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THE PERVASIVENESS OF GESTATIONAL DIABETES IN PATIENTS ATTENDING DIABETIC CLINIC OF JINNAH HOSPITAL LAHORE

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Abstract;

Aim: *This study was designed to determine the prevalence of gestational diabetes (GDM) in patients attending the Diabetes Outpatient Clinic.*

Methods: *With gestational age of 24 to 28 weeks with or without risk factors. For screening with blood glucose cutoff> 130 mg / dL (7.2 mmol / L) a 50 g glucose challenge test was used.*

Place and Duration: *This was a prospective hospital study held in the Medicine Unit-II and Obstetrics and Gynecology department of Jinnah Hospital Lahore for one-year duration from May 2019 to May 2020.*

Results and conclusion: *Of the 405 women, seventy-two women were screened positive and the 100 g oral glucose tolerance test was offered, and seventeen women were diagnosed with gestational diabetes. Eight women were classified as having impaired blood glucose levels, while gestational diabetes is more common in high-risk groups. The entire method was applied to the pregnant female, regardless of the last meal. Age between 20-40 years of age, avoiding severe disease and diagnosed diabetes.*

Key words: *gestational diabetes, diabetic clinic and impaired blood glucose levels.*

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INTRODUCTION:

Diabetes mellitus is a heterogeneous primary disorder of carbohydrate metabolism with multiple etiological factors, which generally include absolute or relative insulin deficiency, insulin resistance, or both[1]. The causes of A11 diabetes eventually lead to hyperglycemia, which is the hallmark of this syndrome. Gestational diabetes refers to diabetes that develops during pregnancy and resolves after delivery (Kumar and Clark, 2002). It is defined as the occurrence of hyperglycemia in a previously diabetic pregnant woman[2-3]. Most of these people develop overt type 2 diabetes over time. In the US, there are between 30,000 and 90,000 cases of gestational diabetes annually (Freinkle, 1980). Hormonal and metabolic changes in pregnancy cause glucose intolerance in the second half of pregnancy in 2–3% of pregnant women (Kitzmiller 1980). In the first trimester of non-diabetic pregnancy, the effects of insulin are enhanced by estrogen and progesterone, and glucose levels tend to decline (Roger and Danieal, 1985). Maternal metabolic supervision should aim to detect hyperglycemia severe enough to increase the risk to the fetus[4-5]. Daily self-monitoring of blood glucose appears to be better than periodic monitoring of plasma glucose. Urine glucose monitoring is not useful in GDM. Urine ketone monitoring may be useful in detecting inadequate caloric and carbohydrate intake in women undergoing caloric restriction. Maternal supervision should include monitoring of blood pressure and urine protein for hypertensive disorders. Assessment of asymmetric fetal growth by ultrasound, especially in the early third trimester of pregnancy, can help identify fetuses that may benefit from maternal insulin therapy[6-7]. All women with GDM should receive nutritional counseling in line with the American Diabetes Association's recommendations. It is recommended that the nutritional treatment be individualized according to the mother's weight and height. In obese women (BMI> 30 kg / m2), a 30-33% reduction in calories has been shown to reduce hyperglycemia and plasma triglycerides without increasing ketonuria. Insulin is the drug therapy prescribed that most consistently reduces fetal disease when added to medical nutritional therapy. The use of oral glucose lowering drugs during pregnancy is generally not recommended[8]. Moderate exercise programs have been shown to lower maternal glucose levels in women with GDM. GDM by itself is not an indication for caesarean section or until the end of the 38th week of pregnancy. Extending pregnancy to 38 weeks increases the risk of fetal macrosomia without reducing the frequency of cesarean sections, so delivery at 38 weeks is recommended, unless otherwise indicated by obstetrics. Women with GDM should encourage breastfeeding as always (American Diabetes Association, 2004). GDM is one of the most common complications of pregnancy. Children of women with GDM are at higher risk of obesity and impaired glucose tolerance and diabetes in early adulthood (American Diabetes Association, 2004; Zhang et al., 2006)[9-10]. Our study aims to investigate the prevalence of GDM in our part of the world.

