

**COMPLICATIONS OF OBESITY DURING PREGNANCY, CHILDBIRTH AND  
POSTPARTUM AMONG A SAMPLE OF OBESE IRAQI WOMEN**

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**ABSTRACT**

Overweight and obesity among Iraqi adults is continually growing affecting one in three adults from which 63.1% are women. Obesity during pregnancy increases the risk of maternal and fetal complications. The conditions of delivery are also more difficult. The aim of this study was to describe the effects of obesity occurring in pregnancy, childbirth and postpartum among obese women in Iraq. This cross-sectional study was conducted in the Department of Gynecology -Al-Falluja Teaching Hospital for Gynecology and Pediatrics – Falluja-Anbar /Iraq in 2017 on 150 women, who had just given birth, and have a Body Mass Index more than 30. The sociodemographic conditions and data about complications occurring during pregnancy, childbirth and postpartum were collected through a structured interview and from participants' birth records. Results showed that several complications were noticed, gestational diabetes occurred first (22.7%), followed by preeclampsia (14%). More than (38%) of women gave birth by cesarean section. Almost (33.3%) of participants had postpartum complications, the most common being infection (13.3%) and hemorrhage (12%). It can be concluded that the high incidence of complications in obese women during pregnancy, childbirth and post-partum emphasizes the need of a women nutritional management in preconception and during pregnancy to minimize complications. Also, prenatal consultations are very important for the surveillance and early detection of a complication which can occur.

**KEYWORDS:** Obesity, Pregnancy, Childbirth, Postpartum, Iraqi.

**INTRODUCTION**

Changes in diet, habits and lifestyles of human populations observed over the last decades, have contributed to an increase in overweight, obesity and some chronic diseases associated with nutrition.<sup>[1]</sup> According to recent WHO global statistics, more than 1.9 million adults were overweight and 600 million were obese, globally 10% of the world's adult population was obese.<sup>[1]</sup> Generally, female population is more affected, when 15% of obese women versus 11% for men were reported.<sup>[1]</sup> In Iraq, the demographic transition has been accompanied by changes in lifestyles, including food and physical activity (Knoema, 2016). This nutritional transition was marked by the transition from a traditional diet based on cereals and vegetables to a diet that includes more animal products and tends to become excessive in relation to the energy needs of a sedentary life.<sup>[2]</sup>

According to Knoema, 2016<sup>[3,4]</sup>, obesity has reached epidemic proportions throughout the globe, and this has also impacted people of the Arabic-speaking countries, especially those in higher-income, oil-producing countries. There is a significant increase in the incidence of obesity with a prevalence of 2%–55% in adult females and 1%–30% in adult males.<sup>[4]</sup> Obesity is responsible for significant complications among pregnant women and it can put maternal and newborn health at major risk.<sup>[3,4]</sup> Indeed, during pregnancy, obesity increases the risk of maternal complications (gestational hypertension, gestational diabetes) and fetal complications (malformations, macrosomia). The conditions of delivery are also more difficult, with more caesareans and failures of epidural analgesia.<sup>[5-7]</sup>

**MATERIAL AND METHODS**

This cross-sectional quantitative descriptive study was conducted in 2017 in the Department of Gynecology -Al-

Falluja Teaching Hospital for Gynecology and Pediatrics – Falluja-Anbar /Iraq.

A sample of 150 women was included in the study according to an accidental probabilistic sampling based on two major inclusion criteria (1) women who had just given birth, and thus had an experience of pregnancy, childbirth and postpartum (2) women with a body mass index more than 30 (BMI>30).

Standardized interviews were used for data collection from eligible participants. We collected information about women socio-demographic status and complications occurring during pregnancy, childbirth

and postpartum experience. Our data were completed and confirmed from official participants' birth records.

Before starting our study, we received approval from the local ethics committee of the Ministry of Health. All participants were informed by the objective of the study and gave their free informed consent to participate in this study.

#### Data analysis

Data were analyzed by the SPSS software version 20 program. Woman Body Mass Index was calculated according to  $BMI = \text{Weight (kg)} / \text{Size}^2 \text{ (m)}$  with the weight of women before pregnancy.

