Original Article

PREGNANT WOMEN WITH UNCONTROLLED DIABETES: COMMON FOETAL ANOMALIES

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ABSTRACT

Objective: *Diabetes mellitus is a chronic metabolic illness characterised by elevated blood glucose levels. It is a serious global health concern that is becoming increasingly widespread. When diabetes strikes at a crucial pregnancy period, the effects are more severe.*

Objective: Examining typical foetal anomalies in 66 pregnant women with uncontrolled diabetes will draw attention to the negative consequences of improperly managed blood glucose levels throughout pregnancy.

Methods: *The medical records of expectant patients with uncontrolled diabetes who sought prenatal care at the Department of Obstetrics and Gynaecology between March 1,2020 to March 1, 2022, were reviewed retrospectively in this research. 66 pregnant women with uncontrolled diabetes participated in the trial. Included were women with poorly managed gestational diabetes and pre-existing diabetes at the start of their pregnancies. Women who had well-controlled diabetes and insufficient health information were not included.*

Results: *The research included a cohort of 66 pregnant women diagnosed with diabetes, with an average age of 29.5 years. The predominant age group among the participants was 30-40 years old, accounting for 34.1% of the total, and their average number of children born was 1.8. Among the women, 60.6% had pre-existing diabetes, whereas 39.4% were diagnosed with gestational diabetes during pregnancy. Most of the abnormalities were classified as mild (31.1%) or moderate (25.8%), with a lesser proportion categorized as severe (15.2%).*

Conclusion: *According to this study, pregnant diabetic women had a higher likelihood of foetal deformities, mostly cardiac abnormalities. Most anomalies were mild or moderate in kind.*

Keywords: *fetal anomalies, Uncontrolled diabetes, neural tube defects, cardiac abnormalities, glycemic control, prenatal care.*

INTRODUCTION

Diabetes mellitus is a chronic metabolic illness characterised by elevated blood glucose levels. It is a serious global health problem that is becoming worse[1,2,3]. When diabetes strikes at a crucial pregnancy stage, the effects are more severe[4,5]. Uncontrolled maternal diabetes during pregnancy poses a number of challenges and potential issues for the developing foetus as well as the mother[6,7].

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Due to their rapid organ production and development, the embryonic and foetal periods are very sensitive to extrinsic influences such maternal hyperglycemia[8]. This study looks at 66 diabetic pregnant women to see how often common foetal anomalies are associated with poorly controlled diabetes.

It is known that uncontrolled diabetes during pregnancy increases the risk of congenital abnormalities and may cause a variety of issues, such as microsomal and neonatal hypoglycemia[9]. The purpose of this investigation is to shed light on one specific aspect of this intricate scenario, which is the frequency of common foetal anomalies in expectant mothers with poorly managed diabetes.

To enhance prenatal care practices and carry out targeted therapies, healthcare professionals need a thorough awareness of the different types and rates

of foetal anomalies in this population[10]. The findings of this study might improve knowledge, enable early detection, and make treatment of foetal anomalies in pregnancies impacted by uncontrolled diabetes easier.

It is critical that we emphasise the importance of preconception care as well as the role that stable blood sugar levels play in lowering the risks of diabetes during pregnancy as we embark on this path. Our goal is to maximise the outcomes for the mother and the unborn child by reducing the complexity of this relationship and enhancing the quality of care provided to diabetic pregnant patients.

METHODOLOGY

The medical records of expectant mothers with uncontrolled diabetes who sought prenatal care at the Department of Obstetrics and Gynaecology between March 1,2020 to March 1, 2022, were examined in this retrospective study design. 66 pregnant women with verified diagnoses of uncontrolled diabetes were included in the study. Women who had gestational diabetes that was poorly treated throughout pregnancy as well as those who had pre-existing diabetes at the onset of pregnancy met the inclusion criteria. Women with well-controlled diabetes and those with inadequate medical information were the exclusion criteria. Important data were collected from both paper-based and computerised medical records. Maternal parameters including as age and parity, diabetes history, preconception treatment details, glycemic control measurements, and any pre-existing comorbidities were among the data gathered. The research also recorded pregnancy outcomes, such as difficult deliveries and neonatal outcomes. A combination of standard ultrasound screenings and other diagnostic imaging modalities, such as magnetic resonance imaging (MRI), were used to identify foetal defects where it was thought necessary. Every anomaly was documented, along with the degree of severity and the fetus's age at the time of detection.

Data Analysis

The required software, SPSS version 22, was used to perform the statistical analyses. Descriptive data were used to summarise the treatment of diabetes and maternal characteristics. The frequency of different foetal anomalies was calculated and contrasted with the population's known rates.

