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Original Research Article

NEONATAL OUTCOMES AMONG OBESE MOTHERS: A HOSPITAL-BASED OBSERVATIONAL STUDY

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ABSTRACT

Background: Maternal obesity has become an increasingly prevalent health concern worldwide and is associated with adverse maternal and neonatal outcomes. Obesity during pregnancy contributes to insulin resistance, gestational diabetes mellitus (GDM), increased cesarean delivery rates, and neonatal metabolic and respiratory complications. **Objectives**: To evaluate neonatal outcomes among obese mothers and determine the incidence of neonatal hypoglycemia and respiratory morbidity in their newborns. **Materials and Methods:** A hospital-based observational study was conducted among 100 obese pregnant women delivering at a tertiary care center. Maternal demographic, obstetric, and neonatal data were collected and analyzed.

Results: The mean maternal BMI was 31.8 kg/m². Fifty mothers (50%) had GDM, of whom 10 required insulin therapy and 40 were managed with dietary modifications. Cesarean section was performed in 70% of cases. Among neonates, 75% had birth weights between 2.5 and 3.5 kg, 20% weighed between 3.5 and 4.0 kg, and 5% weighed between 2.0 and 2.5 kg. Thirty neonates (30%) required NICU admission due to respiratory distress, predominantly TTNB. Neonatal hypoglycemia occurred in 15 infants (15%), with two requiring escalation of glucose infusion rate (GIR). **Conclusion:** Maternal obesity was associated with a high prevalence of gestational diabetes, cesarean delivery, neonatal respiratory morbidity, and hypoglycemia. Early glucose monitoring and vigilant neonatal surveillance are recommended for infants born to obese mothers.

Keywords: NICU, GDM, GIR.

INTRODUCTION

The prevalence of maternal obesity has increased substantially over recent decades and represents a significant challenge in obstetric and neonatal practice.[1,2] Obesity during pregnancy is associated with numerous maternal complications including gestational diabetes mellitus, hypertensive disorders, prolonged labor, and increased operative deliveries.[2-4]

Infants born to obese mothers are at greater risk for adverse neonatal outcomes such as macrosomia, respiratory distress, neonatal hypoglycemia, and admission to neonatal intensive care units. Maternal insulin resistance and hyperglycemia contribute to fetal hyperinsulinemia, predisposing newborns to metabolic instability after birth.[5,6]

Understanding the neonatal consequences of maternal obesity is important for improving perinatal care and optimizing outcomes.[4,7,8] This study aimed to evaluate neonatal outcomes among obese mothers delivering at a tertiary care hospital.

MATERIALS AND METHODS

Study Design
Hospital-based observational study.

Study Setting
Department of Obstetrics and Gynecology and Department of Pediatrics of a tertiary care teaching hospital.

Study Population
One hundred obese pregnant women and their neonates delivered during the study period.

Inclusion Criteria

- Obese pregnant women (BMI ≥30 kg/m²)
- Singleton live births
- Delivery at the study institution

Exclusion Criteria

- Major congenital malformations
- Multiple gestations
- Neonates with known metabolic disorders

Data Collection

Maternal variables:

- Maternal age
- Body mass index (BMI)
- Presence of gestational diabetes mellitus
- Treatment modality for GDM
- Mode of delivery

Neonatal variables:

- Birth weight
- Respiratory distress
- NICU admission
- Neonatal hypoglycemia
- Requirement of glucose infusion therapy

Statistical Analysis

Data were entered into Microsoft Excel and analyzed using descriptive statistics. Continuous variables were expressed as mean values and categorical variables as frequencies and percentages.

RESULTS

Maternal Characteristics

A total of 100 obese mothers were included in the study. The mean maternal BMI was 31.8 kg/m².

Gestational diabetes mellitus was present in 50 mothers (50%). Among them, 10 (20%) required insulin therapy while 40 (80%) were managed with dietary modification alone.

Seventy mothers (70%) underwent lower segment cesarean section, while 30 (30%).

Table 1: Maternal Characteristics

	Variable	Value
1	Total mothers	100
2	Mean BMI	31.8 kg/m²
3	GDM	50 (50%)
4	Insulin-treated GDM	10 (10%)
5	Diet-controlled GDM	40 (40%)
6	LSCS	70 (70%)
7	NVD	30 (30%)

Neonatal Outcomes

Among the neonates, 75 (75%) weighed between 2.5 and 3.5 kg at birth. Twenty neonates (20%) had birth weights between 3.5 and 4.0 kg, while five neonates (5%) weighed between 2.0 and 2.5 kg.

Thirty neonates (30%) required NICU admission due to respiratory distress, predominantly transient tachypnea of the newborn.

Neonatal hypoglycemia was identified in 15 infants (15%). Two neonates developed persistent hypoglycemia requiring escalation of glucose infusion rate.

Table 2: Neonatal Outcomes

Outcome	Number (%)
Birth weight 2–2.5 kg	5 (5%)
Birth weight 2.5–3.5 kg	75 (75%)
Birth weight 3.5–4 kg	20 (20%)
Respiratory distress/TTNB	30 (30%)
NICU admission	30 (30%)
Neonatal hypoglycemia	15 (15%)
Persistent hypoglycemia requiring GIR	2 (2%)

DISCUSSION

Maternal obesity is associated with significant maternal and neonatal morbidity. In the present study, half of the obese mothers developed gestational diabetes mellitus, highlighting the close relationship between obesity and impaired glucose metabolism during pregnancy.[2,4,6]

The cesarean section rate of 70% observed in this study was considerably high and reflects the increased obstetric risks associated with maternal obesity.[3,7]

Neonatal hypoglycemia occurred in 15% of newborns. Maternal obesity and associated glucose intolerance may predispose infants to fetal hyperinsulinemia, increasing the risk of postnatal hypoglycemia.[5,8,9]

Respiratory distress requiring NICU admission was observed in 30% of neonates, predominantly due to transient tachypnea of the newborn. The high rate of operative deliveries may have contributed to this finding.[6,9,10]

The study findings emphasize the importance of antenatal weight optimization, screening for gestational diabetes, and close postnatal monitoring of infants born to obese mothers.

Limitations

- Single-center study.
- Relatively small sample size.
- Absence of a non-obese comparison group.

- Lack of long-term neonatal follow-up.

CONCLUSION

Maternal obesity is associated with a high prevalence of gestational diabetes mellitus, cesarean delivery, neonatal respiratory morbidity, and neonatal hypoglycemia. Enhanced antenatal counseling, maternal weight management, and routine neonatal glucose surveillance may reduce neonatal complications and improve outcomes.

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