RESEARCH ARTICLE

Gestational Diabetes among Pregnant Women during Pregnancy in Baghdad, Iraq

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ABSTRACT

A descriptive cross-sectional study was conducted at maternity hospitals in Baghdad among pregnancies with gestational diabetes to identify gestational diabetes among those who attend the Maternity Hospitals in Baghdad city. A purposive sample of 140 pregnant women was selected from maternity Hospitals in Baghdad city. The description of the demographic characteristics of study groups includes the following variables (age of pregnant, stage of pregnancy, history of diabetes during pregnancy, history of diabetes before pregnancy, history of abortion, time of abortion, family history of DM, history of another disease. Data were obtained from pregnant women through the utilization of the study instrument, an interview technique for each woman, and a review of their medical records as means of data collection. Tables and graphs were used to analyze and assess the results of the study under the application of the statistical package (SPSS) version 20.0. Most of the 32.9% were in the age group>35 years old. A 42.9% of cases were in the 3rd stage of the trimester. Most of them had a history of diabetes during pregnancy. Half of them had a history of diabetes before pregnancy. Half of them were taking the medicine for GD and the majority of them had a history of diabetes. A total of 40% of them had a history of another disease. We recommended emphasizing the need for implementing and enforcing the new diagnostic values.

Keywords: Gestational Diabetes, Hyperglycemia, Pregnancy.

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INTRODUCTION

Gestational diabetes mellitus (GDM) is hyperglycemia in which blood glucose values are above normal but do not reach the level needed to diagnose diabetes.[1] According to a World Health Organization (WHO) report, women with gestational diabetes are more likely to develop complications during pregnancy and childbirth.[2] In the future, these women are more likely to develop type 2 diabetes (T2D) and possibly even their children.[2] Worldwide, the overall incidence is estimated to be between 1–14% depending on the study population, the method used, and diagnosis timing.[3-6] In the UK, up to 5% of women giving birth each year have pre-existing diabetes mellitus or GDM.[7] In Thailand, the prevalence of GDM is approximately 7%, which is similar to that of the US.[8-9] In Jordan, the incidence of GDM is much higher at around 13.5%.[10] However, reported prevalence worldwide varies between 1 and 45% of pregnancies.[11-12] While there are some clear reasons for this variability, others are not as obvious. Different ethnicities have different susceptibility to GDM; therefore, differences in the ethnic make-up of the population studied as well as genetic variability will result in different prevalence rates of GDM.[11] GDM is associated with several maternal, fetal, and neonatal complications such as pre-eclampsia, operative delivery, fetal macrosomia, birth trauma, birth asphyxia, prematurity, and respiratory distress syndrome (RDS). Timely diagnosis and management will lead to the subsequent reduction in these morbidities.[1,13,14]

Based on the results of the Hyperglycemia and adverse pregnancy outcome (APO), the International Association of

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Diabetes and Pregnancy Study Group (IADPSG) adopted a one-step approach for the diagnosis of GDM, with the use of a two-hour 75 g oral glucose tolerance test (OGTT) between 24 and 28 weeks of pregnancy.[15-16] Derangement of any of the following values is considered sufficient to label the woman as having GDM; 1) a fasting plasma glucose (FPG) ≥ 5.1 mmol/L (≥ 92 mg/dL), 2) a one-hour plasma glucose level ≥ 10 mmol/L (≥ 180 mg/dL), or 3) a two-hour plasma glucose ≥ 8.5 mmol/L (≥ 153 mg/dL). All three cut-off values were selected to reflect an increase in the risk of a large gestational age (LGA) fetus of 75%, a cord serum C-peptide > 90th percentile, and neonatal adiposity > 90th percentile.[16] The application of these IADPSG new diagnostic criteria has been accepted by the American Diabetes Association since 2011.[17] It has also been implemented by the Endocrine Society, the WHO, and the International Federation of Obstetrics and Gynecology since 2013.[18-20] However, the American College of Obstetricians and Gynecologists and the National Institute of Health have not endorsed the above recommendations and still recommend the traditional 'two-step approach in which the initial screening with an oral glucose challenge test is done at 24–28 weeks of gestation with 50 g of oral glucose followed by a diagnostic three-hour 100 g OGTT for women who exceed the normal glucose threshold.[21] The Gulf Cooperation Council states the prevalence of T2DM is among the highest in the world, ranging between 14–19%.[22-23] On applying the IADPSG criteria, the prevalence of GDM in Qatar, UAE, and Saudi Arabia was found to be 24.0, 37.7, and 51%, respectively.[24-25] These figures are predicted to increase further in this region due to the sedentary lifestyle and change in dietary habits resulting in a growing obesity epidemic. Subsequently, it is anticipated that there will be a considerable rise in T2DM and perhaps GDM.[26-28] It is necessary to maintain the ideal weight, eat healthy food, and be compensated with vitamins before pregnancy so that it does not become prone to gestational diabetes, especially for women who had previously developed gestational diabetes during their previous pregnancy, through healthy meals and regular physical activity and sports.[29]

