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Prevalence of gestational diabetes mellitus at tertiary care center

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***Abstract*-**

Introduction :
Gestational diabetes mellitus (GDM) is defined as carbohydrate intolerance of varying degree of severity with onset or first recognition during pregnancy.

Aims and objective :
To find out prevalence of GDM in population.

Materials and methods :
Pregnant women(n=232) of 24-28 weeks gestational age attending obs-gynec opd in 2013 underwent 75gm oral glucose tolerance test (OGTT) irrespective of their fasting state. Women with a history of diabetes were excluded from this study. Blood samples were drawn at 2 h for estimating plasma glucose. The plasma glucose was estimated by GOD-POD method and the prevalence of GDM was computed based on DIPSI criteria.

Result:
Among the 232 women screened 32(13.79%) had GDM and among risk factors, higher BMI was significantly associated with GDM. There was no statistically significant difference among age, gestational weeks and gravida of the women in the normal glucose tolerant and GDM groups (P >0.05).

Conclusion:
Due to high prevalence, screening is essential for all Indian pregnant women even in non high risk group. A short term intensive care gives a long term pay off in the primary prevention of obesity, IGT and diabetes in the offspring and helps to avert future diabetes and cardiovascular disease in women.

Index Terms- complication, Glucose challenge test, Gestational diabetes mellitus, oral glucose tolerance test, pregnancy.

I. INTRODUCTION

Gestational Diabetes Mellitus (GDM) is defined as carbohydrate intolerance of varying degree of severity with onset or first recognition during pregnancy, irrespective of the treatment with diet or insulin. The prevalence of diabetes is increasing globally and these numbers include women with GDM. The importance of GDM is that two generations are at risk of developing diabetes in the future. Women with a history of GDM are at increased risk of future diabetes, predominately type 2 diabetes and cardiovascular disease and their children have increased risk for obesity and diabetes. This fact should alert the physicians about the necessity to devote special attention to this segment of population especially in developing countries. A random survey was performed for the first time in 2002 to determine the prevalence of GDM in our country. Of the total number of pregnant women (n=3674) screened, 16.55% were found to have GDM. So we initiated a hospital based survey to ascertain the prevalence of GDM in our population in 2013.

II. AIMS AND OBJECTIVE

- To find out prevalence of GDM in population.
- To screen every pregnant woman irrespective of their fasting state.
- To prevent future complications.

III. MATERIALS AND METHODS

We conducted a prospective screening for GDM in all pregnant women of 24-28 gestational weeks who are attending their antenatal clinic at civil hospital ahmedabad during September 2013 to December 2013(n=232). They underwent 75gm oral glucose tolerance test (OGTT) irrespective of fasting state. Women with a history of diabetes were excluded. Blood samples were drawn at 2 hr for estimating plasma glucose. Glucose was estimated by glucose oxidase peroxidise (GOD-POD) method in the central laboratory and diagnosis of GDM was based on Diabetes In Pregnancy Study group India (DIPSI) criteria. DIPSI recommends 2-h plasma glucose >=140mg/dl with 75gm oral glucose load to diagnose GDM. Details of age, BMI, family history of diabetes and history of previous pregnancies were obtained. The body mass index (BMI) of the subjects was calculated from the pre pregnancy weight and expressed in kg/m2. Informed consent was taken from all the patients. To compare the mean values of GDM and non-GDM groups, Z test was used and two tailed p value < 0.05 was considered statistically significant.

IV. RESULT

Out of 232 women screened at antenatal visit, 32 were diagnosed with GDM and prevalence of GDM was 13.79% (Figure 1).

Characteristics of the women screened with their mean, standard deviation(SD), z test and p value are given in Table 1.

