

Maternal Obesity Consequence's Among Pregnant Woman in Gaza Governorate

Suha Baloushah^{1*}, Amal Abo Nofal² and Sohier Suliman²

¹Department of Reproductive Health, School of Nursing and Midwifery, International Campus, Tehran University of Medical Sciences, Tehran, Iran

²Alshifa Hospital, Ministry of health, Gaza Strip, Palestine

***Corresponding Author:** Suha Baloushah, Department of Reproductive Health, School of Nursing and Midwifery, International Campus, Tehran University of Medical Sciences, Tehran, Iran.

Received: May 30, 2017; **Published:** September 16, 2017

Abstract

Maternal obesity has adversely effect on pregnancy outcome. This study focuses on revealing the effect of maternal obesity on pregnancy outcome. This study is based on cohort prospective design. A systemized random sample for 200 mothers whose BMI was ≥ 30 kg/m² at registration and their newborn from UNRWA clinics in Gaza City. The study found some factors that are associated with adverse maternal outcome. Increasing in obesity degree will risk of hypertensive disorder, gestational diabetes; and having macrosomic new born. It is recommended for women planning to be pregnant to keep their body weight within its normal limits. Nutritional advice should be provided in each maternity unit.

Keywords: Maternal Obesity; Hypertensive Disorder in Pregnancy; Gestational Diabetes; Macrosomic Baby

Introduction

Obesity is a major public health problem. It can be defined as an excess accumulation of body fat cells as hypertrophy (increase in size), hyperplasia (increase in number) or both of them. Obesity refers to imbalance in energy when energy intake is more than energy output. There are many factors contribute to obesity [1]. Obesity is considered the fifth leading risk for global death. At least 2.8 million adults die each year as a result of being overweight or obese. According to world health organization (WHO) global estimates of overweight in 2008 were 1.5 billion adults, 20 year and older. Of these over 200 million men and nearly 300 million women were obese. Overall, more than one in ten of the world's adult population was obese [2]. Maternal obesity affect the health of mother in pregnancy and developing fetus that adversely increase risk of gestational diabetes, preeclampsia toxemia, macrosomic baby and birth defect. For all of these reasons, The United Kingdom Wide Obstetric Surveillance System (UKOSS) state that's important to focus in nutritional care to improve their nutritional awareness about the adversely effect of obesity on pregnancy and birth outcome [3]. In a study implemented between 2005 - 2006, World health organization (WHO) figures indicated that 67.4% of Jordanians were overweight or obese, as measured by BMI of 25 or greater. Kuwait had the highest rate of obesity (81.3%), followed by Egypt (76.4%) and Iraq (66.9%) [4]. The prevalence of obesity in United Arab Emirate is 30% among pregnant woman [5]. The prevalence of maternal obesity in Palestine is 17.9% (16.1% in west bank and 20.4% in Gaza strip). The highest prevalence was in Deir El-Balah, North Gaza, and Jericho and Al-Aghwar (28.4%, 24.5% and 22.9%). The lowest prevalence was in Tubas, Jenin and Salfit (11.4%, 13.6% and 13.8%) [6].

Materials and Methods

Sampling

This study is maternal antenatal clinic based cohort prospective study. A cohort of woman with BMI within or more 30 kg/m² at their third trimester were attending antenatal UNRWA clinic was the target group. A prospective study design is the best use to identify the

effect of maternal obesity on pregnancy outcome. Accordingly, the study sample sized was calculated by using Epi Info. Program version six and the sample size was 190 volunteers. The researcher took 200 volunteers putting in consideration the drop rate. All subjects were evaluated in two occasions, during the third trimester of pregnancy and after delivery of their infants. This study started in January 2012. Writing the proposal and getting the approval letters took 2 months. Prepared the field of study and conducting the pilot study lasted for one month. Data collection started at April, 2012 and continued till the end of July, 2012. Data entry and data analysis conducted over the next two months. Writing the final report was completed in December, 2012.

Data Collection

Data collection was started from April, 2012 till the end of July, 2012. The researcher arranged visited to clinic according to the prepared schedule. The researcher reviewed the process of data collection with the working team to ensure accuracy, ethical, cultural and religious need of the participant and the data was collected through structured interview questionnaire and from antenatal health record. The average time for filling the questionnaire was 30 minutes. The data collected from interview questioner, Food Frequency Questionnaire, Anthropometric measurements and Laboratory tests.

Data analysis

Data were summarized as percentages and mean and standard deviation (SD). All statistical analyses were done using SPSS, version 18.

Results

One hundred eighty five women and their newborn were included in the study. Result would include both descriptive characteristic as well as statistical relationships among deferent variables. 185 mothers only responded from 200 participant, 15 participant withdraw from the study. The response rate was 92.5%.

By conducting OGTT, the current study shows that the percentage of women having diabetic is increasing as obesity class increased however, the association was statistically insignificant.

Table shows that 25% of class III obese women suffered from hypertensive disorder during pregnancy while 9.4% of class II obese women suffered hypertension however, the association was statistically insignificant.

