Original Article

Assessment Of Gestational Diabetes Mellitus And Associated Factors Among Women Attending Antenatal Care

Dr. Sanjay Kumar Patil[1], Dr. Yamini Patil[2]*, Dr. Gauri Shinde/Pawar[3], Dr. Manisha Laddad[4]

[1]Professor, Department of Obstetrics and Gynaecology, KIMS, Karad, Maharashtra, India
[2,4]Associate Professor, Department of Obstetrics and Gynaecology, KIMS, Karad, Maharashtra, India
[3]Assistant Professor, Department of Obstetrics and Gynaecology, KIMS, Karad, Maharashtra, India

***Corresponding Author:** Dr. Yamini Patil

*Associate Professor Department of Obstetrics and Gynaecology, KIMS, Karad, Maharashtra, India Email: dryspmaher@gmail.com
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Abstract

Background: GDM is defined as glucose intolerance of varying degree with onset or first recognition during pregnancy. The present study was conducted to assess prevalence of gestational diabetes mellitus and associated factors among women attending antenatal care.

Materials & Methods: 74 pregnant women with estimatedgestational age between24th and 28th weeks attendingAntenatal care were included. Parameters such as education level, parity, family history of diabetes and/or hypertension and past history of GDM was recorded. Various risk factors were recorded.

Results: Age group16-20years had 12, 21-25 years had 34, 26-30 years had 18 and >30 years had 10 patients. Parity0 was seen in 42, 1 in 25, 2 in 4 and >3 in 3 patients. BMI <18.5Kg/m2 was seen in 22, 18.5-24.9Kg/m2 in 40 and >25Kg/m2 in 12 patients. The difference was significant (P< 0.05). A positive correlation of age >25 years, BMI >25 kg/m2, family history of HTN, family history of DM and past history of GDM with GDM. The difference was significant (P< 0.05).

Conclusion: Risk factors for gestational diabetes mellitus was age >25 years, BMI >25 kg/m2, family history of HTN, family history of DM and past history of GDM.

Key words: gestational diabetes mellitus, hypertension, hyperglycemia

INTRODUCTION

Diabetes is a complex metabolic disorder characterized by chronic hyperglycemia. There are different types of diabetes: Type I Diabetes Mellitus (TIDM), Type II Diabetes Mellitus (TIIDM) and Gestational Diabetes Mellitus (GDM).[1] The number of people with diabetes is steadily increasing globally in recent decades. The prevalence is growing most rapidly in low- and middle-income countries. Associated risk factors such as being overweight or obese are also increasing.[2]

GDM is defined as glucose intolerance of varying degree with onset or first recognition during pregnancy.[3] Prevalence of gestational diabetes mellitus varies widely. Depending on the population studied and the diagnostic test employed, prevalence may range from 2.4 to 21 per cent of all pregnancies. In India it is difficult to predict any uniform prevalence levels because of wide differences in living conditions, socioeconomic levels and dietary habits.[4]

The consequences of unmanaged GDM in pregnancy can be severe both to the mother and the newborn and includes an increased risk for Preeclampsia, hydraminos, fetal macrosomia, fetal organomegaly, birth trauma, caesarean section, obstructed labor, perinatal mortality, neonatal respiratory problems and metabolic complications (hypoglycemia, hyperbilirubinemia, hypocalcemia), increased risks of miscarriage and congenital anomalies which can be especially serious in low-resource settings.[5,6]The present study was conducted to assess prevalence of gestational diabetes mellitus and associated factors among women attending antenatal care.

MATERIALS & METHODS

The present study comprised of 74 pregnant women with estimatedgestational age between24th and 28th weeks attendingAntenatal care. All gave their written consent for the participation in the study.

Data such as name, ageetc. Was recorded. Parameters such as education level, parity, family history of diabetes and/or hypertension and past history of GDM was recorded. American Diabetes Association (ADA) criteria for 75 g 2-h OGTT

was used for diagnosing GDM. Various risk factors were recorded. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Baseline parameters

Parameters	Variables	Number	P value
Age group (years)	16-20	12	0.09
	21-25	34	
	26-30	18	
	>30	10	
Parity	0	42	0.02
	1	25	
	2	4	
	>3	3	
BMI (Kg/m^2)	<18.5	22	0.04
	18.5-24.9	40	
	>25	12	

Table I, graph I shows that age group 16-20years had 12, 21-25 years had 34, 26-30 years had 18 and >30 years had 10 patients. Parity0 was seen in 42, 1 in 25, 2 in 4 and >3 in 3 patients. BMI <18.5Kg/m2 was seen in 22, 18.5-24.9Kg/m2in 40 and >25Kg/m2in 12 patients. The difference was significant (P< 0.05).

