INDUCED HYPERTENSION AND GESTATIONAL DIABETES AMONG PREGNANT MOTHERS ATTENDING PRIMARY HEALTH CARE CENTERS IN ERBIL CITY

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ABSTRACT

Background

Pregnancy induced hypertension and gestational diabetes represent the most common medical complications of pregnancy and a major cause of maternal and perinatal mortality and morbidity worldwide. Gestational diabetes have has been shown to have a significantly higher risk of having a pregnancy complicated disease of mixed etiology when compared to women with normal carbohydrate metabolism, gestational diabetes mellitus is also relatively common and affects 3-5% of pregnancies, resulting in a variety of complications that primarily affect the fetus, including, stillbirth, jaundice, and respiratory distress syndrome.

Objectives

This study aimed to determine the pregnancy induced hypertension and gestational diabetes among pregnant women attending primary health care center in Erbil city and to identify the relationship between pregnancy-Induced hypertension, gestational diabetes with some demographic characteristics (age, age of marriage, occupation and level of education).

Methods

The study is descriptive study, the sample was composed of 350 pregnant women who had been attended to primary health care center in Erbil from the period 1/4/2016 to 1/9/2016, a constructed questionnaires was used to obtain the pregnancy induced hypertension and gestational diabetes among pregnant women, and the interview was used as methods of data collection and data was analyzed using SPSS version 18.

Results

The results shows the highest age of pregnant women were between age group (18-34) years old, pregnancy induced hypertension and gestational diabetes were represented (2%) of the study sample, and there was no significant association between age group and educational level with induced hypertension and diabetes mellitus (P-value = 0.156, 0.549,and hypertension (P-value = 0.156, P-value = 0.906)

Conclusion

The prevalence of induced hypertension and gestational diabetes was not high and there was no any association between induced hypertension and gestational diabetes with all variables.

Keywords: *Hypertension, Diabetes, Pregnancy, Primary health care centers, Erbil city.*

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INTRODUCTION

Pregnant women with pre-gestational diabetes have been shown to have a significantly higher risk of having a pregnancy complicated disease of mixed etiology when compared to women with normal carbohydrate metabolism, gestational diabetes mellitus is also relatively common and affects 3–5% of pregnancies, resulting in a variety of complications that primarily affect the fetus, including, stillbirth, jaundice, and respiratory distress syndrome [1]. The appearance of hypertensive disease should further compound the clinical situation with increased stress being placed on the mother and the placenta fetal unit giving rise to increased maternal and fetal morbidity or mortality [2].Hypertensive disorders represent the most common medical complications of pregnancy and a major cause of maternal and perinatal mortality and morbidity worldwide [3]. Any degree of glucose intolerance that has its onset or is first detected during pregnancy indicates gestational diabetes, generally during the second or third trimester. Occurrence of gestational diabetes mellitus (GDM) increases future risk for developing type 2 diabetes mellitus, GDM can be managed by meal planning, physical activity and insulin as well, to decrease the complications in maternal and fetus [4]. Hypertensive disorders of pregnancy complicate 5–10 % of all pregnancies and can result in a variety of maternal and fetal complications, including seizures, stroke, hepatic failure, renal failure, intrauterine growth retardation, fetal distress, premature delivery, and death [5].

Importance of the study

Our realization and understanding of studying induced hypertension and gestational diabetes as its most common complication for pregnancy women are emerged from previous experience in primary health care centers, physicians comment, and complains of pregnant women from many medical problems. The finding of the study may provide better prenatal care for pregnant women, reduce maternal and neonatal mortality rate, and achieve at the end of a healthy pregnant and healthy mother and a healthy baby, and determine the degree of risk for pregnant women.

Objectives

1) To identify the prevalence of pregnancy induced hypertension and gestational diabetes among pregnant women attending primary health care center in Erbil city

2) To find relationship between pregnancy induced hypertension, gestational diabetes with some demographic characteristics (age, age of marriage, occupation and level of education).

METHODS

Design

A quantitative descriptive design was used to conduct the study.

Sampling and Setting

The study was conducted in 15 primary health care centers in Erbil city, at Kurdistan Region/Iraq. A convenience sampling method was selected; a total of 350 pregnant women were interviewed attending primary health care center during two month, the sample size estimation was selected using the following formula as shown in table 1.

Table 1. Geographical location of primary health care centers in Erbil city.

