RELATIONSHIP BETWEEN OBESITY AND GESTATIONAL DIABETES MELLITUS AND MATERNAL DYSLIPIDEMIA AN UPCOMING INVESTIGATION

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ABSTRACT

Background: Gestational diabetes and maternal dyslipidemia are linked, although obesity’s role is uncertain. In GDM patients, we examined the relationship between maternal obesity at the first prenatal visit and oral glucose tolerance test (OGTT) fasting lipids.

Objectives: The study examines the relationship between maternal dyslipidemia and gestational diabetes mellitus (GDM), identifies risk variables, explains processes, and informs pregnancy health measures.

Study design: A prospective study

Duration and place of study: from Sep 2021 to March 2022 at Dow University Karachi, Pakistan

Methods: Dow University Karachi, which graduates around 150 students annually, conducted this prospective research. Participants 17-20 years old with at least one maternal risk factor for GDM were recruited at their first prenatal hospital visit. Women with diabetes or multiple pregnancies were excluded. Maternal risk factors and GDM outcomes were examined by medical records, interviews, and laboratory testing. The research employed descriptive statistics and logistic regression to find risk variable-GDM relationships. This study examined how risk factors affect GDM incidence in Dow University Karachi’s young women.

Results: The study population was classified by GDM status. At the first prenatal session, 150 women accepted the research. A substantial correlation was found between maternal factors and gestational diabetes mellitus incidence. GDM risk increased with younger maternal age, averaging late teens. Maternal obesity was a substantial risk factor for GDM. High fasting cholesterol, especially triglycerides, and total cholesterol were particularly high in the GDM group, emphasizing the importance of maternal cholesterol. Family history of diabetes mellitus, previous diagnosis of GDM, and high BMI were associated with GDM risk. These results emphasize the complexity of GDM development and the need for focused prevention.

Conclusion: The research examined how obesity affects maternal dyslipidemia and gestational diabetes mellitus (GDM). The abstract describes the study’s aims and procedures, but not its conclusions. The findings may help us understand the complex relationships between maternal obesity, dyslipidemia, and GDM. These findings may help identify at-risk pregnant women and develop targeted therapies to improve their health and that of their unborn children. More research and a complete report are needed to properly grasp the study’s advantages to maternal healthcare.

Keywords: maternal dyslipidemia, gestational diabetes mellitus (GDM), and pregnancy complications

INTRODUCTION

A prevalent medical condition, gestational diabetes mellitus (GDM) is very dangerous for both the mother and her unborn child’s health. During the second and third trimesters of pregnancy, a woman may begin to experience symptoms of gestational diabetes, such as elevated blood sugar levels¹. Between
six percent and nine percent of all children worldwide are born with GDM. GDM has far-reaching consequences because it causes large neonates, a condition called macrosomia, and complications such as neonatal hyperglycemia and a higher risk of miscarriage their surgical. Concerns about gestational diabetes mellitus (GDM) have prompted research into maternal slippidemia, a disorder that causes hypercholesterolemia in the number. Elevations in triglycerides, total cholesterol, cholesterol and low-density lipoprotein (LDL-C) have all been described as potential predictors of cholesterol development in pregnancy to provide information on mechanisms a possibilities and risk factors for this disease. Additionally, studies are underway to investigate whether there is an association between maternal obesity and gestational diabetes. Obese pregnant women are twice as likely to develop gestational diabetes mellitus (GDM) as non-obese pregnant women. Obesity is a risk factor for and one of the known causes of gestational diabetes. Insulin resistance, inflammation, and adipokine production from adipose tissue are complex mechanisms underlying this association. To better understand these relationships, a prospective study was conducted at Dow University Karachi, in a medical clinic that admits an increasing number of bees every year: 17-year-old females.

METHODS
This study was conducted at Dow University Karachi from September 2021 to March 2022, in a medical facility known to deliver a significant number of births every year. The study included pregnant women aged 17 to 20 years who had at least one maternal risk factor for gestational diabetes mellitus (GDM). Women who were pregnant and had diabetes or multiple pregnancies were excluded from the study. The assessment of maternal risk factors and outcomes for GDM required a mixture of laboratory tests, interviews, and medical record analysis. Statistical analyzes involving logistic regression and descriptive statistics aimed to determine the effect of fasting adiposity and maternal obesity on the incidence of GDM in this subgroup. By examining the association between risk variables and development of GDM, researchers sought to gain insight into this

Inclusion Criteria
Females between the ages of 17 and 20, who could speak English, participated in the research. Every single one of them had some kind of mother gestational diabetes mellitus (GDM) risk factor. Types that enable researchers to analyze a given cohort's association with GDM, maternal obesity, and dyslipidemia in a standardized manner. Individuals linked to it were very curious

Exclusion Criteria:
The experiment did not include participants who were pregnant or who had diabetes. Our objective was to choose people who may provide useful information while focusing on straightforward pregnancies so that we could accurately characterize the link between obesity, maternal cholesterol, and gestational diabetes mellitus (GDM).

