



Research Article

A RETROSPECTIVE STUDY ON GESTATIONAL DIABETES MELLITUS AND ITS FETOMATERNAL OUTCOMES AT A TERTIARY CARE CENTRE IN JAIPURMeena Naik¹, Neha Vashisth² and Richa Choudhary³

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ABSTRACT

Introduction- Diabetes is one of the most common medical complication of pregnancy. It complicates 2 to 5% of pregnancies of which 90% is contributed by gestational diabetes mellitus and rests are pregestational diabetics. **AIMS and OBJECTIVES-** To study fetomaternal outcome in patients with gestational diabetes mellitus at a tertiary care centre. **Material and method-** This retrospective record based study included 46 pregnant women admitted in labor room in Department of Obstetrics and Gynecology between August 2022 to September 2023. Data collection was done from the records maintained by hospital, after permission from the Institutional Ethical Committee. The diagnosis of GDM was based on DIPSI criteria with cut off value of ≥ 140 mg/dl done either at initial visit or at 28 weeks. Collected details includes their glycemic status, details of the treatment, mode of delivery, delivery complications, pre-mature births, still births, abortions, birth weight of the child, neonatal ICU admissions. Data were recorded in the excel sheet and descriptive analysis was performed and results were expressed in number and percentages. **Results-** Incidence of GDM in our study was 3.06% and mostly required insulin (54.3%), followed by medical nutritional therapy (43.5%) and metformin (13.04%). The most common maternal complication was found to be preterm labor (32.6%) followed by pre-eclampsia and prematurity was the most common fetal complications. Most of the patients in our study delivered by caesarean section (78.3%) with previous caesarean section being the most common indication (44.4%). **Conclusion-** GDM is linked to an increased risk of maternal, fetal, and neonatal problems such as PIH, premature birth, instrumental deliveries, IUFD, Macrosomia, etc. Educating patients about regular prenatal care and good blood glucose monitoring are critical steps in reducing maternal and fetal problems.

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INTRODUCTION

Gestational diabetes mellitus is defined as carbohydrate intolerance of variable severity with onset or first recognition in present pregnancy (ACOG 2013). Diabetes is one of the most common medical complication of pregnancy¹. It complicates 2 to 5% of pregnancies of which 90% is contributed by gestational diabetes mellitus and rest are pregestational diabetics. Compared to white Europeans (5.4%), prevalence rate of GDM has increased to 11 fold in women in India (16.5%)². Most convincing evidence of adverse pregnancy outcome in gestational diabetes was provided by Hyperglycaemia and adverse pregnancy outcome (HAPO) study done in nine countries. Normal pregnancy is a diabetogenic state marked by hyperinsulinaemia and reduced insulin sensitivity at the cellular level. The body's struggle to provide appropriate nutrients for the growing fetus causes this progressive alteration in maternal metabolism³.

Maternal complications in GDM include increased incidence of asymptomatic bacteriuria, urinary tract infections, increased

incidence of pre-eclampsia, polyhydramnios which may increase the incidence of preterm labor, placental abruption and post-partum hemorrhage and increased risk of operative delivery⁴. The various fetal complications include intra uterine death, macrosomia, shoulder dystocia, increase incidence of respiratory distress syndrome, hypoglycemia, hypocalcemia, congenital malformations, polycythemia, hyperbilirubinemia⁵. Long term complications include obesity, development of type 2 diabetes mellitus during childhood, impaired motor functions and higher rates of inattention deficit syndrome.

This present study is being conducted to determine frequency of occurrence of gestational diabetes mellitus and its associated fetomaternal outcomes⁶.

AIMS AND OBJECTIVES

To study fetomaternal outcome in patients with gestational diabetes mellitus at a tertiary care centre.

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MATERIAL AND METHODS

Place of study: Jaipur National University Institute for Medical Science and Research Centre

Duration of study: August 2022 to Sept 2023

Type of study: Retrospective record based study

Sample size: 46

Exclusion criteria: patients with pregestational diabetes, with known medical disorders and twin pregnancy.

Procedure

This retrospective record based study included 46 pregnant women admitted in labor room in Department of Obstetrics and Gynecology between August 2022 to September 2023. Data collection was done from the records maintained by hospital, after permission from the Institutional Ethical Committee.

The diagnosis of GDM was based on DIPSI criteria with cut off value of ≥ 140 mg/dl done either at initial visit or at 28 weeks.

Collected details includes their glycemic status, details of the treatment, mode of delivery, delivery complications, premature births, still births, abortions, birth weight of the child, neonatal ICU admissions.

Statistical Analysis

Data were recorded in the excel sheet and descriptive analysis was performed and results were expressed in number and percentages.

RESULTS

Out of total 1503 deliveries during the study period, 46 were found to be having GDM, which gives incidence of 3.06 %. Among them most required insulin (54.3%), followed by medical nutritional therapy (43.5%), lastly on metformin (13.04%) GDM was found to be more common in 26 to 30 years of age group and multiparous women (G2 –4)

Table 1 showing the age distribution of the cases

MATERNAL AGE IN YEARS	NUMBER OF CASES	%
20-25	3	6.6
26-30	31	67.3
31-35	7	15.2
>35	5	10.9
TOTAL	46	100

Above table shows the age distribution of the cases enrolled in the study with majority of the patients belonging to 26-30 years of age group

Table 2 showing the parity distribution

PARITY	NUMBER OF CASES	%
G1	17	36.9
G2-4	28	60.9
>G4	1	2.2
TOTAL	46	100

Out of the 46 cases, 17(36.9%) were primigravidas and 28(60.9%) were multigravidas (G2-4)

Table 3- showing the various maternal complications

PARAMETERS	NUMBER OF CASES	%
Polyhydraminos	4	8.7
Preterm labor	15	32.6
Pre-eclampsia	11	24
APH	2	4.3
FGR	10	21.7
PPH	2	4.3
Sepsis	0	0
Wound infection	1	2.2
Shoulder dystocia	1	2.2
Obstructed labor	4	8.7

Above table shows distribution of various maternal complications related to GDM , out of which most common maternal complication was found to be preterm labor(32.6%) followed by pre-eclampsia (24%) and FGR (21.7%) .

