

Prevalence of gestational diabetes mellitus among women attending antenatal clinic of a teaching hospital

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Abstract

Introduction: India is the diabetes capital of the world with 41 million Indians having diabetes. Every fifth diabetic in the world is an Indian. Hence relatively pregnant population is at greater risk for developing diabetes in India and the prevalence is as high as 16.55%. **Materials and methods: Study design** - Retrospective hospital based study was conducted at Department of General Medicine, Maheshwara Medical College & Hospital, Patancheru, Medak District, Telangana. Total of 270 pregnant women who had attended the Antenatal Clinic of a teaching hospital during the period of 3 months (January to March, 2021). Data was obtained from hospital records. Diagnosis of GDM was made according to WHO guidelines. All the pregnant women had undergone oral glucose tolerance test at 24 - 28 weeks of gestation. Blood samples obtained after 8 hours of overnight fast and 1 and 2 hours after 75 g oral glucose load. The diagnosis of GDM was made when any of the following plasma glucose values exceeded: fasting ≥ 92 mg/dL, 1 hour ≥ 180 mg/dL and 2 hours ≥ 153 mg/dL. **Results:** Total of 270 pregnant women were registered and screened for GDM as per records. Of these 270 cases, GDM was detected in 32 antenatal women. Among the antenatal women, maternal complications were seen in 14 (43.8%) of those with GDM and 126 (52.9%) of those without GDM. Statistically, there was no association between GDM and maternal complications. Of 32 cases of GDM 10 (31.25%) cases had normal delivery, while 22 (68.75%) underwent LSCS. **Conclusion:** Among the 270 women, 32 (11.9%) had GDM. Prevalence of GDM was more in the age group of 25 - 31 yrs. and among multigravidae. This gives an insight into groups, which require more attention in terms of screening. Out of 32 cases of GDM, majority underwent LSCS. Of the neonates born to these mothers only 2 was preterm, 2 had low birth weight and neonatal complications were seen in 12 of them. The impact of GDM is emphasized by these findings.

Key Words: diabetes, GDM, multigravidae, LSCS.

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Introduction

India is the diabetes capital of the world with 41 million Indians having diabetes. Every fifth diabetic in the world is an Indian. Hence relatively pregnant population is at greater risk for developing diabetes in India and the prevalence is as high as 16.55% [1].

Gestational Diabetes Mellitus (GDM) is defined as a glucose intolerance resulting in hyperglycaemia of variable severity with onset during pregnancy. The importance of GDM is that two generations are at risk of developing diabetes in the future [2]. Usually, women with gestational diabetes deliver healthy babies, however, without careful management, gestational diabetes can lead to various pregnancy complications, such as preeclampsia or excess foetal growth-which might increase the risk of birth injuries or prompt a C-section delivery [3].

It is estimated by International Diabetes Federation (IDF) that 20.9 million or 16.2% of live births to women in 2015 had some form of hyperglycaemia in pregnancy [4]. An estimated 85.1% of those cases were due to gestational diabetes [5]. To know the prevalence and outcome of GDM in women attending a tertiary care hospital in Hyderabad Region, we have undertaken this study.

Materials and methods

Study design

Retrospective hospital based study.

Study setting

Department of General Medicine, Maheshwara Medical College & Hospital, Patancheru, Medak District, Telangana.

Sample size

Total of 270 pregnant women who had attended the Antenatal Clinic of a teaching hospital during the period of 3 months (January to March, 2021).

Data was obtained from hospital records. Diagnosis of GDM was made according to WHO guidelines. All the pregnant women had undergone oral glucose tolerance test at 24 - 28 weeks of gestation. Blood samples obtained after 8 hours of overnight fast and 1 and 2 hours after 75 g oral glucose load. The diagnosis of GDM was made when any of the following plasma glucose values exceeded: fasting ≥ 92 mg/dL, 1 hour ≥ 180 mg/dL and 2 hours ≥ 153 mg/dL. Pregnant women who were diagnosed with GDM received individualized diet and/or insulin treatment and also underwent periodical clinical and biochemical evaluations every 2 weeks or more frequently when appropriate. Data related to maternal complications and neonatal outcome/complications was also obtained from hospital records.

