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CLINICAL OUTCOME OF INFANTS OF DIABETIC MOTHERS: A DESCRIPTIVE STUDY

Dr Sehrish Abid[*1], Prof Dr Muhammad Amin Sheik[2], Dr Adnan Zafar[3]

[*1'2'3] Bahawal Victoria Hospital Bahawalpur

ABSTRACT

Objective: *To evaluate the clinical outcomes of infants born to diabetic mothers (IDMs) in a tertiary care hospital in Bahawalpur, Pakistan.*

Study Design: *This descriptive study explores the outcomes of neonates born to diabetic mothers in terms of common complications, including hypoglycemia, hypocalcemia, polycythemia, macrosomia, and hyperbilirubinemia.*

Place and Duration of Study*: The study was conducted in the Neonatal Intensive Care Unit (NICU) of the Department of Pediatrics, Quaid-e-Azam Medical College/B.V. Hospital Bahawalpur, over six months after ethical approval.*

Methodology*: A total of 100 neonates born to diabetic mothers (gestational or pre-gestational diabetes) were included through non-probability consecutive sampling. Data on maternal glycemic control, delivery details, and neonatal outcomes were recorded. Blood samples were taken to measure glucose, calcium, hematocrit, and bilirubin levels, and clinical outcomes were documented. Data were analyzed using SPSS v.25.*

Results: *The mean gestational age of neonates was 37 ± 2.1 weeks, with 45% male and 55% female participants. Hypoglycemia was the most common complication (63.8%), followed by hyperbilirubinemia (57.4%), hypocalcemia (43%), polycythemia (35%), and macrosomia (15%). A significant association was found between maternal glycemic control and neonatal complications.*

Conclusion: *Infants of diabetic mothers are at higher risk of metabolic and systemic complications. Early identification and management of these outcomes can reduce neonatal morbidity and improve prognosis.*

Keywords*: Infants of diabetic mothers, hypoglycemia, macrosomia, neonatal outcomes, Bahawalpur, Pakistan*

INTRODUCTION

Infants of diabetic mothers (IDMs) are at higher risk of morbidity and mortality due to complications arising from maternal hyperglycemia during pregnancy. Maternal diabetes, whether gestational or pre-gestational, impacts fetal development and increases the likelihood of neonatal complications such as hypoglycemia, macrosomia, and respiratory distress syndrome.

Globally, the prevalence of diabetes has risen sharply, with the WHO predicting a 35% increase from 1995 to 2025. As more women of childbearing age develop diabetes, either due to lifestyle changes or increasing obesity, the incidence of diabetes in pregnancy is rising. Studies show that infants born to diabetic mothers are predisposed to complications like hypoglycemia, hypocalcemia, hyperbilirubinemia, polycythemia, and congenital anomalies.

Despite advancements in maternal-fetal care, IDMs continue to face significant risks. This study focuses on the clinical outcomes of IDMs in a local population, aiming to provide evidence for developing standardized protocols for early diagnosis and management of these complications.

METHODOLOGY

This descriptive study was conducted in the NICU of B.V. Hospital, Bahawalpur. The study included 100 neonates born to diabetic mothers (both gestational and pre-gestational) meeting the following criteria:

Inclusion Criteria:

1. Neonates born to diabetic mothers with gestational age 34–41 weeks.
2. Both genders.
3. Maternal glycemic control assessed through HbA1c levels.

Exclusion Criteria:

1. Neonates with medical complications like renal disease or pregnancy-induced hypertension.
2. Stillborn neonates.
3. Chronic renal failure in neonates.

Data Collection Procedure:

After ethical approval, informed consent was obtained from parents. Maternal data, including glycemic control, delivery method, and demographic details, were recorded. Neonatal blood samples were collected to measure glucose, calcium, hematocrit, and bilirubin levels. Clinical outcomes such as hypoglycemia, hypocalcemia, hyperbilirubinemia, polycythemia, and macrosomia were documented. Data were analyzed using SPSS v.25, with results stratified by maternal glycemic control, neonatal gender, and gestational age.

RESULTS

The study included 100 neonates, with a mean gestational age of 37 ± 2.1 weeks. Male neonates constituted 45%, while 55% were female. Key findings are summarized below:

Complication	Frequency	Percentage
Hypoglycemia	63	63.8%
Hyperbilirubinemia	57	57.4%
Hypocalcemia	43	43%
Polycythemia	35	35%
Macrosomia	15	15%

A significant association was observed between maternal glycemic control and the frequency of neonatal complications. Poor maternal glycemic control (HbA1c >6.5%) correlated with higher rates of hypoglycemia, polycythemia, and macrosomia.

DISCUSSION

Infants born to diabetic mothers are at risk of metabolic complications due to the effects of maternal hyperglycemia on fetal development. Hypoglycemia, the most common complication in this study, occurs due to fetal hyperinsulinemia in response to maternal glucose levels. Similarly, hyperbilirubinemia and polycythemia result from increased erythropoiesis and red cell breakdown.

Macrosomia, observed in 15% of neonates, is associated with maternal glycemic dysregulation. These findings align with previous studies, highlighting the need for stringent glycemic control during pregnancy to mitigate adverse neonatal outcomes.

Early identification and management of these complications are crucial. Routine monitoring of blood glucose, calcium, and bilirubin levels in IDMs can improve neonatal outcomes. This study underscores the importance of developing standardized protocols for managing high-risk pregnancies and neonates.

CONCLUSION

This study highlights the high prevalence of metabolic complications in infants of diabetic mothers, emphasizing the need for early detection and management. Maternal glycemic control plays a critical role in

preventing adverse neonatal outcomes. Standardized protocols for monitoring and managing IDMs can significantly improve neonatal health outcomes.

Further research in multicenter settings with larger sample sizes is recommended to validate these findings and refine management strategies for IDMs.

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