NO	Name of PHC	Population	Sample size
1	Azadi	88215	43
2	Mohamad Bajalan	84156	41
3	Nafee Akraee	77143	38
4	Kurdistan	65229	32
5	Nawroz	59308	29
6	Nazdar Bamarni	56502	28
7	Mala Afandi	52070	26
8	Braeti khezani	42420	21
9	Sarwaran	35810	18
10	Shahidan	33896	16
11	Tairawa	32686	16
12	Zhian	30192	15
13	Najdi Haidar	26286	13
14	Sultan Muzaffar	14502	7
15	Kurani Ankawa	14292	7
Total		712708	350

Estimation sample in each primary health care center (PHCC):

$$\text{PHCC} = \frac{\text{Population served by each PHCC}}{} \times \text{sample size (350)}$$

Duration

The study was conducted for the period from 1/4/2016 to 1/9/2016.

Inclusion criteria

1) Clients who agreed to participate in the study, and able to communicate verbally

2) All trimesters of pregnancy were included (1, 2 and 3 semester).

Tools of the study

A questionnaire was constructed for the purpose of the study, depending on extensive review of relevant literature, and risk scoring system which is used by PHC Centers in Erbil. The questionnaire consists of two parts. The first parts of the questionnaire were concerned with the socio – demographic characteristics of pregnant include items such as age, level of education, occupation and economic status. The second part of information about past and current medical, obstetrical history which includes (gestational diabetes mellitus, hypertension induces pregnancy and hypertension before pregnancy (past medical history).

Data collection

An interview technique was used as the method of data collection; blood pressure was measured in sitting position after the clients take rest for at least 5 minutes. Pre-existing hypertension: was defined as a systolic blood pressure (BP) of 140 mm Hg or higher, and/or a diastolic BP of 90 mm Hg or more, either pre-pregnancy or at booking before 20 weeks [6]. And for diabetic level measurement, it was depended on Random blood glucose ≥ 125 and it was considerate (gestational diabetes) which ordered by data [7].

Data analysis

Data was analyzed using percentage and mean for demographic characteristics and chi square for associations between categorical variables.

Ethical consideration

Before the data collection an official permission was obtained from the direction of health (DOH) and the permission was taken from all pregnant women before starting the interviews. The researchers were explained the objectives of the study and all requests from study sample.

RESULTS

Table 2 shows that the highest proportion of pregnant women were between age group (18-34) years old which represents (85.1%), most of study sample were housewife's which represent (71.4%), the highest percentage of study sample were graduated from primary school which represent (20.6%), majority of study sample were believed that their economic status were not enough which represent (72.6%),and the majority of them were in second semester of gestational age.

Table 3 shows that the gestational diabetes mellitus and hypertension induced pregnancy, which represented (2%).

Table 4 shows that there was no significant association between age groups pregnancy induced hypertension (P-Value = 0.156) and gestational diabetes.

Table 5 shows that there was no significant association between level of education and diabetes mellitus (P-Value = 0.549), hypertension (P-Value = 0.906).

Table 2. Socio-demographic Characteristics of the study sample.

Socio-demographic characteristics		*n= 350 No./F	(%)
Age	<18 years	21	6
	18-34 years	298	85.1
	≥ 35years	31	8.9
Occupation	Housewife	250	71.4
	Governmental employed	75	21.4
	Student	23	6.6
	Self employed	2	0.6
Level of Education	Illiterate	53	15.1
	Primary school	84	24.1
	Secondary school	113	32.3
	Institute	48	13.7
	College	50	14.4
	Post graduate	2	0.6
Gestational Age	1st trimester	13	3.7
	2nd trimester	205	58.6
	3rd trimester	132	37.7

Table. 3 Distribution of pregnant women by pregnancy induced hypertension and gestational diabetes

Hypertension and Diabetes Mellitus	n=350 No./F	
	F	%
Hypertension induce pregnancy	7	2
Gestational diabetes mellitus	7	2

Table. 4 Association between age and pregnancy induced hypertension and gestational diabetes.

Condition	*n.= 350 Age group No./F=21 <18 years		Age group No./F=298 18-34 years		Age group No./F= 31 ≥ 35years		P-Value of Chi-Square test
	F	%	F	%	F	%	
Induced hypertension	0	0.0	5	1.7	2	6.5	0.156
Gestational diabetes	0	0.0	5	1.7	2	6.5	0.156

This p value was obtained by Fishers exact test NS=Non significant

Table 5. Association between pregnancies induced hypertension and gestational diabetes with level of education.

