

**Feto-maternal outcome in gestational diabetes mellitus**

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**Abstract**

**Background:** Indian women have 11.3 times higher risk of developing GDM when compared to Caucasians GDM has effects on two generations (mother and her offspring) . Present study was conducted to study the materno-fetal outcome of gestational diabetes.

**Methods:** All women attending antenatal clinic were screened for gestational diabetes according to the ADA criteria. Feto-ateral outcome was studied.

**Results:** Maximum number of women diagnosed to have gestational diabetes was over the age of 36 years (5.45%) whereas minimum number of women was between the ages of 16-20 years. Incidence of GDM was found to be higher in women of high socioeconomic status (8.23%). The incidence of GDM was highest (92.86%) in the women who were Obese-I and lowest (2.27%) in women who had normal BMI. Incidence of gestational diabetes was higher (5.35%) in women residing in urban areas when compared to women residing in rural areas (2.74%). It was observed that multigravidae had higher incidence of gestaional diabetes (3.82%) when compared to primigravidae. (2.87%). Women who had gestational diabetes had higher incidences of antenatal complications such as abruptio placenta (8.82%), pre eclampsia (6.74%) and recurrent vaginal candidiasis (57.14) as compared to

their norm glycemic counterparts. There was higher incidence of LSCS (4.53%) and instrumental deliveries (66.67%) in women who had gestational hyperglycemia. Babies born to women who had gestational hyperglycemia, had higher incidences of macrosomia (34.4%), trauma (66.6%) and fresh still births (16.6%).

**Conclusions:** Women with gestational diabetes as well as their children should be a major area of focus for preventive medicine. Preventive measures against type 2 diabetes mellitus should start during intrauterine period and continue throughout life from early childhood. Since the only expenditure involved is a simple screening blood test, it is recommended that all patients be universally screened for GDM.

**Keywords:** Gestational diabetes, Feto-maternal outcome

**Introduction**

Gestational diabetes mellitus is defined as' any degree of glucose intolerance that either commences or is first diagnosed in pregnancy.<sup>1</sup> The relative risk of developing GDM is 11.3 times in indian women when compared to caucasians.<sup>2</sup> Diagnosis of GDM is of utmost importance because effect of DM on pregnancy has effect on two generations.<sup>3</sup> women with a history of GDM are at increased risk of predominantly type 2 DM

in future, also children born to such women are also at increased risk of developing type 2 diabetes mellitus, with early diagnosis of GDM, morbidity as well as mortality can be reduced.<sup>4</sup> Also, treatment of GDM reduces serious perinatal morbidity and also improves the woman's health related quality of life.

**Aim**

1. To determine frequency of antenatal women with Gestational Diabetes Mellitus (GDM).
2. To determine maternal outcomes in women with GDM.
3. To determine fetal and early neonatal outcomes in women with GDM.

**Materials and Methods**

This is a prospective observational study carried out at Umaid Hospital, Jodhpur, in the Department of Obstetrics and Gynaecology between August 1st 2018 to August 1st 2019. Clearance was taken from the ethical committee. A thorough history was taken and a complete physical examination was performed at the time of presentation. Venous blood sample of all women for fasting blood glucose (FBS) and 2 hour post prandial blood glucose (PPBS) was done. If FBS was found to be >92mg/dl or PPBS was >140mg/dl, then the patient was evaluated further by oral glucose

tolerance test (OGTT) to confirm the diagnosis of GDM. The cut-offs for each glucose level as given by American Diabetes Association (ADA) are as follows: FBS >92mg/dl, 1 Hour >180mg/dl and 2 Hour >153mg/dl.<sup>5</sup> If any one of the above 3 values were found to be abnormal the patient was labeled as GDM. All GDM patients were hospitalized at 37 weeks. Intensive blood sugar monitoring of the patients was done. Labour was induced at 38 weeks whereas LSCS was done for strict obstetric indications. Birth weight, APGAR score, NICU admission and congenital malformations if any were noted. The patients were followed at 6 weeks postpartum for persistence of raised blood sugar values.