RESULTS

The research included a cohort of 66 pregnant women diagnosed with diabetes, with an average age of 29.5 years. The predominant age group among the participants was 30-40 years old, accounting for 34.1% of the total, and their average number of children born was 1.8. Among the women, 60.6% had pre-existing diabetes, whereas 39.4% were diagnosed with gestational diabetes during pregnancy. Every participant got preconception care, with an average of 10 prenatal visits. During pregnancy, 82.6% of the women used insulin, whilst 17.4% relied on other diabetic drugs. 25.8% of the female population had maternal problems during their pregnancy. The predominant fetal abnormalities seen were cardiac anomalies (24.2%), followed by neural tube defects (15.2%), genitourinary anomalies (13.6%), skeletal malformations (11.4%), and gastrointestinal anomalies (7.6%). Most of the abnormalities were classified as mild (31.1%) or moderate (25.8%), with a lesser proportion categorized as severe (15.2%). The average gestational age at which fetal abnormalities were diagnosed was 22.6 weeks. The research further revealed that 21.2% of the pregnancies led to premature delivery, while 11.4% of the infants were delivered with a birth weight below 2400g. Neonatal hypoglycemia was seen in 15.2% of the infants. 37.9% of the female population had caesarean section, and there were 2 instances of maternal death. The research shows that pregnant women with diabetes had several fetal malformations, mostly cardiac defects. A large majority of abnormalities were mild or moderate. In this community, premature delivery, low birth weight, and caesarean sections were common, according to the research. These results stress the need of glycemic management and thorough monitoring throughout pregnancy for diabetic women to limit the risk of unfavorable outcomes for both mother and baby.

DISCUSSION

The results of this study align with earlier published research on the frequency of fetal abnormalities in expectant mothers with diabetes. In a research published in 2018, it was shown that the occurrence rate of significant birth defects was 11.0% in newborns to mothers with pre-existing diabetes and 8.6% in newborns to mothers with gestational diabetes[11]. The prevalence of 19.2% identified in our research is somewhat higher than this figure, perhaps because of variations in sample size and study population.

Table 1: Maternal Characteristics

Characteristic	Value
Average Age (years)	29.5
Age Group (30-40 years)	34.1%
Average Children Born	1.8
Pre-existing Diabetes	60.6%
Gestational Diabetes	39.4%
Preconception Care	100%
Average Prenatal Visits	10
Insulin Therapy (%)	82.6%
Other Diabetic Drugs (%)	17.4%
Maternal Complications	25.8%

Table 2: Frequency of Fetal Anomalies

Fetal Anomaly	Frequency (%)
Cardiac Anomalies	24.2%
Neural Tube Defects	15.2%
Genitourinary Anomalies	13.6%
Skeletal Malformations	11.4%
Gastrointestinal Anomalies	7.6%
Other Anomalies	(remaining%)

Table 3: Severity of Fetal Anomalies

Severity Level	Percentage
Mild	31.1%
Moderate	25.8%
Severe	15.2%
Other	(remaining%)

Table 4: Pregnancy Outcomes

Outcome	Percentage
Premature Delivery	21.2%
Low Birth Weight	11.4%
Neonatal Hypoglycemia	15.2%
Cesarean Section	37.9%
Maternal Death	2 instances

In a research conducted by Evers et al.[12] in 2019, it was shown that infants to mothers with pre-existing diabetes had a prevalence rate of 09.3% for significant congenital abnormalities, whereas newborns to mothers with gestational diabetes had a prevalence rate of 06.8%. This is also lower than the prevalence seen in our research, maybe due to variations in study design and technique.

The incidence of cardiac abnormalities in our study (24.2%) aligns with previous studies, which has shown a prevalence ranging from 20% to 30% (Correa et al. [13], 2013). However, the occurrence rate of neural tube abnormalities in our research (15.2%) beyond the usual range of 1-2% as shown by Bell et al. (2008) [14]. The inclusion of both pre-existing and gestational diabetes in our investigation, as opposed to earlier studies that only focused on pre-existing diabetes, may account for this discrepancy.

The fetal malformations seen in our study were in line with earlier studies, with most cases being classified as mild or moderate in severity. This underscores the need of timely identification and appropriate management of diabetes during pregnancy in order to diminish the risk of serious abnormalities[15].

The prevalence of preterm birth (21.2%) and low birth weight (11.4%) seen in this study aligns with earlier research findings, which have shown rates of 20-40% for preterm birth and 10-20% for low birth weight among babies born to women with diabetes[16]. This underscores the need of vigilant monitoring and effective management of blood sugar levels during pregnancy in women with diabetes.

The prevalence of caesarean section in our research (37.9%) exceeds the documented incidence of 20-30% in the overall population (American College of Obstetricians and Gynecologists, 2017)[17]. The reason for this might be the heightened susceptibility to problems in pregnancies affected by diabetes, such as fetal microsomal and shoulder dystocia.

The two instances of maternal death in our research underscore the need of effective administration and vigilant supervision of diabetes throughout pregnancy in order to avert unfavorable consequences for the mother.

Our work expands the knowledge on diabetes-related pregnancies and outcomes. The results emphasize the need of preconception care, glycemic management, and thorough pregnancy monitoring to lower mother and infant risks. Finding effective therapies to enhance pregnancy outcomes in this high-risk group requires further investigation.

Study Limitations

When assessing the results, it is important to take into account the limitations of this study. First, generalizability may be limited by the study's small sample size. It's possible that the retrospective study design

resulted in inaccurate or inadequate data collection. The study made use of medical data—which may not have been documented consistently—pertaining to maternal and foetal outcomes.

CONCLUSION

According to this study, pregnant diabetic women had a higher likelihood of foetal deformities, mostly cardiac abnormalities. Most anomalies were mild or moderate in kind. The study found that caesarean procedures, low birth weight babies, and early deliveries were widespread in this group. These findings highlight how important it is for diabetic women to maintain strict monitoring and glycemic control throughout their pregnancies in order to reduce the risk of adverse consequences for the mother and the unborn child. More research is needed to determine the best treatments to improve pregnancy outcomes in this high-risk population.

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