

Analysis of Nutritional Composition and Glycemic Control in Patients with Gestational Diabetes Mellitus

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Background

The association between meal content and glycemic control is not well-understood in pregnancy, limits our ability to counsel patients regarding the optimal diet. We therefore sought to evaluate the relationship between maternal dietary content and glycemic control.

Methods

This is a secondary analysis of the GDM-MOMS study, which was a randomized controlled pilot trial that compared glycemic targets in 60 pregnant individuals with GDM and either overweight or obesity. During the pilot trial, participants wore a blinded continuous glucose monitor (CGM) for two five-day periods, with the first data collection between 12-32 weeks and the second data collection between 32-36 weeks. During the time that participants wore their CGM, they also collected 3-day food diaries with detailed information regarding intake and cooking technique. These food diaries are being entered into the Nutrition Data System for Research (NDSR) software, which analyzes nutritional composition for each meal. Glycemic control as assessed by CGM will then be assessed based on maternal nutritional intake.

Results

The American Diabetes Association recommends a 2,000-calorie daily diet with a minimum of 175g of carbohydrates (with 35% of the total calories coming from carbohydrates), 71g of protein, and 28g of fat. Preliminary data extracted from NDSR includes nutritional analysis of 38 daily food diaries from 14 patients. 12/38 (31.6%) food logs show consumption of less than 35% of their total calories from carbohydrates, with the other 26 consuming 36-62%. Glycemic load can be used to assess how a patient's diet affects their glycemic levels. 25/38 (65.8%) of food logs demonstrate a daily glycemic load (GL) of 100, with the other 13 showing daily GLs ranging from 108-252.

Conclusions and Further Directions

Further analyses will assess post-meal glycemic response using both patient-monitored glucose values and reports from their CGM to determine which types of diets allow for optimal glycemic control.