

Factors Associated with Fetal Growth in Pregnancies Complicated by Type 2 Diabetes Mellitus

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Background and Hypothesis:

The prevalence of type 2 diabetes (T2DM) is increasing, and it is associated with an increased risk for adverse perinatal outcomes. Fetal overgrowth is associated with an increased risk for obesity and diabetes in offspring of individuals with type 2 diabetes, and we sought to identify factors associated with excess fetal growth in pregnant individuals with T2DM.

Experimental Design or Project Methods:

This was a retrospective cohort study of 350 pregnant individuals with T2DM who delivered at IU Health Hospitals or Eskenazi Hospital from January 1, 2019-December 31, 2021. We excluded pregnancies complicated by twin gestation or stillbirth. Maternal demographic data and perinatal outcomes were abstracted from the electronic medical record. Birth weights were classified as small for gestational age (SGA; <10th percentile), appropriate for gestational age (AGA; 10-90th percentile), and large for gestational age (LGA; >90th percentile) using a US birth weight standard. Maternal characteristics and pregnancy outcomes were compared across the 3 categories using ANOVA and chi squared statistic. Multinomial logistic regression was used to identify factors associated with birth weight category.

Results:

LGA birth weight occurred in 95 (27%) and SGA birth occurred in 32 (9%) of pregnancies. After adjusting for covariates, HbA1c after 20 weeks' gestation was significantly associated with risk for SGA birth weight (aOR 0.4, 95% CI 0.19-0.94) and LGA birth weight (aOR 1.47, 95% CI 1.10-1.96). Individuals requiring treatment with both insulin and oral agents at the first prenatal visit were at increased risk for LGA birth weight (aOR 4.49, 95% CI 1.43-14.10).

Conclusion and Potential Impact:

Our findings highlight the important relationship between glycemic control in the second half of pregnancy and fetal growth. Additional research is needed to optimize glycemic control in pregnant individuals with T2DM.