Objective: Gestational diabetes mellitus (GDM) affects 5–14% of pregnant women, many of whom will require treatment beyond diet and exercise. Despite this high prevalence, there is no consensus regarding the glycemic threshold for conversion from diet to medical treatment. The goal of this study was to compare two different thresholds for the number of elevated glucose values prior to initiation of medical treatment for GDM.

Study Design: This was a retrospective cohort study of women with a singleton pregnancy and diagnosis of GDM delivering in a single tertiary care center. GDM was diagnosed using Carpenter-Coustan two-step approach. Maternal and neonatal outcomes were compared using bivariable and multivariable analyses between women who started medical treatment (insulin or oral hypoglycemic agent) at two different thresholds of elevated capillary blood glucose (CBG) values: Group 1: 20–39% abnormal CBG values vs. Group 2: at least 40% or higher abnormal CBG values. The primary outcome was a composite neonatal outcome that included macrosomia, large-for-gestational-age (LGA), shoulder dystocia, neonatal hypoglycemia, hyperbilirubinemia requiring phototherapy, respiratory distress syndrome (RDS), stillbirth, and neonatal demise. The secondary outcomes were the rates of cesarean delivery and small for gestational age (SGA) infants.

RESULTS

• Retrospective chart review of 376 women with GDM started on medical treatment during pregnancy who delivered from 2011 to 2018 at Froedtert Memorial Lutheran Hospital (FMLH) and the Medical College of Wisconsin (MCW)

• Inclusion criteria:
  - Pregnant women at least 18 years of age
  - Viable singleton pregnancy
  - Diagnosis of GDM and started on medication in pregnancy

• Exclusion criteria:
  - Pre-gestational diabetes
  - Known major fetal anomaly

• Maternal and neonatal outcomes were compared at two different thresholds of abnormal CBG values:
  - Group 1: 20–39% abnormal CBG values
  - Group 2: At least 40% or greater abnormal CBG values

• Primary outcome: Composite neonatal outcome including macrosomia, large for gestational age (LGA), shoulder dystocia, neonatal hypoglycemia, hyperbilirubinemia requiring phototherapy, respiratory distress syndrome (RDS), stillbirth, and neonatal demise

• Secondary outcomes: Rates of cesarean delivery and SGA

• All tests were two-tailed and p<0.05 defined statistical significance

• Univariable comparisons were conducted with Chi-Square, Fisher exact, or one-way ANOVA as appropriate

• Multivariable logistic regression was used to estimate the independent association between the threshold of medical treatment initiation and rates of adverse perinatal outcomes

CONCLUSION

When treating women with GDM, the addition of medical treatment to diet and exercise at an earlier threshold of elevated capillary blood gluoses was associated with an improved composite neonatal outcome, lower rates of preterm delivery, and lower rates of NICU admission. However, higher rates of small for gestational age infants were seen.