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ORIGINAL RESEARCH

The Prevalence of Prenatal Diabetes Mellitus in Rania City: Women with Polycystic Ovaries

Renas Mohammed Khidhir [1], Rahela Aziz Rasul [2]

[1] Department of Maternal and Neonatal Nursing, College of Nursing, University of Raparin, Sulaimaniyah, Iraq.
[2] Department of Mathematics, University of Raparin, Sulaimaniyah, Iraq.

CORRESPONDING AUTHOR: Renas Mohammed Khidhir, Department of Maternal and Neonatal Nursing, College of Nursing, University of Raparin, Sulaimaniyah, Iraq.
Email: renas.mohamad@uor.edu.krd

ABSTRACT

Background: Those with polycystic ovarian syndrome, which is a marker of the illness, can develop gestational diabetes mellitus. The frequency of gestational diabetes mellitus in women with polycystic ovaries varies greatly today. The aim of this study was to investigate the concurrent occurrence of gestational diabetes mellitus due to the fact that a variety of additional variables have been associated with the incidence of the condition in women with polycystic ovarian syndrome.

Objectives: this study aims to assess a sizable community-based sample of pregnant women with PCOS and GDM to assess the distinct risk of diabetes depending on the severity of the GDM.

Methodology: a case control study, was conducted on women during their pregnancy, (40 women) non-diabetic and (20 women) diabetic, who participated in kewarash health care center, Raparin health care center and maternal and pediatric hospital in Rania city, from November 1st, 2018 to March 13th 2019. The assessment instrument was created as a questionnaire. It consisted of two parts: sociodemographic data and reasons associated with occurrence of gestational diabetes among women.

Results: Both descriptive statistical analysis (frequency and percentage) and statistical test for data analysis were used to assess the results. It demonstrates that 66.67% The Prevalence of prenatal diabetes mellitus in Rania City/ women with polycystic ovaries. Findings indicated that there is a real correlation between them, which is significant at the 0.0001 level. The results of our study demonstrate a high incidence of gestational diabetes mellitus among pregnant women with polycystic ovarian syndrome in the city of Rania.

Conclusion: According to our study in Rania gestational diabetes mellitus is a major for expectant mothers with polycystic ovary syndrome. Therefore, education of mothers, implementing a nutritious diet and taking part in consistent physical activity, as well as prenatal, perinatal, and postpartum care are initiatives and procedures to decrease the incidence of gestational diabetes mellitus among pregnant women with polycystic ovary syndrome.

Keywords: Diabetes Mellitus, pregnancy, polycystic ovary.

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INTRODUCTION

In medical obstetrics, polycystic ovarian syndrome (PCOS) is a condition that is frequently encountered. Ovulation disorder is the primary cause of infertility in the majority of PCOS women [1]. A higher risk of gestational diabetes mellitus (GDM) during pregnancy exists in women with polycystic ovarian syndrome (PCOS) [2]. A risk factor for type 2 diabetes mellitus is both PCOS and GDM [3]. With an annual prevalence of 1.7-2.2%, women with GDM pregnancy have a 7-fold increased chance of later having type 2 diabetes mellitus than women without GDM [4].

Diabetes risk has been shown to be up to 8 times higher in women with PCOS than in women without PCOS [3, 5]. While fewer research has focused on the risk of diabetes in women with PCOS, those who experience a GDM pregnancy have been seen to have abnormal glucose metabolism and subsequent glucose intolerance [1]. In this study, we assessed a sizable community-based sample of pregnant women with PCOS and GDM to assess the distinct risk of diabetes depending on the severity of the GDM [6,7, and 8].

AIMS OF THE STUDY

this study aims to assess a sizable community-based sample of pregnant women with PCOS and GDM to assess the distinct risk of diabetes depending on the severity of the GDM.

METHODOLOGY

Pregnant women in the city of Rania were the subjects that used in this study, from November 2018 to March 2019.The present study was conducted at Maternal and Pediatric Hospital, Kewarash Health Care centers and Raparin Health Care Center in Rania city. The study was carried out according to the ethical approval code (12).Written official permissions have been received from the Raparin University/ College of Nursing, the Raparin Health Directorate, the Maternity and Pediatric Hospital, Kewarash Primary Health Care and Raparin Primary Health Care. Prior to the initiation of the study. The study sample was a non-probability purposive sample of (60) pregnant women including (20) diabetic woman and (40) non-diabetic woman, who attended Maternity and Pediatric Hospital, Kewarash Primary Health Care and Raparin Health Care Center in Rania city. An assessment study instrument and tool is constructed in a form of a questionnaires to utilize proper data collection. It consisted of two parts:

Part I: (Sociodemographic data)

This part includes demographic data of pregnant women's and it was consisting of (8) items which are age, residential area, level of education, occupational status, number of pregnancies, BMI before pregnancy, BMI in mid of pregnancy, time of diagnoses gestational diabetes mellitus.

