Identifying factors associated with adverse pregnancy outcomes in women with reduced fetal movements in the third trimester of pregnancy: An Individual Participant Data Meta-Analysis

Yongyi Lu[1], Victoria Palin[1], and Alexander Heazell[1]

[1]The University of Manchester Faculty of Biology Medicine and Health

September 24, 2024

Abstract

Abstract Objectives: Women experiencing reduced fetal movements (RFM) have an increased risk of adverse pregnancy outcome (APO). Single-population studies may introduce bias and limiting generalisability. This study aimed to identify factors most strongly associated with APO, including stillbirth, fetal growth restriction (FGR), and admission to neonatal intensive care unit in women with RFM. **Design and settings**: Individual-level data from multiple sites in Manchester and Leicester were synthesised and analysed. **Population or Sample:** 1,175 women between 28^{+0} and 41^{+0} weeks' gestation with singleton pregnancies. **Methods:** Factors associated with APO were assessed by two-stage individual participant data meta-analysis (IPD-MA). **Main Results**: 7.7% of RFM pregnancies ended in APO, with the most common complication being FGR (birthweight [?]3 rd centile) in 4.6%. Maternal past medical history (adjusted Odds Ratio, aOR = 2.28, 95% CI 1.08-4.83) and smoking status (aOR = 2.52, 95% CI 1.20-5.29) were most strongly associated with APO. Estimated fetal weight (EFW) percentile (aOR = 0.97, 95% CI 0.96-0.99) and maternal age (aOR = 1.05, 95% CI 1.01-1.09) were also significant risk factors, though high heterogeneity between studies in EFW percentile was observed (I ^{2} = 76.84%, Tau ^{2} = 0.0004, Q-statistic p-value = 0.0007). **Conclusions**: IPD-MA allowed amalgamation of patient-level data across studies, and more accurate and reliable associations were found by accounting for heterogeneity. Further work is required to investigate the model's generalisability across diverse populations and settings. **Funding:** This study received no specific funding. **Keywords:** Individual Participant Data Meta-Analysis; Adverse pregnancy outcome; Stillbirth; Fetal Growth Restriction; Perinatal mortality; Decreased Fetal Movement

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