Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr UGC approved journal no. 63854

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805 Index Copernicus value = 76.77

Original Article

Assessment of cases of gestation diabetes mellitus

Naveen Goyal[1], Sarika Gupta[2]

[1]Assistant Professor, Department of Medicine, Venkateshwara Institute of Medical Sciences, Uttar Pradesh, India;
[2]Assistant Professor, Department of Obstetrics and Gynaecology Venkateshwara Institute of Medical Sciences, Uttar Pradesh, India

ABSTRACT:
Background: Gestational diabetes mellitus (GDM) is characterized by intolerance to glucose that is first detected during pregnancy. The present study was conducted to assess cases of gestation diabetes mellitus. **Materials & Methods:** 62 pregnant women diagnosed with gestational diabetes were taken and general physical and local examination was conducted. Assessment of HbA1c levels and 1st hour OGTT values was recorded. **Results:** Gravida was primi in 10 and 12, 2nd in 4 and 15, 3rd in 6 and 8, 4th or above in 2 and 5 in GDM with pre- eclampsia and GDM without pre- eclampsia patients respectively. The mean 1st hour OGTT values in GDM with PE was 199.2 mg/dl and 172.4 mg/dl in GDM without PE and mean HbA1c levels was 7.90% and 7.12% in GDM with PE and in GDM without PE respectively. The difference was non-significant (P> 0.05). **Conclusion:** Early diagnosis of cases of gestational diabetes may help preventing pre- eclampsia.
Key words: pre- eclampsia, gestational diabetes, glucose tolerance.

Received: 12 June 2018 Accepted: 27 July 2018

Corresponding author : Dr. Sarika Gupta, Assistant Professor, Department of Obstetrics and Gynaecology Venkateshwara Institute of Medical Sciences, Uttar Pradesh, India

This article may be cited as: Goyal N, Gupta S. Assessment of cases of gestation diabetes mellitus. J Adv Med Dent Scie Res 2018;6(8):154-156.

INTRODUCTION

Gestational diabetes mellitus (GDM) is characterized by intolerance to glucose that is first detected during pregnancy. Its prevalence ranges between 2% and 25% depending on the characteristics of the population and the methods used for diagnosis and screening.[1] No consensus exists regarding an optimal and internationally acceptable test for both diagnosis and screening. Several studies have demonstrated the relationship between GDM and adverse short- and long-term maternal–fetal outcomes.[2]

Gestational diabetes mellitus (GDM) is defined as glucose intolerance first recognized during pregnancy. GDM has been reported to affect between 1.4% to 12.3% of pregnancies, and its prevalence is increasing and parallels the rising incidence of type 2 diabetes mellitus worldwide.[3] Risk factors for developing GDM in pregnancy include obesity, previously GDM, glycosuria, family history, ethnicity and hypertension. Arguably, one of the strongest non-modifiable risk factors for GDM relates to the woman's ethnicity.[4] Pre-eclampsia is a leading cause of maternal and fetal morbidity and mortality. In developed countries, this syndrome affects 2-7% of pregnancies in non-diabetic women. Type 1 diabetes, type 2 diabetes and gestational diabetes further increase preeclampsia risk. Preeclampsia is diagnosed in women presenting with new onset hypertension and proteinuria during the second half of pregnancy.[5]

Screening for GDM after the 24th gestational week and diagnosing GDM at the end of the 2nd trimester have been questioned because of the possible delay in achieving the positive effects of pharmacological therapy, diet, and exercise.[6] The present study was conducted to assess cases of gestation diabetes mellitus.

MATERIALS & METHODS

The present study was conducted among 62 pregnant women diagnosed with gestational diabetes. Diagnosis was performed according to International Association of Diabetes and Pregnancy study groups [IADPSG]-2011 and American Diabetes Association [ADA] recommendations.

Patient's details and history were taken and general physical and local examination was conducted.

Assessment of HbA1c levels and 1st hour OGTT values was recorded. The subjects were followed till 6 weeks postnatally. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients based on Gravida

Gravida	GDM with pre- eclampsia	GDM without pre- eclampsia	P value
Primi	10	12	002
2nd	4	15	
3rd	6	8	
4th or above	2	5	
Total	22	40	

Table I shows that gravida was primi in 10 and 12, 2nd in 4 and 15, 3rd in 6 and 8, 4th or above in 2 and 5 in GDM with pre- eclampsia and GDM without pre- eclampsia patients respectively. The difference was significant (P< 0.05).

