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Title: Impact of anthropometric parameters and risk factors in pre-gestational diabetes and effects on pregnancy outcomes

Introduction

Diabetes mellitus (DM) is a chronic metabolic disorder characterized by high blood sugar due to insulin issues. Its global prevalence surged to 537 million adults in 2021, expected to rise to 643 million by 2030. Type 2 diabetes (T2DM) in pregnancy increases risks such as birth defects, preterm birth, and fetal macrosomia. Key risk factors include obesity, poor diet, and inactivity. Elevated BMI and waist circumference predict worse outcomes, including cesarean delivery and fetal complications. Effective management through blood glucose control and weight management is essential.

Objective

This study aimed to evaluate the impact of anthropometric parameters (BMI and waist circumference) and insulin use on pregnancy and postpartum outcomes in women with Type 2 diabetes. The study compared two groups: women diagnosed with Type 2 diabetes during pregnancy (Group G1) and women with pre-existing Type 2 diabetes before pregnancy (Group G2).

Methods

The study enrolled 30 pregnant women, with 15 in each group. Anthropometric measurements (BMI, waist circumference) were recorded at booking, and data on hypertension, insulin use, and pregnancy complications were collected. Pregnancy and postpartum outcomes, including preterm birth, macrosomia, cesarean rates, weight gain, and postpartum diabetes and hypertension, were assessed. Statistical analysis used chi-square and t-tests to compare the groups.

Results

Group G2 had significantly higher mean BMI (30.2 ± 4.0 kg/m², p=0.04) and waist circumference (92.1 ± 6.3 cm, p=0.03) compared to Group G1. Insulin use was significantly higher in Group G1 (66.7% vs. 46.7%, p=0.04), and insulin-treated women had a higher rate of caesarean sections (52.9% vs. 15.4%, p=0.01) and a lower incidence of postpartum weight gain ≥10 kg (17.6% vs. 61.5%, p=0.003). No significant differences were found in other maternal and fetal outcomes, including birth weight, preterm birth, or Apgar scores.

Conclusion

Pre-pregnancy Type 2 diabetes was associated with higher BMI and waist circumference than gestational diabetes. Insulin use during pregnancy led to higher C-section rates and lower postpartum weight gain. However, there were no significant differences in pregnancy or fetal outcomes between the two groups. Larger studies are needed to explore the impact of diabetes management on outcomes.

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