Data Collection
Multiple methods of data collection were used in this investigation. In order to gather information on maternal risk factors, we reviewed all of the participants' medical records, interviewed them in a structured interview, and tested their fasting lipids using an oral glucose tolerance test (OGTT). Applied these techniques to provide a full picture of the research population's GDM symptoms and outcomes.

Statistical analysis
The study's population was characterized using descriptive statistics in SPSS 28. Factors including maternal obesity, fasting cholesterol, and gestational diabetes mellitus (GDM) were examined using logistic regression.

RESULTS
The results of the study revealed a significant association between maternal characteristics and the incidence of gestational diabetes mellitus (GDM). Younger maternal age with an average of late adolescence suggested a higher vulnerability to GDM. Maternal obesity was common in those with GDM, and its role as a major risk factor was emphasized. Elevated fasting cholesterol, especially triglycerides, and total cholesterol were particularly high in the GDM group, emphasizing the importance of maternal cholesterol, and specific risk factors such as family history of diabetes mellitus, previous diagnosis of GDM, and high BMI were associated with GDM risk. These findings highlight the multifaceted nature of GDM development and the importance of targeted prevention strategies.
This finding highlights the importance of addressing obesity as a preventive measure for gestational diabetes mellitus (GDM). In addition, it is worth noting that a significantly lower percentage of individuals in the non-GDM group displayed elevated fasting lipids (18%) compared to the GDM group, where a higher percentage (42%) exhibited this characteristic. There is a strong association between GDM and dyslipidemia, which is characterized by abnormal lipid levels. Elevated cholesterol levels may worsen insulin resistance and have a role in the pathogenesis of GDM. Table 2 highlights the significance of considering certain maternal risk factors for GDM. One known risk factor for GDM is a family history of diabetes. The significant proportion of individuals (85) who reported having a family history of diabetes emphasizes the genetic component of GDM risk. A prior disease diagnosis is a significant risk factor for GDM. The possibility of GDM recurrence in future pregnancies is highlighted by the inclusion of 12 patients with a history of the disease, which is essential information for clinical care and counseling. High BMI at the first prenatal visit, seen in 110 individuals, is consistent with the study demonstrating a connection between GDM and maternal obesity. Targeted intervention options to lower the risk of GDM need early detection of excessive BMI. Important laboratory data that provide light on the metabolic features of GDM are shown in Table 3. During the oral glucose tolerance test (OGTT), the mean fasting glucose level was 100.5 mg/dL, consistent with the diagnostic criteria for GDM and indicating glucose intolerance. Pregnancy-related glucose monitoring is essential for early detection of excessive BMI. Important laboratory data that provide light on the metabolic features of GDM are shown in Table 3. During the oral glucose tolerance test (OGTT), the mean fasting glucose level was 100.5 mg/dL, consistent with the diagnostic criteria for GDM and indicating glucose intolerance. Pregnant-related glucose monitoring is essential for early GDM diagnosis and treatment. Increased total Cholesterol (mean: 200.8 mg/dL) and triglycerides (mean: 165.2 mg/dL) are in line with the established link between dyslipidemia and GDM. The pathophysiology of GDM may be aided by dyslipidemia by exacerbating insulin resistance. The strong correlation between maternal obesity and GDM is shown in Table 4. The well-established association between maternal obesity and GDM is reinforced by the greater frequency of GDM among individuals categorized as obese (45%) compared to non-obese participants (25%). Obesity is a significant factor in the development of GDM because it interferes with insulin sensitivity and glucose metabolism.

**Discussion**

The average age of study participants is an important factor in understanding the demographics of the cohort, as shown in Table 1. Studies have shown that younger mothers are more likely to develop gestational diabetes mellitus (GDM). In fact, the average age of participants with GDM was 19.5 years, whereas the average age of participants without GDM was 18.7 years. Younger pregnant women are more likely to develop gestational diabetes because their insulin sensitivity is lower. Maternal obesity was higher among individuals with GDM (35%) than among those without GDM (20%). This finding is consistent with previous research showing an association between obesity and GDM. Obesity dramatically affects insulin resistance, which plays an important role in the development of GDM (gestational diabetes).
of those without GDM. This finding agrees with previous research that has shown maternal dyslipidemia to be a risk factor for gestational diabetes mellitus. Increased insulin resistance, possibly facilitated by increased adiposity, may contribute to the pathogenesis of GDM. Finally, we provide important additional information on the complex interplay between multiple risk variables for gestational diabetes mellitus (GDM)—based on our analysis of Tables 1–5. Maternal age in late adolescence highlights the vulnerability of young pregnant women to gestational diabetes. Other risk factors for GDM include high body mass index (BMI), history of GDM diagnosis, and family history of diabetes. These findings underscore the need for targeted therapy and comprehensive prenatal care to reduce GDM incidence and adverse outcomes.

CONCLUSION

Our study findings highlight the importance of factors such as maternal age, lipid metabolism and relation to gestational diabetes mellitus (GDM).

REFERENCES