**Inclusion Criteria**

1. All pregnant women attending ante-natal clinic

**Exclusion Criteria**

1. Known cases of DM.
2. Women with chronic renal / hepatic/ respiratory diseases.
3. Patients in labour.

**Results**

Out of 7000 women screened, 240 women were found to have gestational diabetes. Hence, prevalence of GDM was 3.42%

Table 1: Demographic details

Age (yrs)	No. of patients	Percentage	Total GDM positive	Incidence of GDM
16-20	1906	27.23	39	2.05
21-25	3200	45.71	120	3.75
26-30	1415	20.21	58	4.10
31-35	369	5.27	17	4.61
<b>Socioeconomic status</b>				
Average	3338	47.69	136	4.07
Below	3431	49.01	85	2.48

Average high	231	3.30	19	8.23
BMI (Kg/m <sup>2</sup> )				
Normal	6822	97.46	155	2.27
Obese-I	42	0.60	39	92.86
Obese-II	4	0.06	2	50
Pre-obese	132	1.89	44	33.33
Residence				
Rural	5149	73.56	141	2.74
urban	1851	26.44	99	5.35
Gravida				
Primigravida	2893	41.33	83	2.87
multigravida	4107	58.67	157	3.82

Table 2-significant past history

Past history	No. of patients	Percent
Bad obstetric history	41	12.56
GDM in previous pregnancy	48	20
Macrosomia	39	16.2
Anomalous baby	35	14.5

Table 3: Correlaation between antenatal complications and GDM

Antenatal complications	No. of patients	Percentage	Total GDM positive	Incidence rate %
Abruptio placenta	34	0.49	3	8.82
Pre eclampsia	430	6.14	29	6.74
Recurrent vaginal candidiasis	14	0.20	8	57.14
Uneventful	6178	88.26	195	3.16
Total	7000	100.00	240	3.43

Table 4: Mode of delivery

Mode of Delivery	No. of patients	Percentage	Total GDM positive	Incidence rate %
Vaginal	4767	68.10	137	2.87
LSCS	2230	31.86	101	4.53
Instrumental	3	0.04	2	66.67
Total	7000	100	240	3.43

Table 5: Fetal outcome

	frequency	Frequency (%)	Total GDM cases	Incidence rate (%)
Birth weight(>4kg)	29	0.38%	10	34.4%
Alive	6994	99.9%	233	
Fresh still birth	06	0.08%	01	16.6%
Neonatal complications				
Gross congenital anomaly	03	0.04%	00	0%
Macrosomia	29	0.38%	10	34.4%
trauma	03	0.004%	02	66.6%

**Results**

Table 1 shows that maximum number of women diagnosed to have gestational diabetes were over the age of 36 years (5.45%) whereas minimum number of women were between the age of 16-20 years. Incidence of GDM was found to be higher in women of high socioeconomic status (8.23%). The incidence of GDM was highest (92.86%) in the women who were Obese-I and lowest (2.27%) in women who had normal BMI. Incidence of gestational diabetes was higher (5.35%) in women residing in urban areas when compared to women residing in rural areas (2.74%). It was observed that multigravidae had higher incidence of gestational diabetes (3.82%) when compared to primigravidae. (2.87%). Table 3 shows that women who had gestational diabetes had higher incidences of antenatal complications such as abruptio placenta (8.82%), pre eclampsia (6.74%) and recurrent vaginal candidiasis (57.14) as compared to their normoglycemic counterparts. Table 4 shows that there was higher incidence of LSCS (4.53%) and instrumental deliveries (66.67%) in women who had gestational hyperglycemia. Table 5 shows that babies born to women who had gestational hyperglycemia, had higher

incidences of macrosomia (34.4%), trauma (66.6%) and fresh still births (16.6%).

**Conclusion**

Women with gestational diabetes as well as their children should be a major area of focus for preventive medicine. Preventive measures against type 2 diabetes mellitus should start during intrauterine period and continue throughout life from early childhood. Since the only expenditure involved is a simple screening blood test, it is recommended that all patients be universally screened for GDM.

**Conclusion**

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