Level of education	n=350																
	Illiterate n=53		Can read and write n=12		Primary school n=72		Intermediate School n=67		Secondary School n=46		Institute n=48		College n=50		Post graduate n=2		P. Value
	No./F	%	No./F	%	No./F	%	No./F	%	No./F	%	No./F	%	No./F	%	No./F	%	
Induce Hypertension	1	1.9	0	0	1	1.4	2	3	1	2.2	0	0.0	2	4	0	0.0	0.906
Gestational Diabetes	2	3.8	1	8.3	2	2.8	0	0.0	1	2.2	0	0.0	1	2.2	0	0.0	0.549

This p value was obtained by Fishers exact test

DISCUSSION

The majority of pregnant women was at middle age between (18-34) years old, and only few of them were over 35 years old. Support for our findings was found in the study done in Erbil city which found that (77.15%) of pregnant women were between the age group (17-34) years old [6], but it is also worth to mention that 6% of pregnant women were married and they were less than 18 years old which it gave indicators as early marriage compromises girls' development and often results in early pregnancy and social isolation. Child marriage also reinforces the vicious cycle of early marriage, low education, high fertility, and poverty [7], and few of the sample were over 36 years old, this result were agreement with the study which was conducted in Ethiopia by Geda and Lako (2011) which showed that a large majority of pregnant women were in age group (20-29) while only (9.5%) are in the age 40 and above [8]. This result agree with the study done in Erbil city by (Adham, 2008), which showed that the majority (85.5%) of sample were housewives [9]. Ali, 2012 in his study mentioned that women aged 35 years and older had significantly more risk for hypertension and gestational diabetes during pregnancy [10], concerning pregnant women occupation, the highest percentage of the study sample were housewives.

In addition, it agrees with the result of study which done by (Taha, 2003) to (3211) women [6, 9]. Concerning level of education, this finding were agreement with the result of study done to 1100 pregnant women conducted in Erbil city by Ali (2012) which showed that the majority of study sample was in primary and intermediate school graduated of study sample [10]. Our finding revealed that (2%) of study sample were complaining from gestational diabetes and hypertension induce pregnancy. Our result were in agreement with study done in Erbil city by Ali (2012) which reported that (1.5%) of sample have a medical history of diabetes. This prevalence of this result was lower than the study conducted in Thiqar/ Iraq by Al-Ghezay (2011), about gestational diabetes mellitus among pregnant women showed that (8.71%) of pregnant women complained from diabetes mellitus [10, 11], and also with the findings of study done by Adham (2008) that reported (6.4%) of the study sample had hypertension during pregnancy. Support for early finding was found in a study by Wolde (2011) who found that the overall prevalence of hypertension disorder of pregnancy was (8.5%) of subject [9, 12]. Moreover result were agreements with studies conducted in Erbil city by (Jaffer,2007) which showed that (1.2%) of women who admitted to the labor room in Erbil maternity and pediatric hospital had DM (preconception DM and GDM) [13].

Our finding comparable to the study done by (Goldman et al, 2005) showed that incidence of gestational diabetes was low which represent (2%). And also our finding was disagreement with result of a study done in Finland by (Heline et al, 2010) showed that (18.1%) of subject had gestational diabetes mellitus. Another study revealed that gestational diabetes was significantly higher in women with a positive history of diabetes, increasing age, previous pregnancies, pre-pregnancy overweight and short stature [14-16]. As overall we can say that the prevalence of induced hypertension and diabetes was not so high among pregnant women in Erbil city in comparable with other studies .the results shows that there was no significant association between age, and educational level and gestational diabetes mellitus/ induced hypertension This finding was disagreement

with result of study done in Norway by (Olsson et al, 2011) which shows that high levels of education were associated with increased risk of autoimmune diabetes[17].

In conclusion, the prevalence of pregnancy induced hypertension and gestational diabetes was not high in primary health care centers in Erbil city, and there was no any association between all variables understudy and the prevalence of pregnancy induced hypertension and gestational diabetes.

Recommendations

1) Improving nursing practice in primary health care centers to identify the most common risk factors to pregnant women.

2) A health education program must conduct for pregnant women in primary health care center regarding information about hypertension and diabetes.

3) Encourage to prepare highly qualified bachelor nurses to work in the antenatal care unit

4) Apply education programs on TV or newspaper for early detection and control of pregnancy induced hypertension and gestational diabetes.

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