Graph I Distribution of patients based on Gravida

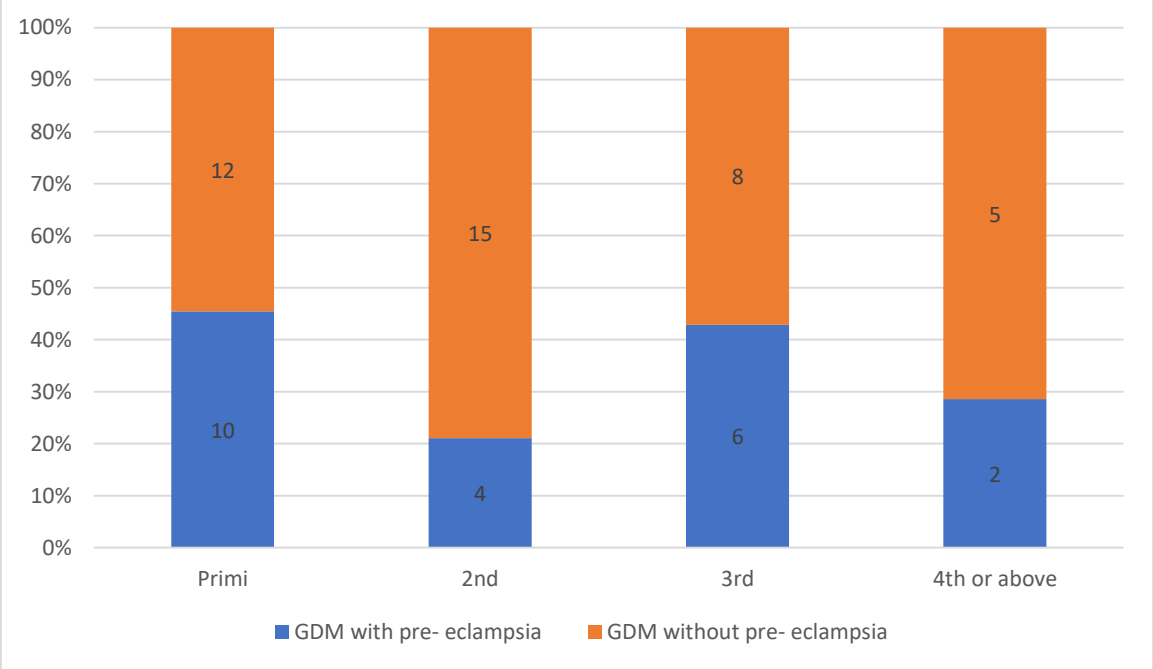

Table II Comparison of parameters

Parameters	GDM with PE	GDM without PE	P value
1st hour OGTT values	199.2	172.4	0.14
HbA1c levels	7.90	7.12	0.12

Table II shows that mean 1st hour OGTT values in GDM with PE was 199.2 mg/dl and 172.4 mg/dl in GDM without PE and mean HbA1c levels was 7.90% and 7.12% in GDM with PE and in GDM without PE respectively. The difference was non- significant (P> 0.05).

DISCUSSION

The importance of strict metabolic control, started before conception or soon after the first antenatal visit, is widely known to help prevent pregnancy complications among women with pregestational diabetes mellitus.[7] Gestational diabetes mellitus, in contrast, is a heterogeneous entity that includes women with pregnancy-induced glucose intolerance and women with previously undiagnosed overt diabetes discovered during pregnancy.[8] Despite reports that claim between 40% and 66% of cases of so-called gestational diabetes could be detected during early pregnancy, there have been conflicting reports on the usefulness of glucose screening at the first antenatal visit.[9] The present study was conducted to assess cases of gestation diabetes mellitus.

In present study, gravida was primi in 10 and 12, 2nd in 4 and 15, 3rd in 6 and 8, 4th or above in 2 and 5 in

GDM with pre- eclampsia and GDM without pre-eclampsia patients respectively. Bartha et al[10] study was undertaken to compare pregnancy complications, obstetric outcomes, and perinatal outcomes between women with early-onset and late-onset gestational diabetes mellitus. Fifty-gram oral glucose challenge screening was conducted among 3986 pregnant women at the time of their first antenatal visit. Women without abnormal results underwent another test at 24 to 28 weeks' gestation. Patients with gestational diabetes mellitus in early pregnancy were compared with those who had a normal glucose tolerance at the time of this first test but in whom diabetes subsequently developed. Women with early-onset gestational diabetes mellitus (n = 65) were likely to be hypertensive (18.46% vs 5.88%; P = .006) and had higher glycemic values and need for insulin therapy (33.85% vs 7.06%, P = .0000) than those in whom diabetes developed later (n = 170). All the cases of neonatal hypoglycemia (n = 4) and all perinatal deaths (n = 3) were within this group (P = .005 and P = .01, respectively).

