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Publication Date

2025-04-25

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Exploring Cardiometabolic Markers in Adverse Pregnancy Outcomes: Insights from the GROWell Study

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Keywords: Obesity, Adverse Pregnancy Outcomes, Lipidomic

Abstract: Excess gestational weight gain (EGWG) and postpartum weight retention (PPWR) pose risks of adverse pregnancy outcomes (APOs) for birthing individuals and their infants, among those entering pregnancy with overweight or obesity. The GROWell: Goals for Reaching Optimal Wellness study was a blinded, randomized clinical trial to improve dietary support. Data were collected via online questionnaires and dried blood spots at 10-16 weeks (baseline), second and third trimester, and three and six months postpartum. Lipidomic network analysis was done at baseline, 36-38 weeks, and three months postpartum on 49 participants. The network analysis revealed positive correlations between specific lipid types and APOs, particularly at baseline and postpartum. Notably, triglycerides and phosphatidylcholine were associated with an increased risk of APOs. Additionally, in the third trimester, triglycerides were positively correlated with weight-related variables. Postpartum analysis also showed a positive correlation between elevated triglyceride levels and APOs. These findings underscore the significant role of lipids in pregnancy outcomes, particularly for individuals with overweight or obesity. Managing lipid levels during pregnancy may help reduce the risks associated with EGWG and PPWR, improving maternal and fetal health. Future research should focus on developing targeted interventions for lipid management during pregnancy.

Funding Acknowledgements: 5R01NR017659-05, PI: Simmons