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Assessment of Pregnancy Outcome in Gestational Diabetes Milletus Patient in Maternity Teaching Hospital in Sulaimani City

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Abstract

The current study was undertaken to assess of pregnancy outcome in gestational diabetes milletus patient. This study was carried out for the period of 10th March to 12th May of 2014, sample of (100) pregnant women who have been attended the maternity teaching hospital in Sulaimani city, to identify the assessment of pregnancy outcome in Gestational Diabetes Milletus and explore association between some sociodemographic characteristic of the sample baby outcome and reproductive history, the results show that there is a strong association between reproductive history and Gestational Diabetes Milletus.

Introduction

Gestational Diabetes Mellitus (GDM) is any degree of glucose intolerance with it onset during pregnancy. Evidences showed that GDM poses a threat to adverse maternal and prenatal outcome as a result of maternal hyperglycemia.(1) Hyperglycemia develops during pregnancy because of the secretion of placental hormones, which causes insulin resistance, gestational diabetes occurs in about 14% of pregnant women and increases their risk for hypertensive disorders during pregnancy(2) Women who are considered to be at high risk for GDM and who should be screened by blood glucose testing at their first prenatal visit are those with marked obesity, a personal history of GDM, glycosuria, or a strong family history of diabetes, high risk ethnic groups include Hispanic Americans, Native Americans, Asian American, African American and Islanders, if those high-risk patients do not have GDM at initial screening they should be retested between 24 and 28 weeks of gestation (3)

Testing is not specifically recommended for women identified as being at low risk, low risk women are those who meet all of the following criteria age younger than 25 years, normal weight before pregnancy, member of an ethnic group with low prevalence of GDM, no history of abnormal glucose tolerance, no history of diabetes in first degree relatives and no history of poor obstetric outcome (4) women considered to be at high risk or average risk should have either an oral glucose tolerance test (OGTT) or glucose challenge test (GCT) followed by OGTT in women who exceed the glucose threshold of 180 mg/dl (10 mmol /L) (5) GDM as mentioned is any form of diabetes mellitus or impaired glucose tolerance (IGT) or impaired fasting glucose with first onset or first recognition during the pregnancy. Thus the diagnosis of GDM is independent of possibility that diabetes or glucose intolerance may have antedated the pregnancy. As diabetes or glucose

intolerance in women is more frequently discovered during pregnancy the World Health Organization WHO has recommended including such cases under the definition of GDM. Such a broad definition has a great practical value and has boosted research on GDM. (6) Initial management includes dietary modification and blood glucose monitoring, if hyperglycemia persists insulin is prescribed, goals for blood glucose levels during pregnancy are 105 mg/dl (5.8 mmol/l) or less before meals and 130 mg/dl (6.2 mmol/l) or less 2 hours after meals (7) From a pathophysiological point of view, GDM pregnancies are characterized by increased insulin resistance compared with normal pregnancies. The insulin resistance affects carbohydrate and lipid metabolism and presumably protein metabolism as well, although in most of the cases it disappears once the pregnancy is over, or it may persist as diabetes, impaired fasting plasma glucose or impaired glucose tolerance- after delivery or recur as such in the following pregnancy or any time after delivery. (8) Newborn's health firmly on international agenda. Though gestational diabetes has not yet brought up directly in developing countries in maternal and newborn health; it is the fact that it threats pregnancy and the newborn if maternal glucose level is not controlled during the pregnancy. Certainly it has potential role on reducing risk of maternal health and infant mortality. In GDM risk of macrosomia, intrauterine death of the fetus and preeclampsia make the pregnancy unsafe. WHO is working on supportive funding for the interventions necessary to ensure the health of pregnant women and newborn babies. (9).

Material

This study was carried out at Maternity Teaching Hospital in Sulaimani. It was a descriptive study conducted on pregnant women; it was carried out during the period of 10th March to 12th May of 2014. A purposeful "non-probability" sample of (100) pregnant women who have been attended maternity teaching hospital in the Sulaimani city. For the purpose of data collection, questionnaire consists of two parts: -

First part (7) questions regarding socio-demographic and obstetric characteristics which includes (maternal age, level of education, occupation, antenatal care visit, reproductive history and gestational age).

Second part (4) questions regarding baby outcome which includes (fetal assessment, type of delivery, early and late fetal complication, early and late maternal complication)

All questions were taken at the time of delivery; some of the questions were taken from the note of the doctors recorded on file chart, and the others from record of ultrasound.

This study was approved by ethical committee of the School of Nursing in University of Sulaimani. A pilot study was conducted for determination of the reliability and a panel of the experts for the content validity of Statistical analyses were performed using SPSS with the significant level set at (0.05). Factors associated with the maternal and baby outcome examined by chi-square and Fishers' exact test.