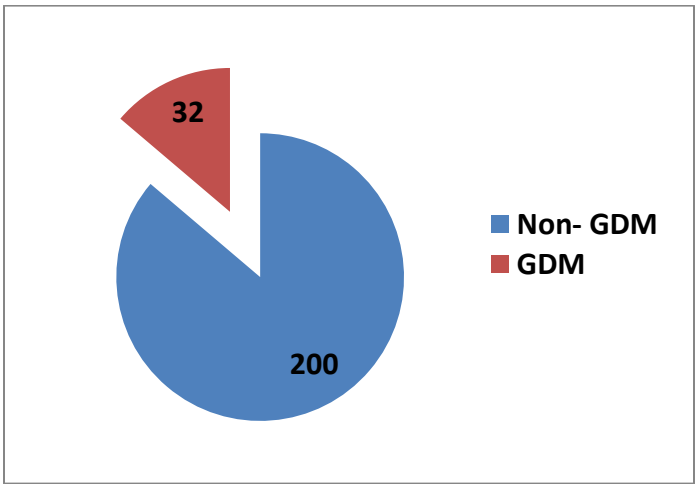

Figure 1 : Prevalence of GDM

Table 1 : Characteristics of women with mean, SD, Z test value and p value

Parameters	GDM group N=32 Mean +/- SD	Non-GDM group N=200 Mean +/- SD	Z test value	P value
Gestational weeks	26.5 +/- 1.77	26 +/- 1.48	1.51	0.12
Age (years)	24.37 +/- 2.44	24.96+/-3.04	1.22	0.22
Gravida	2.62 +/- 1.06	2.6 +/- 1.06	0.09	0.92
BMI(kg/m2)	24.63 +/- 2.51	20.26+/-3.67	8.50	<0.0001

In our study for BMI in GDM and non-GDM groups p value is <0.05 which is statistically significant which is suggestive of higher prevalence of GDM in women with higher BMI than in non-GDM group.

For gestational weeks, age and gravida p value is not <0.05. So statistically there is no significant difference between two groups and their characteristics.

V. DISCUSSION

GDM occurs when body cannot make enough insulin to meet the rising amounts that woman needs during pregnancy or body cannot use the insulin efficiently. It occurs when the woman's beta cell function is not able to overcome the antagonism created by the anti-insulin hormones of pregnancy and the increased fuel consumption required to provide for the growing fetomaternal unit. In this study, we preferred to perform universal screening as selective screening based on risk factors scored poorly in predicting GDM. Universal screening for GDM detects more cases and improves maternal and offspring prognosis compared to selective screening. It appears to be the most reliable and desired method for the detection of GDM, particularly in those populations with high risk for GDM. For universal screening, the test should be simple and cost effective.

The two step procedure of screening with 50g Glucose challenge test (GCT) and then diagnosing GDM based on Oral Glucose Tolerance Test (OGTT) is not feasible in our country, because the pregnant women may have to visit the antenatal clinic twice and at least 3-5 blood samples have to be drawn. One step screening by DIPSI criteria is easy to perform besides being economical. Established risk factors for GDM are advanced maternal age, obesity and family history of diabetes. In our study, data confirmed that increased BMI is a risk factor for GDM. Of all the independent risk factors for GDM, BMI emerged as a modifiable risk factor. They are the ideal group to be targeted for lifestyle modification or pharmacologic intervention in order to delay or postpone the onset of overt diabetes. Hence an important public health priority in the prevention of diabetes is to address maternal health both during ante and post partum period. GDM provides a unique model in which treatment for a medical condition(GDM) acts as prevention for another condition(future diabetes in the mother) and also acts as prevention for condition in another person(future diabetes in the new born child). Lifestyle changes, dietary changes and physical activity lead to modest weight reduction and decrease prevalence of GDM. Small steps can lower diabetes risk and the chance of having a successful pregnancy is about the same as a non-diabetic woman when blood sugars are kept at the normal level.

VI. CONCLUSION

GDM can adversely affect both the mother and the baby and should be taken seriously. Due to high prevalence, screening must be done for all Indian pregnant women even in non high risk group.

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