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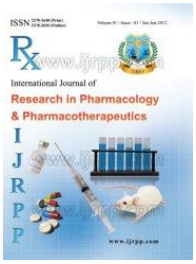

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Study on the prevalence of gestational diabetes mellitus at a tertiary care hospital

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ABSTRACT

The prevalence of diabetes is increasing globally. Women with Gestational Diabetes Mellitus are an ideal group for the primary prevention of diabetes as they are at increased risk of future diabetes, predominantly type 2 diabetes, as are their children. A prospective observational study was carried out in gynaecology department over a period of 6 months enrolling 150 patients. The study was carried out to identify the prevalence of GDM, to assess the prescribing pattern of anti-diabetic drugs in GDM, to identify the risk factors involved, to assess the patient's level of knowledge about diabetes and to provide patient counselling. 106 patients were diagnosed with GDM. Most commonly prescribed anti-diabetic drugs were metformin followed by insulin. The risk factors identified were age above 30 years, obesity, family history and prediabetes. The occurrence of maternal and neonatal complications in the GDM patients were observed and most frequent complication found was caesarean in 49 cases. The assessment of distribution of patients based on gestation period revealed that patients at gestational age of 24-26 weeks of pregnancy were more frequently diagnosed with GDM. A standard questionnaire was used to assess the level of knowledge about diabetes in GDM patients. Based on the level of knowledge, the patients were educated regarding the disease and lifestyle modification with the help of patient information leaflet. . The severity of drug interactions were evaluated and found that 13 prescriptions had major interactions, followed by 36 moderate interactions and 12 minor interactions. The present study points out the role of a clinical pharmacist in improving the patient care and overall quality of life in GDM patients.

Keywords: Gestational Diabetes Mellitus, Prediabetes, Gestation period, Quality of life.

INTRODUCTION

The prevalence of diabetes is increasing globally and India is no exception. The lifestyle modification and drug intervention are likely to delay or postpone the development of overt diabetes in persons diagnosed to have impaired glucose tolerance. GDM prevalence has been reported to vary between 1%−28%, while the International Diabetes Federation (IDF) estimates that one in six live births are to women with some form of hyperglycaemia in pregnancy; 16% of these may be due to DIP, while the majority (84%) is related to GDM.

Studies have shown that women, who have had gestational diabetes, are predisposed to diabetes later in life. This may be more related to their Body Mass Index (BMI) and unhealthy lifestyles. Recent data show that gestational diabetes mellitus (GDM) prevalence has increased by 10-100% during the past 20 years. With gestational diabetes, up to 15 percent pregnant women suffer worldwide and in India an estimated four million women suffer from the pregnancy complications. GDM occurred more frequently among women who were over 35 years old, obese, women who have a prior history of neonatal death, history of prior preterm delivery, prior caesarean section and history of prior major fetal anomaly. Most of the women suffering from GDM are not aware about the disease and its management. Hence the current study was undertaken to achieve the objectives such as to find out the prevalence of gestational diabetes mellitus, to evaluate the prescribing pattern of anti-diabetic drugs, to identify the risk factors for gestational diabetes, to assess the level of knowledge about diabetes and provide counselling on disease, medications, management and life style modifications.

MATERIALS AND METHODS

Study Site: Gynaecology Department
Study Design: Prospective observational study
Sample Size: 150 patients
Inclusion Criteria: Women with gestation age of 24 weeks and above are included in the study.
Exclusion Criteria: Women who are not willing to participate in the study are excluded.

METHODS

The data was collected during regular ward round participation in the department of OBG. The prescriptions were individually screened to assess the prevalence of GDM, prescribing pattern of anti-diabetic drugs, risk factors concerning GDM. A standard questionnaire was prepared to assess the level of knowledge about diabetes in GDM patients. The knowledge of patients about GDM was assessed based on their score obtained during study. The score was given by assigning one point for each correct response. We considered a score of 7-10 as 'Good Knowledge', 4-6 as 'Moderate Knowledge' and 0-3 as 'Poor Knowledge'. After baseline assessment, patients were educated regarding the disease and lifestyle modification with the help of patient information leaflet designed for the study. Drug interactions in the prescription were identified using the Micromedex drug database.