Results

The population consist of young maternal woman, about one fourth are between 26-30 years old, only 1% of all the study sample are less than 20 years old, 49% of them was illiterate, 56% of them were unemployed. 47% of the study sample visited the antenatal care regularly, however; 12% of the study sample they didn't visit the antenatal care. Regarding history of gestational diabetic mellitus 61% of the participant have a family history of gestational diabetic mellitus, while 39% of them reported as negative history, According to gestational hypertension 72% of woman showing that there is no sign of hypertension during their pregnancy period, regarding chronic diabetes mellitus 55% of the woman they didn't have diabetic before she become a pregnant.

Table (1) Distribution of sample according to **socio-demographic data:-**

Variable	n. (%)	Variable	n. (%)
Maternal age		***Level of education***	
<20 years	1(1%)	Illiterate	49(49%)
21-25 years	10(10%)	Primary	35(35%)
26-30 years	33(33%)	Secondary	8(8%)
31-35 years	30(30%)	Higher	8(8%)
36-40 years	24(24%)	***Gestational DM***	
<45 years	2(2%)	Yes	61(61%)
Occupation		No	39(39%)
Employ	39(39%)	*Gestational HTN*	
Unemployer	56(56%)	Yes	28(28%)
Nongovernmental employee	5(5%)	No	72(72%)
Did you visited ANC		***Chronic DM***	
Yes regularly	47(47%)	Yes	45(45%)
Yes irregularly	41(41%)	No	55(55%)
No	12(12%)		

Table (2) Distribution of sample according to gestational DM and socio-demographic data:-

	Gestational DM			
Variable	***Yes***	***no***	***Total***	***p-value***
Level of education				
Illiterate	*32(32%)*	*17(17%)*	*49(49%)*	***0.4***
Primary	*18(18%)*	*17(17%)*	*35(35%)*	
Secondary	*6(6%)*	*2(2%)*	*8(8%)*	
Higher	*5(5%)*	*3(3%)*	*8(8%)*	
Age				
<20 years	*0(0%)*	*1(1%)*	*1(1%)*	***0.2***
21-25 years	*5(5%)*	*5(5%)*	*10(10%)*	
26-30 years	*17(17%)*	*16(16%)*	*33(33%)*	
31-35 years	*22(22%)*	*8(8%)*	*30(30%)*	
36-40 years			*24(24%)*	

>45 years	*15(15%)*	*9(9%)*	*2(2%)*	
Occupation	*2(2%)*	*0(0%)*		
Employ			*39(39%)*	***0.3***
Unemployer	*22(22%)*	*17(17%)*	*56(56%)*	
Governmental employ	*37(37%)*	*19(19%)*	*5(5%)*	
Family history of GD	*2(2%)*	*3(3%)*		
Yes			*45(45%)*	***0.002***
No	*35(35%)*	*10(10%)*	*55(55%)*	
	26(26%)	*29(29%)*		

Table (3) Distribution of sample according to **gestational DM** and **baby out come**:-

	Gestational DM			
Variable	***Yes***	***No (%)***	***Total***	***P-value***
Fetal assessment				
Normal	*22(22%)*	*10(10%)*	*32(32%)*	***0.12***
Oligo hydraminas	*10(10%)*	*15(15%)*	*25(25%)*	
Poly hydraminas	*17(17%)*	*5(5%)*	*22(22%)*	
IUGR	*3(3%)*	*1(1%)*	*4(4%)*	
Deceased fetal movement	*8(8%)*	*7(7%)*	*15(15%%)*	
Type of delivery				
Spontaneous NVD	*9(9%)*	*2(2%)*	*11(11%)*	***0.47***
Induced NVD	*3(3%)*	*2(2%)*	*5(5%)*	
Operative VD	*9(9%)*	*5(5%)*	*14(14%)*	
c/s	*40(40%)*	*30(30%)*	*70(70%)*	
early and late fetal complication				
Stillbirth	*20(20%)*	*12(12%)*	*32(32%)*	***0.95***
Alive	*39(39%)*	*26(26%)*	*56(56%)*	
Dead	*2(2%)*	*1(1%)*	*5(5%)*	

Table (4) Distribution of sample according to **gestational DM** and **Reproductive history:**-

Variable	*Gestational DM*			
	Yes	*no(%)*	*Total*	*p-value*
Gravid				
>3	*45(45%)*	*31(31%)*	*76(76%)*	***0.81***
4-6	*14(14%)*	*7(7%)*	*21(21%)*	
<6	*2(2%)*	*1(1%)*	*3(3%)*	
Para				
Nulipara	*3(3%)*	*8(8%)*	*11(11%)*	***0.052***
1-3	*54(54%)*	*29(29%)*	*83(83%)*	
4-5	*4(4%)*	*2(2%)*	*8(8%)*	
Abortion				
Yes	*15(15%)*	*18(18%)*	*33(33%)*	***0.025***
No	*46(46%)*	*21(21%)*	*67(67%)*	
Death				
Yes	*7(7%)*	*11(11%)*	*18(18%)*	***0.034***
No	54(54%)	28(28%)	*83(83%)*	