## RESULTS

**Table (1): Socio-demographic characteristics and nutritional status of participants.**

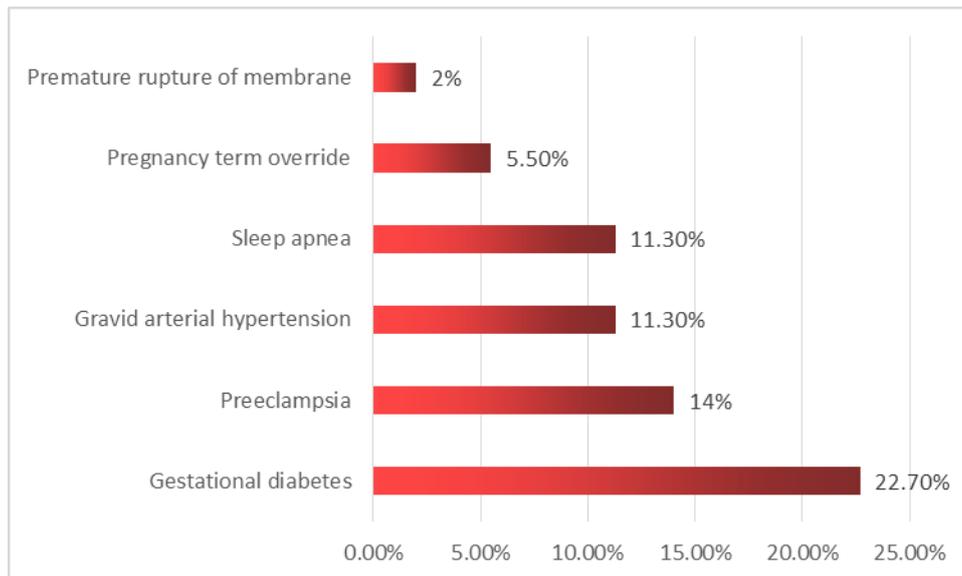
Variable	Categories	N	%
Age (year)	17-25	42	28
	26-35	78	52
	36-44	30	20
Origin	Urban	73	48.7
	Rural	77	51.3
Education	Illiterate	66	44
	Primary	46	30.7
	Secondary	36	24
	College+	2	1.3
Professional activity	yes	6	4
	no	142	94.7
	student	2	1.3
	Yes	86	57.3
Nutritional status	Moderate obesity	93	62
	Severe obesity	45	30
	Morbid obesity	12	8
Total		150	100

In this study, (150) women, aged between 17 and 44 years with a mean age of 30.5 years (SD=9.1) were included. The demographic origin is rural for 51.3% (N=77) of participants and more than 74% (N=112) of them were illiterate or did not exceed the level of primary education in the moment of the survey. More than 94.7% of the participants did not have any professional activity (Table 1). The BMI of participants ranged from 30 to 48.1 with an average of 34.14 (SD=4.45). The distribution by grades of obesity showed more than 38% of severe obesity and morbid obesity among participants (Table 1).

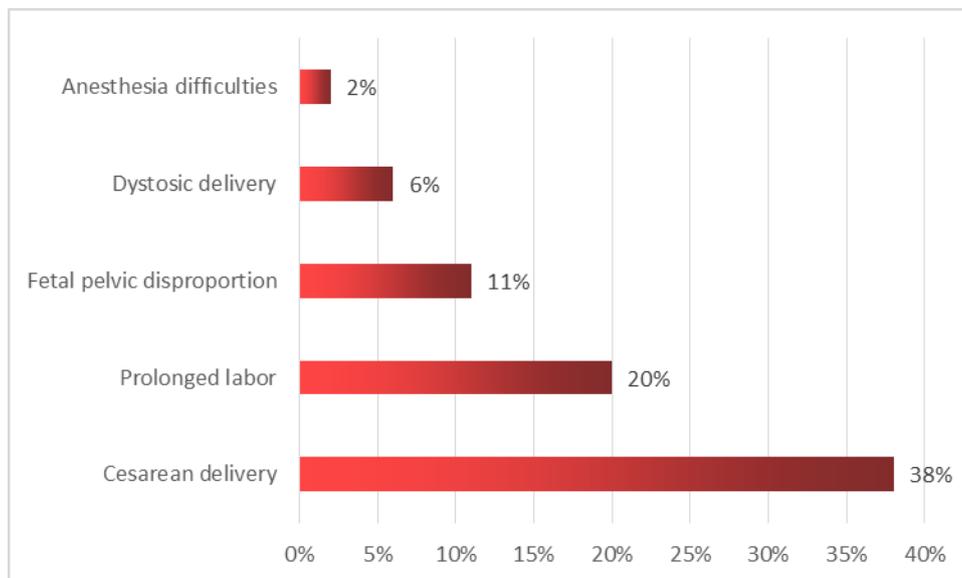
The majority of participants 74.7% (N=112) have done, at least, one prenatal consultation at a health center during their pregnancy. However, only 14.7% (N=22) of them had received dietary advice and without any information about complications they could have during pregnancy or delivery and therefore, did not have any special care for obese women.