MATERIAL AND METHODS:

This was a prospective hospital study of 405 pregnant women at the Medicine Unit-II and Obstetrics and Gynecology department of Jinnah Hospital Lahore for one-year duration from May 2019 to May 2020. All pregnant women between 20 and 40 years of age and 24 to 28 weeks of age were selected for the study. pregnancy. Excluded from the study were critically ill patients, pregnant women under 20 and over 40 years of age, and people with diabetes. After collecting the appropriate history, blood pressure was measured in a sitting position and a detailed Performa was filled. Any prior or recent investigation has also been considered. The studies of interest were urine test results, plasma sugar levels, fasting or random blood sugar levels, and an ultrasound report. The women were instructed to eat their normal diet without restriction for at least 3 days prior to the oral glucose tolerance test. They were asked to come in the morning with an overnight fast of 10-12 hours. In particular, this means normal consumption of carbohydrates. All pregnant women were offered 50 g of glaxose D dissolved in 100 ml of clean water, irrespective of the earlier breakfast or the quality of the meal. One hour later, an aseptic blood sample was taken from a vein in the forearm and sent to the laboratory for examination. Samples exceeding the threshold of 130 mg / dL (7.2 mmol / L) were drunk in an amount of 100 g dissolved in 200 ml of pure water. Fasting blood samples were taken with 100 g of glucose and given to drink with GLAXOSE D dissolved in 200 ml of plain water. A venous blood sample was taken one, two, and three hours later.

RESULTS:

In this study, of the four hundred-five pregnant women who were screened for GDM, seventy-two pregnant women (17.7% CI 14.2-21.7) had an abnormal one-hour oral glucose tolerance test of 50 g (> 7.2 mmoL). Out of seventy-two twenty-five pregnant women (6.17% CI 4.1-8.8) had abnormal plasma glucose levels at 100 gm OGTT. Forty-seven pregnant women (11.6 CI 8.96-15.27) had normal OGTT results. Twenty-five ladies were further divided into two groups. Seventeen of them (4.19%, CI 2.5 to 6.5) were GDM because they had two or

more abnormal values in 100gm OGTT. The remaining eight pregnant women (1.97% CI 0.92-3.71) have values in the IGT range (fasting blood sugar ≥ 11 µg / dL <126 mg / dL), as shown in Table 1.

Table 1 Classification of Pregnant females after 50gm GCT and 100 gm OGTT

S. No.	Variables	No. of Patients	Percentage (%)	95% CI
1	Total Number of Pregnant Females	405	-	-
2	Number of Females with abnormal 50-gm glucose challenge test	72	17.7	14.2-21.7
3	Pregnant females with abnormal 100 gm-OGTT	25	6.17	4.1-8.8
4	PF with normal 100 gm-OGTT	47	11.60	8.96-15.27
5	Pf with GDM	17	4.19	2.5-6.5
6	PF with IGT	08	1.97	0.92-3.71

Of these four hundred and five pregnant women, one hundred and ten pregnant women were at high risk, and fifteen (13.6% CI 8.1-21.02) had GDM. While the rest of the two hundred and ninety-five women with low risk factors only had two women (0.6% CI 0.11-2.22) with GDM, as shown in Table-3. In the same way, the IGT in the low-risk population (two hundred and ninety-five) was only one (0.33%), while in the high-risk population (110 women) there were seven (6.36% CI 2.8-12.18) (Table 4). When analyzing high-risk patients with GDM, it was found that 3 patients (17.64%) had a history of large children. Five (29.4%) had a family history of DM, previously had high blood sugar and glucosuria, while only one (5.86%) had a history of large children with CS or PIH, two (11.76%) pregnant women have had trouble setting the story. In total, three (17.64%) pregnant females admitted that one of their siblings or parents had DM. The remaining two (11.76%) had a history of a congenital anomaly, as shown in Table 2.

Table 2 Patient with gestational diabetes mellitus and risk factor

S. No.	Variables	No. of Patients	Percentage (%)
1	H/O Large Babies	03	17.64
2	GS with Large Babies	01	5.86
3	Family H/O DM, Previous abnormal blood glucose level and H/O glucosuria	05	29.4
4	PIH	01	5.8
5	Bad Obstetric History	02	11.76
6	Family History Alone	03	17.64
7	Congenital Abnormally	02	11.76

Table 3 Gestational diabetes mellitus in high risk and low risk patients

	G.D.M.	95% C.I.
Low Risk (n=295)	02 (0.6%)	0.11-2.20
High Risk (n=110)	15 (13.6%)	8.1-21.02

Table 4 Impaired glucose tolerance in high risk and low risk patients

	IGT Patients	95% C.I.
Low Risk (n=295)	01 (0.33%)	-
High Risk (n=110)	07 (6.36%)	2.8-12.18

STATISTICAL ANALYSIS

The advantages of various studies were expressed in their properties. The incidence of low and high risk patients is listed with the 95% confidence interval.