Part II: (common factors related to gestational diabetes mellitus).

It included (16) items and two choices (Yes and No) for each one, and each selection had a special score for a statistical application (0,1). The data were collected through the utilization of adopted and modified questionnaire, and interviewing technique was approached. Data were collected from Maternity and Pediatric Hospital, Kewarash Primary Health Care and Raparin Health Care Center in Rania city.

The items were rated and scored according to the following rating scales and scores patterns:

1. Two-point type Likert Scale is employed to rate the items (Polit and Hungler, 1999).
2. Two-point type Likert Scale is scored as No (0) and Yes (1).

To accomplish the goals of the current study, a panel of (9) specialists from Faculty of Nursing at University of Raparin and 2 experts from Rania Obstetrics and Gynecological Hospital/ Gynecological ward was used to assess the content validity of the

early instrument by looking at the questionnaire's clarity, relevance, and sufficiency.

Their participants stated that, after taking into account their suggestions and recommendations for revision, they all concurred that the questionnaire's content was clear, relevant, and adequate. The pilot study prior to the original study, a pilot study was conducted on (10) the women pregnant. Selected randomly from Kewarash primary health care center in Rania city and maternal and pediatric hospital. It was done from December 1st to 25th, 2018. The pilot study sample is not included in the study's initial sample. However, by reliability of the test which was conducted at maternal and pediatric hospital, Kewarash primary health care center and Raparin health care center in Rania city. in Rania city on (10) by researchers. Alpha correlation coefficient was computed to calculate the correlation coefficient and to give an estimation of reliability for the entire test. The following is what the pilot study hopes to ascertain:

1. The clarity of the content and suitability of the assessment instrument.
2. Time required for the data collection.
3. Barriers which maybe experienced in the process of data collection.
4. To evaluate the reliability of the instrument.

The result of the pilot study was (0.79), which indicated that each interview took between five to ten minutes, and the questions on the questionnaire are understandable and relevant. Alpha correlation coefficient was computed to calculate the correlation coefficient and to give an estimation of reliability for the entire test. The conclusion from the pilot survey is that the questionnaire is a sufficiently trustworthy measure for common factor polycystic ovarian syndrome that effected occurrence gestational diabetes mellitus in Rania city (fowler et al, 2002).

RESULTS

The present study consists of (60) women, (20) diabetic woman and (40) non-diabetic woman, who attended the primary health care centers and maternal and pediatric hospital in Rania city. It was designed to investigate incidence between common factor polycystic ovarian syndrome that affected the occurrence of gestational diabetes mellitus with pregnant women in Rania city.

Through the course of data analysis, the results of table (1) show that half of women (51.67%) had (1-2) number of Gravida, the age group (21-30 years) included (43.3%) of participants, also 38.33 % of them were able to read and write, and 70% of participants had urban residence. Besides, the second table indicates that the majority of study participants (%88.33) were house wives.

To consider the correlation between gestational diabetes and polycystic ovarian syndrome, the study shows that 66.67% of the pregnant women with polycystic ovarian syndrome are at a higher risk of gestational diabetes. Results indicated that the true correlation between them is significant at the 0.0001 level.

DISCUSSION

Studies from both Australia and the United States have found that the overall risk factors for gestational diabetes are comparable and include high body mass index (BMI), a presence of family background of diabetes, a history of macrosomia and glycosuria, high parity, and women who are short stature [3] Women are more susceptible to developing gestational diabetes due to factors like race, age, obesity, a history of macrosomia, and unexplained stillbirth. The importance of having conversations about risk factors, such as the number of pregnancies, a history of hypertension, and other causes, has recently been stressed in review research. Cheung et al. carried out an investigation on pregnant Asian women in Australia [9, 10, 11, 12, and 6].

In our investigation, we discovered that pregnant women with polycystic ovary syndrome frequently develop gestational diabetes mellitus in Rania City.

The result shows that according to [3, 7], a substantial and significant contributor to the development of GDM is a history of PCOS [3,1].

Age, pre-pregnancy BMI, polycystic ovarian syndrome, family history of gestational diabetes, and family history of type 2 diabetes all have strong correlations [1].

On the other hand, no relationship has been found between job, residence, and occupational status with their reasons towards gestational diabetes [13,3].

CONCLUSION

The frequency of gestational diabetes mellitus among pregnant women with polycystic ovarian syndrome, is one of the main causes of the condition among women in Rania City.

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TABLES AND FIGURE

Table (1): Sample Distribution (60 women) according to their Sociodemographic Characteristics (age, residency, level of education, and gravida).

