in 1,013 participants. The incidence was 10.5% in the intervention group and 10.0% in the control group (absolute difference, 0.53 (-3.21 to 4.26)), with the upper limit of the confidence interval <8.5%, confirming noninferiority. Thus, the sFlt-1:PlGF was noninferior to EFW and Doppler ultrasound in avoiding neonatal acidosis or Cesarean delivery owing to nonreassuring fetal status in small fetuses after 36 weeks (ClinicalTrials.gov registration: [NCT04502823](#)).

