

## Treatment of Gestational Diabetes Mellitus with Acarbose

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**Introduction:** Gestational diabetes mellitus (GDM) is one of the most common complications of pregnancy. This study examines the rate of transition from oral agents to insulin in patients with GDM and evaluates differences in rates of adverse pregnancy outcomes with various oral agents.

**Hypothesis:** We hypothesize that patients with GDM who receive acarbose in combination with glyburide will have a lower rate of treatment failure (transition to insulin) compared to those receiving glyburide alone.

**Methods:** We conducted a retrospective cohort study of 348 patients with GDM class A2 treated at a single center with a standardized approach using acarbose and/or glyburide between 2011-2016. Patients were divided into one of four treatment groups: (1) acarbose only, (2) acarbose + glyburide, (3) glyburide only and (4) insulin only (referent group). Primary outcomes were rate of failure of oral agent with transition to insulin for glycemic control, cesarean delivery, preterm birth, macrosomia, large for gestational age and neonatal hypoglycemia. Generalized linear modeling was used to estimate relative risk of treatment group on outcomes, after adjusting for the confounding influence of gestational age at GDM diagnosis.

**Results:** The rates of failure of oral agents for GDM was low in all oral agent groups (6.7-8.8%) and did not differ significantly between groups ( $p = 0.87$ ). The rate of cesarean delivery was high for all treatment groups (46.2-57.4%) and did not differ by group ( $p = 0.598$ ). The preterm birth rate was 59% lower in those treated with acarbose + glyburide compared to insulin only (RR 0.41, CI 0.21 – 0.80). While not statistically significant, the lowest rate of neonatal hypoglycemia occurred in infants born to mothers treated with acarbose only (11%, RR 0.54, CI 0.24-1.24). There were no significant differences in frequency of macrosomia or LGA based on treatment group.

**Conclusions:** The addition of acarbose to glyburide for treatment of GDM was associated with low rates of failure and transition to insulin in our cohort, while maintaining similar rates of cesarean delivery and neonatal outcomes as insulin treatment. This suggests that acarbose can be a safe and effective treatment option for patients with GDM.

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