RESULTS

In the current study the prevalence of GDM was 70.6% and 29.3% were classified as non – GDM group (Figure 1). The family history of DM in patients with GDM are shown in table 1. Age wise distribution of the GDM patients were analysed and it was found that more number of patients were between the age group above 30 years. The risk factors observed in the current study were age above 30 years, obesity, family history and prediabetes (Table 2). On analysing the gravidity status of the GDM patients, 61.3% were categorised as multigravida and 38.6% were primigravida. Table 3 shows that 53.7% were diagnosed with GDM at 24-26 weeks followed by other gestational age. The maternal and neonatal complications observed during the study were preterm birth, macrosomia, caesarean delivery presented in table 4. On analysing the prescription pattern of hypoglycemics, it was found that 58.4% of the prescriptions were prescribed with metformin, 37.7% with insulin and 13.2% with both metformin and insulin (Table 5). Patients were assessed for the level of knowledge and was found to be good for 36.7% patients, moderate for 56.6% and poor for 6.6% of GDM patients (Figure 2). A total of 61 drug interactions were identified. Among that 13 of the interactions had major severity, 36 of the interactions had moderate severity and 12 come under minor interactions (Table 6).

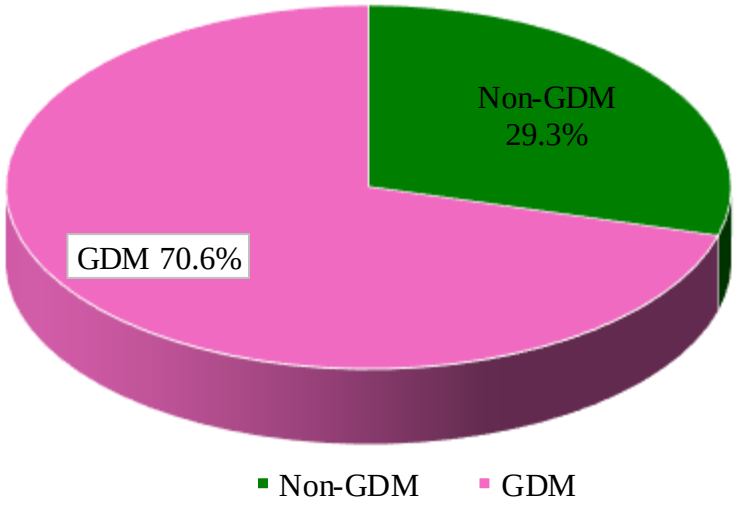

Figure no. 1 Prevalence of GDM

Table no. 1: Family history of DM

Family History	GDM	Non-GDM
Present	57 (53.7%)	13 (29.5%)
Absent	49 (46.2%)	31(70.4%)

Table no. 2: Risk factors

Risk Factors	No. of cases
Age > 30	48
Obesity	17
Family history	57
Pre-diabetes	10

Table no. 3: Period of gestation

Gestational Period	Percentage
24-26 weeks	53.7%
27-29 weeks	21.6%
Above 30 weeks	24.5%

Table no. 4: maternal and neonatal complications

Complications	No. of cases
Preterm Birth	25
Macrosomia	22
Caesarean delivery	49

Table no. 5: Antidiabetic drugs prescribed

Antidiabetic drugs	Percentage (%)
Insulin	37.7
Metformin	58.4
Both insulin and metformin	3.7