Until now, there is no program, even globally. There is no way to prevent gestational diabetes.[30] Regular physical activity plays a key role in every woman's recovery plan before, during and after pregnancy. Exercise lowers blood sugar, and as a bonus, regular exercise may help relieve some of the common disorders that occur during pregnancy, including back pain, muscle cramps, swelling, constipation and difficulty sleeping.[31]

This study aim**s** to identify gestational diabetes among those who attend the Maternity Hospitals in Baghdad city. Describe the relative frequency of different stages of pregnancy on gestational diabetes and study the effect of certain factors like age, stage of pregnancy, family history of gestational diabetes and another disease on it.

MATERIALS AND METHODS

Study Design: A descriptive cross-sectional study was conducted among pregnancies with gestational diabetes to identify gestational diabetes among those who attend the Maternity Hospitals in Baghdad city.

Time of Data Collection: The study is employed through the present study from 22nd April to 25th November 2021.

Ethical Clarence: Formal administrative approval is obtained to contact the study from the Ministry of planning - Central Statistical Organization (CSO) which accepted the study questionnaire.

Sampling Sollection: A purposive sample of 140 pregnant women was selected from maternity Hospitals in Baghdad city.

Inclusion Criteria: The inclusion criteria are pregnant women who had gestational diabetes during pregnancy.

Exclusion Criteria: Pregnant women with acute or chronic medical diseases were excluded from our study.

Data Collection: The description of the demographic characteristics of study groups that include the following variables (age of pregnant, stage of pregnancy, history of diabetes during pregnancy, history of diabetes before pregnancy, history of abortion, time of abortion, family history of DM, history of another disease. Data were obtained from pregnant women through the utilization of the study instrument, and an interview technique for each woman, and a review of their medical records as means of data collection. The data were collected from the study sample according to the daily admission of each pregnant woman to the outpatient clinic. Tables and graphs were used to analyze and assess the results of the study under the application of the statistical package (SPSS) ver. (20.0).

RESULTS

Out of 140 cases with gestational diabetes, the higher percentage of 32.9% of cases are still in the age more than 35 years old, followed by 29.2% in the age groups 26 to 35 years and 10% in the age less than 18 years old (Table 1).

Table 2 Shows that the higher percentage of 42.9% of cases in the 3rd-trimester stage of pregnancy; is followed by 40.7% in the 2nd stage and the less percentage of 16.4% in the 1st-trimester stage.

Table 1: Distribution of studied sample according to age groups

Age groups (Years)	*Frequency*	*%*
≤ 18	14	10
19–25	39	27.9
26–35	41	29.2
>35	46	32.9
Total	140	100

Table 2: Stage of pregnancy

Stage of pregnancy	*Frequency*	*%*
1st trimester	23	16.4
2nd trimester	57	40.7
3rd trimester	60	42.9
Total	140	100

Table 3 Shows that 45% of them had a history of diabetes during pregnancy and 55% were not. Table 4 Shows that 55% of them had a history of diabetes before pregnancy and 45% were not. Figure 1 Show that half of the 56.4 who takes the medicine for it and 43.6% were not taking it. Figure 2 a higher percentage of the 65% has not had a history of abortion and 35% had it. Table 5 Show that 42.9% of them had more than 3 times of abortion during pregnancy and 34.7% of them had 2 to 3 times. In Figure 3, the majority of the 72.9% had a history of diabetic and 27.1% were not. Table 6 shows that 40% of them had a history of another disease and 60% were not having it.

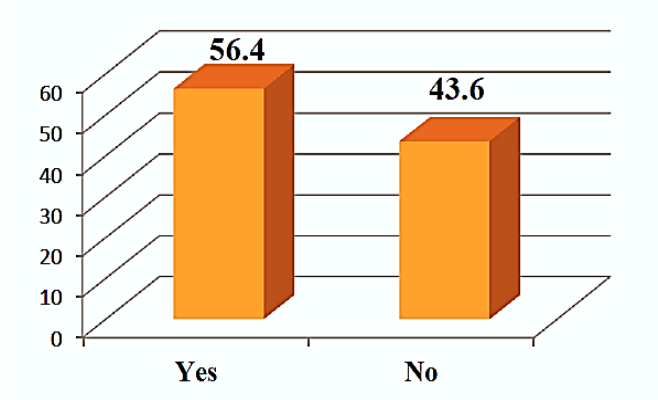

Figure 1: Distribution of studied sample according to take the medicine for diabetic