No	Gravida	Frequency	%
1	1-2	31	51.67
2	3-4	24	40
3	5-6	3	5
4	7-9	2	3.33
	Total	**60**	**100.0**
No	**Age group**	**Frequency**	**%**
1	16-20	9	15
2	21-30	26	43.3
3	31-45	25	41.7
	Total	**60**	**100.0**
No	**Level of education**	**Frequency**	**%**
1	Illiterate	11	18.33
2	Able to reading and writing	23	38.33
3	Secondary school graduate	12	20
4	Institute graduate	7	11.67
5	College graduate	7	11.67
6	post graduate	0	0
	Total	**60**	**100.0**
No	**Residence**	**Frequency**	**%**
1	Rural	5	8.33
2	Suburban	13	21.67
3	Urban	42	70
	Total	**60**	**100.0**

The results of table (1) show that half of women (51.67%) had (1-2) number of gravida, the age group (21-30 years) included (43.3%) of participants, also 38.33 % of them were able to read and write, and 70% of participants had urban residence.

Table (2): The classification of gestational diabetes mellitus is based on sociodemographic characteristics.

No	Occupational	Frequency	%
1	Unemployed	1	1.67
2	Employed	6	10
3	House wife	53	88.33
4	Self employed	0	0
	Total	**60**	**100.0**
No	**BMI-before pregnancy**	**Frequency**	**%**
1	25>	20	33.33
2	25-30	26	43.33
3	>30	14	23.33
	Total	**60**	**100.0**
No	**BMI-after pregnancy**	**Frequency**	**%**
1	25>	9	15
2	25-30	26	43.33
3	>30	25	41.67

	Total	**60**	**100.0**
No	**Diagnosis of GDM**	**Frequency**	**%**
1	First trimester	3	14.29
2	Second trimester	14	66.67
3	Third trimester	3	14.29
	Total	**60**	**100.0**

This table indicates that the majority of study participants (%88.33) were house wives, 43.33% increased BMI-after pregnancy, and 66.67% of them had diagnosis of gestational diabetes mellitus in the second trimester.

No	**Items**	**Yes**		**No**		**Mean Score**	**Sig**
		F	**%**	**F**	**%**		
1	**Did you have GDM in the previous pregnancy?**	8	16.33	41	83.67	0.13	Low
2	**Did you have polycystic ovarian syndrome before?**	21	35	39	65	0.35	Medium
3	**Did you have previous unexplained abortion?**	17	28.33	43	71.67	0.28	Low
4	**Did you visit antenatal care regularly?**	50	83.33	43	71.67	0.83	High
5	**Did you use medication before such as blood pressure and anticonvulsant medication?**	16	26.67	44	73.33	0.26	Low
6	**Did you have macrocosmic baby in previous pregnancy?**	9	10.17	53	89.83	0.15	Low
7	**Did you have preterm birth?**	9	18	41	82	0.15	Low
8	**Did you have emotional disorder during pregnancy?**	28	46.67	32	53.33	0.46	Medium
9	**Did you have any hormonal changes before pregnancy?**	21	35	39	65	0.35	Medium

Table (3):

Table (3-1): the common factors that affected occurrence of gestational diabetes mellitus with pregnant women. If the P-value is smaller than 0.05, we reject null-hypothesis.

Table (3-2): Correlation between gestational diabetes and family history with diabetes.

Gestational diabetes mellitus	**Diabetic family history**		
	N0	**Yes**	**Total**
NO	27	13	**40**
	75.00	52.17	**66.67**
Yes	9	11	**20**
	25.00	45.83	**33.33**
Total	36	24	**60**
	100.00	100.00	**100.00**
X2 obs = 2.81 *df*= 1 x2 crit = 3.84 P ≤0.05			

If the P-value is smaller than 0.05,we reject null-hypothesis.

Results showed the correlation between gestational diabetes and family history with diabetes. It shows that 75% of pregnant women are at lower risk of developing GDM and correlation is non-significant at the 0.094 level.

Table (3-3): Correlation between gestational diabetes and polycystic ovarian syndrome.

Gestational diabetes mellitus	Polycystic ovarian syndrome		
	N0	**Yes**	**Total**
NO	33	7	**40**
	84.62	33.33	**66.67**
Yes	6	14	**20**
	15.38	66.67	**33.33**
Total	39	21	**60**
	100.00	100.00	**100.00**
X2 obs =16.2 *df*= 1 x2 crit =13.81 P ≤0.05			

If the P-value is smaller than 0.05, we reject null-hypothesis

The above table is the correlation between gestational diabetes and polycystic ovarian syndrome. It demonstrates that gestational diabetes is more likely to occur in 66.67% of pregnant women with polycystic ovarian syndrome. Results showed the true correlation between them and it is significant at the 0.0001 level.