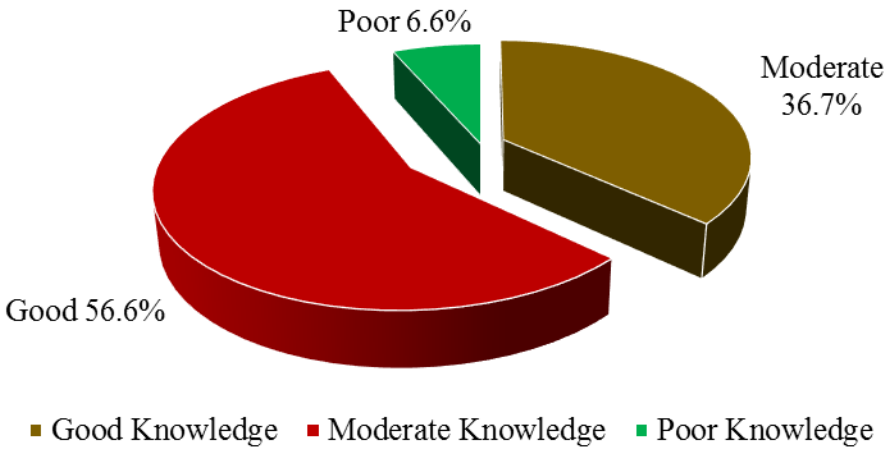

Figure no. 2: Assessment of patient's level of knowledge

Table no: 6: Major drug interactions

Sl.No.	Drugs	No. of prescriptions	Severity
1.	Labetalol+Methyldopa	1	Major
2.	Diclofenac+ Enoxaparin	2	Major
3.	Diclofenac+Dalteparin	5	Major
4.	Meperidine+Tramadol	2	Major
5.	Metoclopramide+Tramadol	2	Major
6.	Metronidazole+Domperidone	1	Major

DISCUSSION

In the present study, 150 patients were selected as per the inclusion criteria. The prevalence of GDM in the current study was comparable with a study conducted by *Malik Waseem Raja et al (2013)* [3] who reported the prevalence rate of GDM as 7.8 %.

Patients with family history in the current study were more predominant (53.7%) to get gestational diabetes. A similar report was published by *Prema Prabhudev et al (2015)* [6] revealed that GDM was more amongst subjects with a family history of diabetes (60.86%). Age distribution of GDM patients were analysed and found that majority of the prescriptions were in the age group of above 30 years which was comparable with the study done by *X. Xiong et al (2001)* [4] which shows that the risk for GDM increases as age increases. Various risk factors such as age above 30 years, obesity, family history and prediabetes were identified in the study population which made them more prone to get affected with diabetes was comparable with the study conducted by *X. Xiong et al (2001)* [4].

The assessment of distribution of patients based on period of gestation revealed that patients at gestational age of 24-26 weeks of pregnancy were more frequently diagnosed with GDM. A study conducted by *Andrea huidobro et al (2010)*[5] revealed that women who develop GDM in their second trimester of pregnancy have known risk factors for diabetes mellitus. The occurrence of maternal and neonatal complications in the GDM patients were observed and most frequent complication found was caesarean delivery.

As per the study, the most commonly used antidiabetics were metformin followed by insulin. A similar study conducted by *Nalinee Poolsup et al (2014)* [1] revealed that metformin seems to be an efficacious alternative to insulin and a better choice than glyburide especially in those patients with mild form of disease. The results of patients level of knowledge about GDM in the current study was comparable with the study conducted by *Zahid Hussain et al (2014)* [2] concluding that higher knowledge about GDM is related to better glycaemic control.

CONCLUSION

The results demonstrated the positive impact of clinical pharmacist in achieving a primary therapeutic goal in the GDM patients for overall blood glucose control. The improved quality of life scores clearly indicated the benefits of pharmacist-provided counselling and the importance of consultations with a pharmacist in a hospital setting. The pharmaceutical care provided by the clinical pharmacist to the GDM patients was effective in reducing the blood glucose levels and lifestyle modification were advised to improve their overall quality of life. Thus, the clinical pharmacist plays a crucial role in improving the knowledge and in turn the quality of life of GDM patients.

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