	Obesity Class 1	Obesity Class I1	Obesity Class II1	Total	P value
OGTT	No (%)	No (%)	No (%)	No (%)	0.2
Diabetic	5 (3.6%)	2 (6.3%)	2 (12.5%)	9 (4.9%)	
Non Diabetic	132 (96.4%)	30 (93.8%)	14(87.5)	176 (95.1 %)	
Total	137 (100)	32 (100)	16(1000	185 (100)	
Hypertensive disorder in pregnancy	Obesity Class 1	Obesity Class I1	Obesity Class II1	Total	P value
	No (%)	No (%)	No (%)	No (%)	0.2
Hypertensive	15 (10.9)	3 (9.4)	4 (25.0)	22 (11.9)	
Not hypertensive	122 (89.1)	29(90.6)	21 (75.0)	163(88.1)	
Total	137 (100)	32 (100)	16 (100)	185 (100)	
Birth weight	Obesity Class 1	Obesity Class II	Obesity Class III1	Total	P value
	No (%)	No (%)	No (%)	No (%)	0.61
LBW	3 (2.2)	1 (3.1)	0 (0)	4 (202)	
NBW	115 (83.9)	24 (75)	12 (75)	151 (81.6)	
Large BW	19 (13.9)	7 (21.9)	4 (25)	30 (16.2)	
Total	173 (100)	32 (100)	16 (100)	185 (100)	

Table 1: Effect of maternal obesity on pregnancy outcome.

The relationship between maternal obesity and neonatal birth weight as shown table revealed that 25% of class 3 obese women delivered large baby while 13.9% of class 1 obese women delivered large baby however, the association is statistically insignificant.

Discussion

The prevalence of PIH and preeclampsia of the current study was 11.9%. Hypertensive disorders occur in up to 10% of all pregnancies; gestational hypertension recorded rates of 4.2 - 7.9%; preeclampsia recorded 1.5 - 7.7% (National Health Services [NHS], 2012). Another study conducted by [7] revealed that the prevalence of hypertensive disorders in pregnancy was 13% and slightly less than half of them (47.3%) were gestational hypertension. The PIH rate of the current study is higher than stated by NHS because the PIH in the current was conducted on obese pregnant women which are a risk factor for hypertension. However, the result of the current study (11.9%) is closer of the Cnossen study (13%). Previous studies clarified that hypertensive disorders complicate 5 to 10% of pregnancies. Multiple risk factors in PIH development have been described such as previous [8] and in this study there is 13 % of participant have previous history of hypertension disorder of pregnancy.

According to [9] 347 million people worldwide have diabetes. The global prevalence of diabetes in 2008 was estimated to be 10% in adults aged 25 years and over. The prevalence of diabetes was highest in the Eastern Mediterranean Region (11% for both sexes). The prevalence rate of DM in Palestine is about 9% in 2000 [10].

In this study, the prevalence of GDM in pregnancy was 4.9% from the total participant. The total prevalence in the Gaza strip according to the annual report of the UNRWA department of health was 2.2% [11]. The prevalence of the current study is more than two folds of the prevalence of UNRWA 2010 report which could be due to the sample of the current study was totally from obese mothers that increase risk of GDM. A study conducted in the Gaza Strip which aims to determine the nutrition status of pregnant women with GDM found that 80% of pregnant women with GDM were obese [12]. This surprisingly high prevalence of obesity because the study population was pregnant women with GDM and obesity is one of the risk factors for GDM.

The current study reveals that 2.2% of study participants gave birth to low birth weight infants, while the percentage of low birth weight (< 2500 gm) of total births in GS is 5.9 [13]. This low percentage of low birth weight in the current study is justified when it is known that the study participants are obese. The current study also reveals that 16.2% of study participants gave birth to macrosomic infants (birth weight > 4000 gm). Also, the study reveals that the rate of delivery of macrosomic infants is increased by increasing maternal BMI, 13.9%, 21.9%, 25% for obesity classes 1, 2, 3 respectively. This is supported by [14] who stated that super obese women were significantly more likely than obese women to have macrosomia.

Conclusion

The study concluded that obesity has adverse effects on pregnancy outcome on both mothers and their infants. Gestational diabetes present in 4.9% of study participants. Those who are in class 3 obesity show have double possibilities to be diabetic than those who are in class 1. Gestational hypertension present in 11.9% of study participants. Those who are in class 3 obesity show more than have double possibilities to be hypertensive than those who are in class 1. The study participants of class 3 obesity are have double possibilities to give birth to macrosomic infant than those of class 1 obesity.

Source of Funding

The funding was personally, No external agency or institute provide us with any financial support.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Bibliography

1. Wolin K and Petrelli. "Obesity, 1st edition". Greenwood publishing group USA (2009): 37-40.
2. Obesity and overweight. Geneva, World Health Organization (2011).
3. UK Obstetric Surveillance System. Epidemiology of maternal obesity, UK (2007).
4. Luck T. "Around 80% of Jordanians obese or overweight, the Jordan time, Amman (2009).
5. Al-Awar S. "Obesity numbers rising in pregnant women". OBS-GYNE Exhibition and Congress, UAE (2007).
6. Nutritional Surveillance System, Annual Report, ministry of Health, Palestine (2011).
7. Cnossen JS., *et al.* "Accuracy of body mass index in predicting pre-eclampsia: bivariate meta-analysis". *British Journal of Obstetrics and Gynaecology* 114.12 (2007): 1477-1485.
8. Ordas M., *et al.* "Gestational Hypertension: Risk Factors, Clinical and Laboratory Findings". *Journal of Hypertension* 28 (2010): e538.
9. "About Diabetes". Geneva, World Health Organization (2012).
10. Health Status in Palestine 2003, PHIC. Non-Communicable Diseases, Palestinian Ministry of health (2004).
11. Annual report of the department of health. Gaza UNRWA (2010).
12. El-Kurd. "Nutritional status of woman with gestational Diabetes mellitus and Pregnancy outcome in the Gaza". A thesis submitted in partial fulfillment of the requirement for the degree of master in clinical nutrition (2010).
13. Health Annual Report 2009. Ministry of Health Palestine (2009).
14. Marshall NE., *et al.* "Maternal super obesity and perinatal outcomes". *American Journal of Obstetrics and Gynecology* 206.5 (2012): 417.e1-6.

Volume 10 Issue 6 September 2017

©All rights reserved by Suha Baloushah., *et al.*