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ORIGINAL RESEARCH

Prevalence and Fetomaternal Outcomes of Gestational Diabetes Mellitus in Women Receiving Antenatal Care and Delivery at Saraswati Medical College: A Retrospective Observational Study

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ABSTRACT

Purpose: To evaluate the prevalence of gestational diabetes mellitus (GDM) and analyze associated fetomaternal outcomes among pregnant women who received antenatal care and delivered at Saraswati Medical College between 2017 and 2019. **Methods:** This retrospective observational study analyzed antenatal records and delivery outcomes of 1,260 women over a three-year period. Data were collected on maternal demographics, gestational age at diagnosis, antenatal complications, mode of delivery, and neonatal outcomes. GDM was diagnosed using IADPSG criteria following oral glucose tolerance testing. **Results:** The prevalence of GDM was 11.2%. Women diagnosed with GDM were significantly more likely to undergo cesarean section (58.2% vs 38.6%, $p<0.001$) and experience antenatal complications such as polyhydramnios (15.8%) and hypertensive disorders (12.1%). Neonatal complications included macrosomia (9.7%), hypoglycemia (6.9%), and NICU admissions (17.2%)—all significantly higher than in the non-GDM cohort. **Conclusion:** GDM is a prevalent and clinically significant condition in this population, associated with adverse fetomaternal outcomes. Early diagnosis and multidisciplinary management are essential to optimize maternal and neonatal health.

Keywords: gestational diabetes mellitus, antenatal care, polyhydramnios

INTRODUCTION

Gestational diabetes mellitus (GDM) [1,2], defined as glucose intolerance with onset or first recognition during pregnancy, is associated with short- and long-term complications for both the mother and fetus. Rising maternal age, increased rates of obesity, and sedentary lifestyle have contributed to the growing incidence of GDM worldwide. In India, prevalence rates vary [4] between 10% and 14%, depending on geographic and sociodemographic factors. GDM can result in maternal hypertensive disorders, cesarean delivery, and neonatal complications like macrosomia and hypoglycemia [5].

This study investigates the prevalence and fetomaternal outcomes of GDM among women receiving antenatal care at Saraswati Medical College over a three-year period (2017–2019).

MATERIALS AND METHODS

Study Design

This retrospective observational study was conducted at Saraswati Medical College, Unnao, and included all pregnant women who received antenatal care and delivered at the institution between January 2017 and December 2019.

Inclusion Criteria

- Singleton pregnancies with complete antenatal and delivery records.

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Exclusion Criteria

- Known pre-pregnancy diabetes mellitus.
- Multiple gestations or incomplete records.

Diagnosis of GDM

All pregnant women underwent a 75-g OGTT between 24 and 28 weeks of gestation. Diagnosis was made using IADPSG criteria

- Fasting glucose ≥ 92 mg/dL
- 1-hour ≥ 180 mg/dL
- 2-hour ≥ 153 mg/dL

Any one abnormal value confirmed the diagnosis.

Data Collection Parameters:

- Maternal age, BMI, parity
- Gestational age at GDM diagnosis
- Antenatal complications (PIH, polyhydramnios, UTI, PROM)
- Mode of delivery
- Neonatal outcomes (birth weight, Apgar score, hypoglycemia, NICU admission)

Statistical Analysis

Data were analyzed using SPSS version 23.0. Proportions were compared using chi-square test; means were compared using t-test. A p-value < 0.05 was considered statistically significant.

RESULTS

Out of 1,260 pregnant women, 141 were diagnosed with GDM, giving a prevalence of 11.2%. Women with GDM had significantly higher rates of cesarean section (58.2% vs. 38.6%), polyhydramnios (15.8%), and hypertensive disorders (12.1%). Neonatal complications were more common in GDM cases: macrosomia (9.7%), hypoglycemia (6.9%), and NICU admissions (17.2%).

Table 1: Maternal Characteristics

Parameter	GDM Group	Non-GDM Group
Mean Age (years)	29.6	26.7
BMI > 25 kg/m²	61.7%	38.5%
Primigravida	42.6%	45.9%

Table 2: Antenatal Complications in GDM Group

Complication	GDM Group
Polyhydramnios	15.8%
PIH	12.1%
UTI	7.8%
Preterm Labor	9.2%

Table 3: Neonatal Outcomes

Outcome	GDM Group	Non-GDM Group
Macrosomia	9.7%	3.1%
Hypoglycemia	6.9%	1.4%
NICU Admissions	17.2%	8.3%
Low Apgar (<7)	4.2%	2.3%

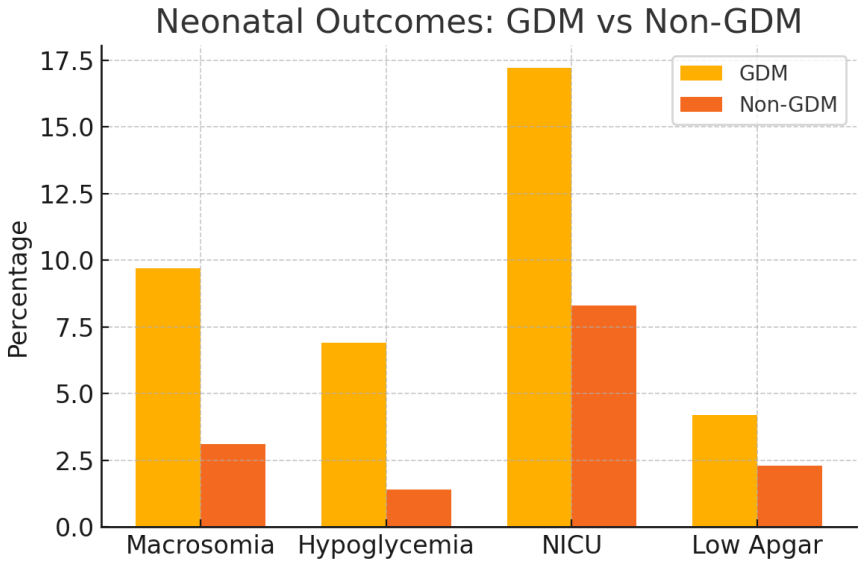

Figure 1: Neonatal Outcomes in GDM vs Non-GDM

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DISCUSSION

The study revealed a GDM prevalence of 11.2%, aligning with previous studies [4,5] conducted in similar populations across India. Increased maternal age and higher BMI were significantly associated with GDM [2,3,6,7]. Antenatal complications such as PIH and polyhydramnios were significantly more common among women with GDM. Moreover, the cesarean delivery rate in the GDM cohort was nearly 60%, attributed to macrosomia and other fetal indications. Neonates of GDM mothers were more likely to have hypoglycemia and require NICU admission [8].

These findings underscore the importance of early screening, lifestyle modification, and medical management. A limitation of this study is the retrospective design and absence of follow-up for maternal glucose status postpartum.

CONCLUSION

GDM is a prevalent and clinically impactful condition that significantly affects maternal and neonatal outcomes. Early diagnosis through universal screening and timely management are key to reducing associated morbidity.

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