The data collected was entered and analysed using MS Excel and Epi Info 7. Frequency and percentages were calculated and chi square test used to determine the associated factors.

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Results

Total of 270 pregnant women were registered and screened for GDM as per records. Of these 270 cases, GDM was detected in 32 antenatal women.

Table 1: Distribution of Antenatal Women according to Maternal Complications

GDM	Maternal complications		Total	P value
	Yes	No		
Present	14 (43.8%)	18 (56.2%)	32 (100%)	0.490
Absent	126 (52.9%)	112 (47.1%)	238 (100%)	
Total	140	130	270	

Among the antenatal women, maternal complications were seen in 14 (43.8%) of those with GDM and 126 (52.9%) of those without GDM. Statistically, there was no association between GDM and maternal complications.

Table 2: Distribution of antenatal Women according to Type of Delivery

GDM	Type of delivery				Total
	Normal	LSCS	Vacuum delivery	IUD	
Present	10(31.25%)	22 (68.75%)	0	0	32
Absent	104 (43.69%)	126 (52.94%)	4(1.68%)	4(1.68%)	238
Total	114	148	4	4	270

Of 32 cases of GDM 10 (31.25%) cases had normal delivery, while 22 (68.75%) underwent LSCS.

Table 3: Distribution of Antenatal Women according to Neonatal Outcome

Mother's gestational diabetic status	Neonatal Outcome			
	Preterm	Full Term	IUD	Total
GDM	2	30	0	
No GDM	2	232	4	

Table 4: Distribution of Antenatal Women according to Neonatal Birth Weight

	Birth Weight of Baby (gm)		Total
	<2500	≥2500	
GDM	2(6.2%)	30 (93.8%)	32 (100%)
No GDM	48 (20.2%)	190 (79.8%)	119 (100%)
Total	50	220	270

Of the neonates born to mothers with GDM, 30 (93.75%) were full term and 2 (6.25%) was preterm and only 2 had low birth weight.

Table 5: Distribution of Antenatal Women according to Neonatal Complications

GDM	Neonatal complications		Total	P Value
	Yes	No		
Present	12 (37.5%)	20 (62.5%)	32 (100%)	0.981
Absent	90 (37.8%)	148 (62.2%)	238 (100%)	
Total	102	168	270	

Neonatal complications were seen in 12 (37.5%) neonates born to mothers with GDM. There was no significant association between GDM and neonatal complications.

Discussion

In our study the prevalence of GDM was found to be 11.9%, whereas a study conducted by Seshiah et al showed a prevalence of 13.9%.

Our study found that the prevalence of GDM is more in women of age group of 25 - 31 years (15.4%); this is similar to a community based study in Tami Nadu by Seshiah et al[6].

Our study showed that the prevalence of GDM is more, 22 (16.4%) among multigravida than in primi-gravidae 10 (7.4%), similar to that of a study by Crypryk K et al according to which the prevalence of GDM in multiparous women was 16%[7].

Of 32 cases of GDM, 14 (43.8%) had maternal complications. Incidence of maternal complications was higher in non-GDM women 126 (52.9%). In a study conducted by Zargar A H et al among Kashmiri women, it was seen that maternal complications were more prevalent in mothers with GDM[8].

Our study found that prevalence of low birth weight was 2 (6.2%) in GDM women and prevalence of low birth weight baby in non-diabetic women was 48 (20.2%). In a study conducted by Shefali AK et al, among Asian Indian mothers (CURES - 35), prevalence of low birth weight was 14.3% in neonates of non-diabetic mothers, 12.3% in pre-gestational diabetes and 8.2% in GDM[9,10].

Conclusion

Among the 270 women, 32 (11.9%) had GDM. Prevalence of GDM was more in the age group of 25 - 31 yrs. and among multigravidae. This gives an insight into groups, which require more attention in terms of screening. Out of 32 cases of GDM, majority underwent LSCS. Of the neonates born to these mothers only 2 was preterm, 2 had low birth weight and neonatal complications were seen in 12 of them. The impact of GDM is emphasized by these findings.

Since this is a record based study, the results cannot be extrapolated to the community. It can be achieved with a prospective cohort study with detailed followup for complications and pregnancy outcome.

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