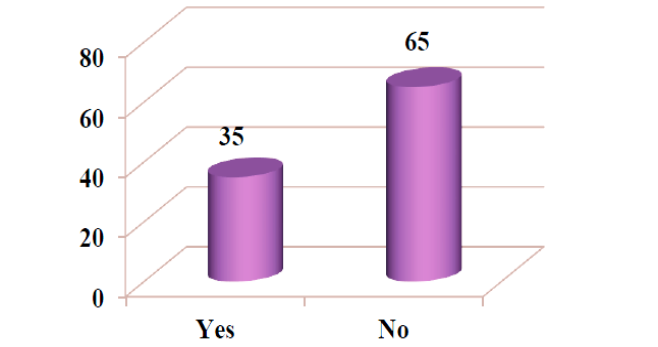

Figure 2: Distribution of studied sample according to the history of abortion during diabetic

Table 3: Distribution of studied sample according to the history of diabetes during pregnancy

History of diabetic during pregnancy	*Frequency*	*Percent*
Yes	63	45
No	77	55
Total	140	100

Table 4: Distribution of studied sample according to the history of diabetes before pregnancy

History of diabetic before pregnancy	*Frequency*	*Percent*
Yes	77	55
No	63	45
Total	140	100

DISCUSSION

In this study, we found a higher percentage of (32.9%) of cases still in the age more than 35 years old, followed by 29.2% in the age groups 26 to 35 years and 10% in the age less than 18 years old**.** In a retrospective study conducted among 6818 in New-Zealand 2019, the authors reported that 31.1% of pregnant women with gestational diabetes were in the age group 30 to 34 years old.[32]

In this study we found a higher percentage of 42.9% of cases in the 3rd-trimester stage of pregnancy; followed by 40.7% in the 2nd stage and the less percentage of 16.4% in the 1st-trimester stage and compared with another study in Korea by Koo 2016 and in Greenland by Pederson 2016, the authors reported the majority of them were in the 3rd stage of pregnancy.[33,34]

In this study, we found that 45% of them had a history of diabetes during pregnancy and 55% were not had it. In a cohort study conducted among 613 pregnant women by Al-Subhi 2021, the authors reported that 28.1% of cases had a history of GD.[35]

In this study, we found 55% of them had a history of diabetes before pregnancy and 45% were not. A prospective study done by Yang in 2009 was conducted among 16286 pregnant women, the authors found that 33.7% of them had a history of GDM before pregnancy.[36]

In this study, we found that half of the 56.4 who takes the medicine for it and 43.6% were not taking it. A study done in

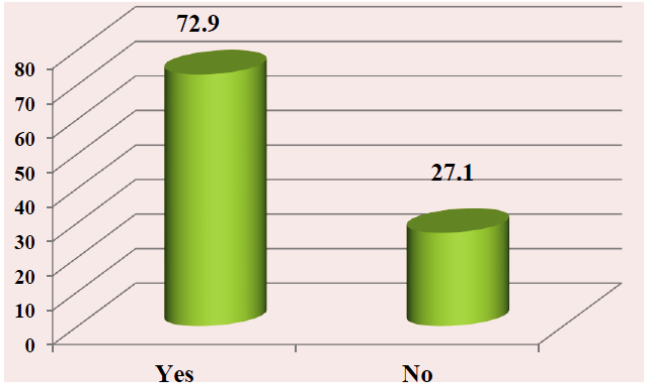

Figure 3: Distribution of studied sample according to family history of diabetic

Table 5: Distribution of studied sample according to times of abortion

Times of abortion	*Frequency*	*Percent*
1 times	11	22.4
2- 3 times	17	34.7
>3 times	21	42.9
Total	49	100

Table 6: Distribution of studied sample according to the history of another disease

History of another disease	*Frequency*	*Percent*
Yes	56	40
No	84	60
Total	140	100

Saudi by Al-fadhli 2015, reported that 23.6% of them were taking the medicine for GD, and in another study done in Oman, the authors reported only 2% of cases where taking the medicine for GD.[35,37]

In this study, we found a higher percentage of the 65% was not had a history of abortion and 35% had it. A study done in Oman in 2015 by Abu-Heija, reported few cases had a history of abortion.[38]

In this study, we found that 42.9% of them had more than 3 times of abortions during pregnancy and 34.7% of them had 2 to 3 times. And compared with other studies in New Zealand by Yapa, the authors reported that most of them had 2 times history of abortion.[39]

In this study, we found the majority of the 72.9% had a history of diabetic and 27.1% were not. In a study done in Oman by Al-Subhi 2021, 28.9% of pregnant women had a history of diabetes.[35]

In this study, we found that 40% of them had a history of another disease and 60% were not having it. Robyn in 2019 reported that half of the cases had a history of another disease.[32]

CONCLUSION

Most of the 32.9% were in the age group>35 years old, and 42.9% of cases were in the 3rd stage of the trimester. Most of them had a history of diabetes during pregnancy. Half of them had a history of diabetes before pregnancy. Half of them were taking the medicine for GD. The majority of them had a history of diabetes, and 40% of them had a history of another disease.

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