Graph I Baseline parameters

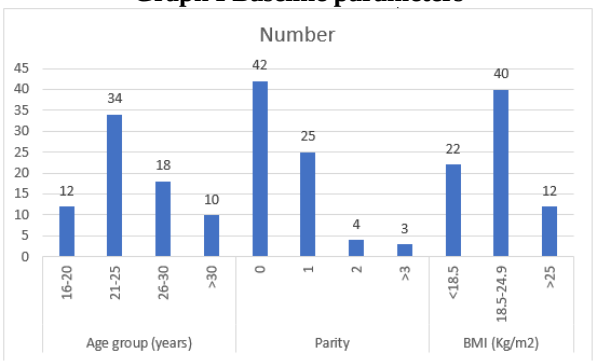

Table II Odds ratio for risk factors found to be associated with GDM

Parameters	%	Odd ratio	P value
Age >25 years	25%	3.2	0.01
BMI >25 kg/m2	11%	4.9	0.03
Family history of HTN	10%	2.4	0.02
Family history of DM	21%	2.1	0.05
Past history of GDM	4%	25.4	0.01

Table II shows positive correlation of age >25 years, BMI >25 kg/m2, family history of HTN, family history of DM and past history of GDM with GDM. The difference was significant (P< 0.05).

DISCUSSION

The prevalence of diabetes mellitus (DM) is increasing worldwide and more in developing countries including India.[7,8] The increasing prevalence in developing countries is related to increasing urbanization, decreasing levels of physical activity, changes in dietary patterns and increasing prevalence of obesity.[9,10] As women with gestational diabetes mellitus (GDM) and their children are at increasedrisk of developing diabetes mellitus in future, special attention should be paid to this population especially in developing countries.[11]The present study was conducted to assess prevalence of gestational diabetes mellitus and associated factors among women attending antenatal care.

We found that age group16-20years had 12, 21-25 years had 34, 26-30 years had 18 and >30 years had 10 patients. Parity0 was seen in 42, 1 in 25, 2 in 4 and >3 in 3 patients. BMI <18.5Kg/m2 was seen in 22, 18.5-24.9Kg/m2 in 40 and >25Kg/m2 in 12 patients. Rajput et al[12]determined the prevalence of GDM and risk factors associated with it. A total of 607 women participated in the study and GDM was diagnosed in 43 (7.1%) women. A single abnormal value was observed in additional 66 (10.87%) women. On bivariate analysis risk factors found to be significantly associated with GDM were age, educational level, socio-economic status, pre-pregnancy weight and BMI, weight gain, acanthosis nigricans, family history of diabetes or hypertension and past history of GDM but on multivariate analysis only upper middle class and presence of acanthosis nigricans were found to be significantly associated with GDM.

We found a positive correlation of age >25 years, BMI >25 kg/m2, family history of HTN, family history of DM and past history of GDM with GDM.Muche et al[13]determined the prevalence of GDM and associated factors among women attending antenatal care. Of the total 1027 pregnant women, 12.8% (95% CI: 10.8–14.8) were diagnosed with GDM. Overweight and/or obesity (MUAC ≥28 cm), previous history of GDM, family history of diabetes, low physical activity, inadequate dietary diversity and antenatal depression were significantly associated with GDM. Conclusions: The prevalence of GDM among women attending antenatal care at Gondar town public health facilities was high. Previous history of GDM, antenatal depression, family history of diabetes, low physical activity, overweight and/ or obesity and inadequate dietary diversity were significantly associated with GDM. Routine screening of pregnant women and healthy lifestyle are strongly recommended.

Nigatu et al[14] found the prevalence of GDM among the study population was 16.9%. Factors that affect prevalence of GDM were age group (AOR=2.75, 95% CI: 1.03, 7.35 for 30–34 years old and AOR=4.98, 95% CI: 1.703, 14.578 for≥35 years old) and BMI (AOR=2.23, 95% CI: 1.21, 4.11). Conclusions: The prevalence of GDM among the study population is higher than previous reports in Ethiopia and even in other countries. This implies that these women and their newborns might be exposed to increased risk of immediate and long- term complications from GDM including future risk of GDM and Type II Diabetes Mellitus.
The limitation the study is small sample size.

Conclusion

Authors found that risk factors for gestational diabetes mellitus was age >25 years, BMI >25 kg/m2, family history of HTN, family history of DM and past history of GDM.

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