Discussion

The dramatic increase in the prevalence of gestational diabetic and it is adverse effects on maternal and neonatal ,were found it can be reduced by controlling the risk factors developed in the gestational diabetes millets and the information about the outcome of GDM. GDM is more common among women with increasing age and who have a history of previous gestational diabetes milletus, our findings were in line with the previous finding of who had reported that maternal age and previous gestational diabetes mellitus [(10)] have a great role on the outcome of pregnancy [(11)] Women of age more than 25 is being considered as a risk factor which is similar in many studies [(12)] [(13)] [(14)] The current study identified non significant association between gestational diabetes millets and the level of education, the educational states of the sample study show that 32 % were illiterate and 18% were primarily educated level and those who are not familiar with but they have it[(15)] [(16)]. In this study significant increases in the maternal age were observed, the results are similar to the previous study [(17)]. In this study women who occupied or doing physical activity during pregnancy were 22% of them have gestational diabetes millets, while 37% of unemployed women have gestational diabetes millets. We find that time and energy expanded performing physical activity during this time period decrease the risk of gestational diabetes millets [(18)].Family history of diabetes milletus significantly affected on gestational diabetes milletus, as well as the outcome of the delivery [(19)] [(20)]. The

women who had positive family history of Diabetes Mellitus had paternal only history of diabetes the result are similar established to the studies which involved and that diabetes mellitus have the main role of gestational diabetes millets and their outcome[21] [22].The result of this study shows that the highest percentage 45% of the samples was gravida less than 3 and 54% of the study sample was multi para that is mean exactly between 1-3 and majority of the study sample 46% of them had no abortion, and 54% of them had baby death . There is a significant relationship between the gravid and gestational diabetes mellitus [23] reported that of mothers with gestational diabetes millets were multi gravid and[24] reported that 50% of the samples were multi gravid which support the present study finding. The rate of cesarean section was increased significantly with gestational diabetes millets [25] and the rate of polyhydrominase are more common among gestational diabetes millets as showed by [26] polyhydrominase and oligohydraminos had correlation with gestational diabetes mellitus[27] .In study women were complicated with oligohydraminos and complicated with polyhydrominase. The rate of Cesarean delivery was increased significantly with gestational diabetes mellitus [28] the other co-morbidity conditions like the cesarean delivery in gestational diabetes mellitus [29] study the rate of cesarean delivery was high with of whole delivery, gestational diabetes women found with was cesarean delivery [30] [31] [32]. And primigravida women were more in number. [33] of multiparous women were diagnosed with gestational diabetes mellitus before 24th week of gestation [34]

Conclusion

The results suggest that regarding Scio-demographic characteristics of the data, most of the sample between age 26-30 years old and nearly half of them 49% are illiterate, while majority of participant unemployed and they represented 56% of the study sample, only 12% of them they did not visit the antenatal care during pregnancy period, 61% of the study sample they have a history of gestational diabetes millets, while 28% of the study sample they have a history of gestational hypertension, according to chronic diabetes millets 45% of the sample have chronic diabetes millets. There is no any significant relation between the level of education, age, occupation, antenatal visit care, gestational diabetic, gestational hypertension, chronic hypertension, fetal assessment, type of delivery, early of late fetal complication, abortion and death, while there is significant relation between reproductive history especially Para, abortion and death with Gestational Diabetes Milletus.

Recommendation

1- Gestational Diabetes Milletus is a condition that should be treated aggressively and it is a problem that affects a significant number of women during pregnancy, regardless of risk factors early screening before 24th week of gestation, for gestational diabetes milletus is strictly recommended.
2- A major part of GDM involves educating the patient about diet, exercise, blood glucose self monitoring and insulin self-administration, pharmacists can optimize overall care of a gestational diabetes patient by educating, monitoring and intervening or assisting the patient in the management of gestational diabetes milletus there is a need for pharmacist intervention in the prevention and management of GDM and training the nurses about the safety precautions required for the safe handling administration of insulin and provide guidance to the patients of GDM regarding diet plan and exercise to prevent it.
3- Increasing awareness of the magnitude and timing of the risk of gestational diabetes among patients and clinicians could provide an opportunity to test and use dietary lifestyle and pharmacological interventions that might prevent or delay the onset of gestational diabetes milletus in affected women.

4- In order to circumscribe and minimize potential complications to the mother and the child, screening, diagnosis and management, there is still work need to be done to gain a better sense of what screening protocols are most efficacious and when they should be administrated, this is done by

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a. Involving women's organization and association in taking a role in improving self-care practices of mother regarding gestational diabetes mellitus.
b. Encourage the media education programs TV and Radio, Newspaper, Journal, seminars, and booklet and internet about increase mother's knowledge regarding self care for gestational diabetes mellitus
c. Future studies should be done to assess self – care practices for gestational diabetes mellitus in Kurdistan region by including larger study sample.

5- All general practitioners must update their knowledge and skills of the use of the GDM guidelines regularly, it is best to do this in an interactive workshop through problem based learning.

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