DISCUSSION:

According to our study, the incidence of GDM is 4.2% and 2% had impaired glucose tolerance, as shown in Table 1 based on 50 grams of GTT for women visiting diabetes clinics. The incidence of GDM is highly population specific, but generally between 3% and 5% of pregnant women receive this diagnosis (Clinical Practice Recommendation 2000). The GDM rate after screening 1,000 women at the Ayub Teaching Hospital in Abbottabad suffered from GDM, found that 4.3% and 1.7% had IGT, which is almost similar to our study[9-10]. They also used a 50-gram oral provocation test to screen women coming to the antenatal clinic (Hassan, 2005). According to another study from Ayub Medical College. Abbottabad, gestational diabetes complicates 2 to 5% of pregnancies, and with good metabolic control, the perinatal mortality should not be higher than in the general population (Ashfaq et al., 2005). The overall incidence of GDM was 1% in the Lahore Services Hospital, while IGT was found in 1.6% (Janaid et al., 2002). Glucose intolerance disorders can be considered a disease of the developing world. Poverty and ignorance are some of the local factors contributing to this high incidence[11]. People are unaware of the nutritional and caloric value of foods and their effects on weight and health. Carbohydrate-based foods are inexpensive and are a staple diet, while fats are used to add flavor to food. In addition, the lack of awareness about weight control causes them to have the habit of over-eating. The situation is even more acute during pregnancy, when women usually eat food for "two". This leads to obesity, and unfortunately it is considered a sign of the beauty and health of most of the rural population. These facts expose our population to a greater risk of diabetes, and the importance of intensive screening in detecting preclinical diseases cannot be overestimated (Hassan, 2005; Lolemans et al., 2004; King and Rewers, 1991). GDM is more common in women who are overweight, have multiple couples, and have a family history of diabetes (Jamshaid et al., 2002). Our study shows that women diagnosed with GDM, 17.6% had a history of megalo-children, 29.4% had family history of diabetes or previously abnormal blood glucose levels, 11.7% had a bad obstetric history (Table References and international studies vary widely. The incidence of GDM appears to increase in the multiethnic population subjected to comprehensive screening. According to studies, the incidence of GDM doubled between 1994 and 2002 among women of all ethnic / racial backgrounds. and ethnic distribution of screened pregnancies or a prior history of GDM. The observed increase in the incidence of GDM is due to the routine screening of all nondiabetic women and the same standard criteria were used to diagnose GDM (Dabelea et al., 2005)[11-12]. On the contrary, it was observed. that the increase in the cumulative incidence of GDM was not due to the increasing percentage pregnancies screened in higher-risk ethnic groups in later years as similar increases in the cumulative incidence of GDM were seen in all age and racial-ethnic groups (Ferrara et al., 2004). GDM is the most common metabolic complication that affects pregnant women. GDM pregnancy screening should be convenient, cost effective, and should have reasonable sensitivity and specificity as awareness of this important clinical condition increases (Parveen and Saeed, 1996). WHO criteria are very effective in the diagnosis of GDM (Shaheen et al., 2006). It is recommended that the 50 g glucose challenge test be used as a screening test, especially in women who are overweight, have a family history of diabetes, multiparous women, and have previous obstetric complications, as GDM is more common in high-risk women[13-14]. This test, compared to the oral glucose tolerance test, is less time consuming, simple, less strenuous and cost effective. This test identifies women who are at high risk of developing non-insulin dependent diabetes mellitus (NIDDM) later in life, and early detection and treatment to restore euglycemia will prevent many of the serious complications of hyperglycemia[15]. Health education programs should

be planned at the community level and in hospital maternity clinics, especially for overweight pregnant women, multiparous women and with a family history of diabetes (Jamshaid et al., 2002).

CONCLUSION:

GDM remains a high-risk condition with increased maternal and fetal morbidity and mortality. Early detection and intervention improves pregnancy outcomes. To screen women for gestational diabetes, a 50 g glucose challenge test can be used as it has a higher specificity. The glucose challenge test has some advantages over other screening tests such as glycosylated proteins or glycosylated hemoglobin and random blood glucose estimates. The first two are not only costly but also insensitive, while a "random" blood glucose estimate is devoid of sensitivity even though it is cheap. The lack of concerted screening for the diagnosis of GDM and the questionable obstetric benefit of treating all pregnant women with mild glucose tolerance impairment, and the failure to follow-up in pregnant screening positive pregnancies may result in increased maternal and fetal morbidity. Taking this into account, the 50 g glucose challenge test followed by the 100 g glucose tolerance test shows high diagnostic accuracy to confirm gestational diabetes.

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