We found that mean 1st hour OGTT values in GDM with PE was 199.2 mg/dl and 172.4 mg/dl in GDM without PE and mean HbA1c levels was 7.90% and 7.12% in GDM with PE and in GDM without PE respectively. Goldman et al[11] evaluated the rate of preeclampsia with the severity of gestational diabetes mellitus. For the study, they selected 50 pregnant women diagnosed with gestational diabetes from the department of gynecology. The subjects for followed up till the delivery of child for development of preeclampsia. After routine blood work and general examination, preeclampsia was seen 17 patients. The results were compared and were found to be statistically non-significant. Primi gravida was seen in 16 patients, second gravid was seen in 14 patients, third gravid was seen in 11 patients and Fourth and above gravid was seen in 9 patients.

Kumru et al[12] found that the SHBG, LDL, and TG levels were found to be the significant independent markers for GDM [adjusted odds ratio (OR) = 0.991; 95% confidence interval (CI), 0.986–995; OR = 1.56; 95% CI, 1.24–1.98; OR = 1.02; 95% CI, 1.01–1.04; and OR = 1.01; 95% CI, 1.00–1.02, respectively]. The HbA1c, BMI values were non-independent predictors of GDM. The areas under the ROC curve used to determine the predictive accuracy of SHBG, HOMA, TG, and LDL-C for development of GDM were 0.73, 0.75, 0.70, and 0.72, respectively. For a false positive rate of 5% for the prediction of GDM, the values of the sensitivities were 21.1, 26.3, 21.1, and 18.4%, respectively.

CONCLUSION

Authors found that early diagnosis of cases of gestational diabetes may help preventing pre-eclampsia.

REFERENCES

1. Redman CW, Roberts JM. Management of pre-eclampsia. The Lancet. 1993;341(8858):1451–1454.
2. Roberts JM. Preventing pre-eclampsia. The Lancet. 1996;348(9023):281–282.
3. Roberts JM, Cooper DW. Pathogenesis and genetics of pre-eclampsia. The Lancet. 2001;357(9249):53–56.
4. Sibai BM, Caritis S, Hauth J, Lindheimer M, VanDorsten JP, MacPherson C, Klebanoff M, Landon M, Miodovnik M, Paul R, Meis P, Dombrowski M, Thurnau G, Roberts J, McNellis D. Risks of preeclampsia and adverse neonatal outcomes among women with pregestational diabetes mellitus. National Institute of Child Health and Human Development Network of Maternal-Fetal Medicine Units.Am J Obstet Gynecol. 2000 Feb;182(2):364-9.
5. Caritis S, Sibai B, Hauth J, Lindheimer MD, Klebanoff M, Thom E, VanDorsten P, Landon M, Paul R, Miodovnik M, Meis P, Thurnau G. Low-dose aspirin to prevent preeclampsia in women at high risk. National Institute of Child Health and Human Development Network of Maternal-Fetal Medicine Units.N Engl J Med. 1998 Mar 12;338(11):701-5.
6. Lee J, Ouh YT, Ahn KH, Hong SC, Oh MJ, Kim HJ, Cho GJ. Preeclampsia: A risk factor for gestational diabetes mellitus in subsequent pregnancy. PLoS One. 2017 May 22;12(5):e0178150.
7. Sibai BM, Caritis SN, Hauth JC, MacPherson C, VanDorsten JP, Klebanoff M, Landon M, Paul RH, Meis PJ, Miodovnik M, Dombrowski MP, Thurnau GR, Moawad AH, Roberts J. Preterm delivery in women with pregestational diabetes mellitus or chronic hypertension relative to women with uncomplicated pregnancies. The National institute of Child health and Human Development Maternal- Fetal Medicine Units Network.Am J Obstet Gynecol. 2000 Dec;183(6):1520-4.
8. Lucas MJ, Lowe TW, Bowe L, McIntire DD. Class A1 gestational diabetes: a meaningful diagnosis? Obstet Gynecol 1993;82: 260-5.
9. Hunter DS, Kierse MJ. Gestational diabetes. In: Chalmers I, Enkin M, Kierse MJ, editors. Effective care in pregnancy and childbirth. New York: Oxford University Press; 1991;403- 10.
10. Bartha JL, Martinez-Del-Fresno P, Comino-Delgado R. Gestational diabetes mellitus diagnosed during early pregnancy. American journal of obstetrics and gynecology. 2000 Feb 1;182(2):346-50.
11. Goldman JA, Dicker D, Feldberg D, Yeshaya A, Samuel N, Karp M. Pregnancy outcome in patients with insulin-dependent diabetes mellitus with preconceptional diabetic control: a comparative study. Am J Obstet Gynecol. 1986;155:293-7.
12. Kumru P, Arisoy R, Erdogdu E, Demirci O, Kavrut M, Ardıc C, Aslaner N, Ozkoral A, Ertekin A. Prediction of gestational diabetes mellitus at first trimester in low-risk pregnancies. Taiwanese Journal of Obstetrics and Gynecology. 2016 Dec 1;55(6):815-20.