Table 4 showing the fetal and neonatal complications

S.No.	Parameters		Number of cases	%
1.	POG	<37 weeks	15	32.6
		>37 weeks	31	67.4
2.	APGAR	<7	12	26.1
		>7	34	73.9
3.	BIRTH WEIGHT	<2.5kg	10	21.7
		2.5-3.5kg	32	69.6
		>3.5 kg	4	8.7
4.	IUD		1	2.17
5.	ASPHYXIA		5	10.9
6.	JAUNDICE		2	4.3
7.	NICU ADMISSION		12	26.0

Above table shows distribution of various fetal and neonatal complications related to GDM in the form of prematurity (32.6%), APGAR <7 (26.1%), NICU admission (26%) ,asphyxia (10.9%), macrosomia(8.7%), jaundice (4.3%) and IUD (2.17%). .

Table 5 showing the mode of delivery

	Number	%
Vaginal Delivery	9	19.6
Assisted Vaginal delivery	1	2.2
Caesarean section	36	78.3
a.Fetal distress	5	14
b.Macrosomia	4	11.1
c.obstructed labor	4	11.1
d.Bad Obstetric History	2	5.6
e.CPD	1	2.8
f.Placenta Previa	2	5.6
g.Previous Lscs	16	44.4
h.induction failure	1	2.8
i.NPOL	1	2.8

Above table shows distribution according to mode of delivery. Most of them delivered by caesarean section (78.3%)-previous caesarean section being the most common indication (44.4) followed by fetal distress (14%), macrosomia (11.1%) ,obstructed labor (11.1%).9 (19.6%) delivered vaginally, 1(2.2%) by vaccum assisted delivery.

DISCUSSION

GDM was found to be more common in 26 to 30 years of age group and multiparous women. Incidence of GDM in our study was 3.06 % and mostly required insulin (54.3%),

followed by medical nutritional therapy (43.5%) and metformin (13.04%). The most common maternal complication was found to be preterm labor (32.6%) followed by pre-eclampsia (24%) and FGR (21.7%). The various fetal and neonatal complications related to GDM in our study were prematurity (32.6%), APGAR <7 (26.1%), NICU admission (26%), asphyxia (10.9%), macrosomia(8.7%), jaundice (4.3%) and IUD (2.17%). Most of the patients in our study delivered by caesarean section (78.3%) with previous caesarean section being the most common indication (44.4) followed by fetal distress (14%), macrosomia (11.1%) ,obstructed labor (11.1%), 9 patients (19.6%) delivered vaginally and 1 patient (2.2%) by vaccum assisted delivery. In a study by Shingala et al, it was seen that the incidence of GDM was more in patients age >30 yrs and increased with parity and pre pregnancy BMI and incidence of preterm birth was 32% and incidence of caesarean section was 60%⁷. In a study by Fareed P et al, in a study population of 191 women, prevalence of GDM was 5.72%, and 8.23% needed insulin and 8.23% needed oral hypoglycemic agents and mean birth rate and neonatal hypoglycemia was significantly higher in GDM than in control⁸. In a study by Groof Z et al, prevalence of GDM was 20% and 32% GDM patients underwent caesarean section and the neonates had increased weight and IBN admissions⁹.

SUMMARY

GDM was found to be more common in 26 to 30 years of age group and multiparous women. Incidence of GDM in our study was 3.06 % and mostly required insulin (54.3%), followed by medical nutritional therapy (43.5%) and metformin (13.04%). The most common maternal complication was found to be preterm labor (32.6%) followed by pre-eclampsia (24%) and FGR (21.7%). The various fetal and neonatal complications related to GDM in our study were prematurity (32.6%), APGAR <7 (26.1%), NICU admission (26%), asphyxia (10.9%), macrosomia(8.7%), jaundice (4.3%) and IUD (2.17%). Most of the patients in our study delivered by caesarean section (78.3%) with previous caesarean section being the most common indication (44.4) followed by fetal distress (14%), macrosomia (11.1%) ,obstructed labor (11.1%), 9 patients (19.6%) delivered vaginally and 1 patient (2.2%) by vaccum assisted delivery.

CONCLUSION

GDM is linked to an increased risk of maternal, fetal, and neonatal problems such as PIH, premature birth, instrumental deliveries, IUFD, Macrosomia, etc. Pregnancy counseling can help people with overt diabetes who have good glycemic control avoid problems.

Educating patients about regular prenatal care and good blood glucose monitoring are critical steps in reducing maternal and fetal problems. Universal screening and care by a multidisciplinary team of obstetricians, diabetologists, anesthesiologists, physicians, and neonatologists can reduce fetal- neonatal and mother morbidity and death associated with diabetes pregnancy.

Conflict Of Interest: nil

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