The majority of participants had complications during pregnancy (Figure 1). Gestational diabetes occurs first

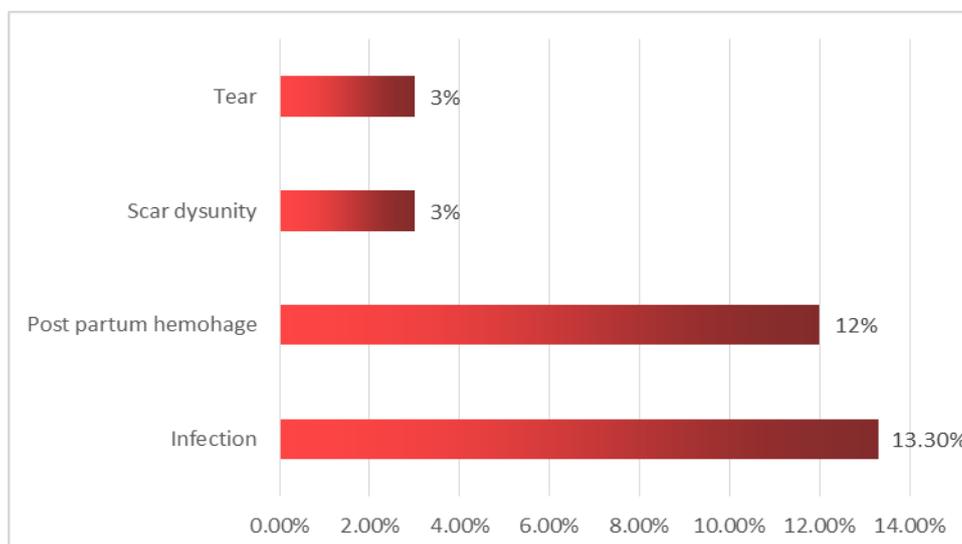
with an incidence of 22.7% (N=34), followed by preeclampsia 14% (N=21). In addition, 11.3% (N=17) of pregnant women had sleep apnea and 11.3% (N=17) had gestational hypertension. During childbirth, caesarean delivery was the case for 38.0% (N=57) of women and 20% (N=30) had obstructed labor (Figure 2). Almost 33.3% (N=50) of obese women had postpartum complications, the most common being infection (13.3%) (N=20) and hemorrhage (12%) (N=18) (Figure 3).



**Figure (1): Pregnancy related complications among participants.**



**Figure (2): Complications during delivery.**



**Figure (3): Postpartum complications.**

## DISCUSSION

The participants in this study were young, had rural and urban origins, with a low level of instructions, without professional activity and a modest economic level. Most women were presented complications during pregnancy process and first comes gestational diabetes. Indeed, gestational diabetes is one of the most common complications of pregnancy in obese women, which reflects a rise in maternal blood glucose that occurs during pregnancy from 26 weeks of age and disappears after childbirth. Obesity causes a decrease in insulin sensitivity which is added to the phenomenon of physiological insulin resistance in pregnant women that develops during pregnancy and increasingly. It has been found that obese women are 2.6 times more likely to develop gestational diabetes.<sup>[7-9]</sup> The rate of preeclampsia and gravid arterial hypertension was respectively 14% and 11.3% among participants. In fact, overweight and obese women are respectively 2.5 times and 4 times more likely to develop pregnancy-induced hypertension and which has the serious complication of preeclampsia, leading to a high risk of eclampsia attacks that are responsible for maternal and perinatal mortality.<sup>[9-11]</sup> In addition, 11.3% (N=17) of pregnant women had sleep apnea and 11.3% had gravid arterial hypertension. Sleep apnea syndrome and obesity have a well-established relationship.

Overweight reduces thoracic wall compliance and increases respiratory tract resistance; these repeated periods of nocturnal desaturation have a role in the genesis of pre-eclampsia and in utero growth retardation.<sup>[11-13]</sup> Post-term delivery is also a consequent of obesity. According to the WHO definition, an outdated term is a pregnancy that extends beyond 41 weeks of completed amenorrhea. In fact, the duration of pregnancy increases in proportion to pre-conception BMI.<sup>[9,11,12]</sup> Similarly, it showed an increased risk of post-term delivery by grade of obesity at 1.4, 1.5, and 1.8, respectively, for moderate, severe, and morbid obesity. The cesarean delivery rate recorded in this study (38%) was well above the national average of 14%.<sup>[14]</sup> The increase in cesarean delivery and dystocic delivery in obese women has been reported by other authors Djorolo *et al.*<sup>[5]</sup>, Galtier *et al.*<sup>[6]</sup> Deruelle<sup>[9]</sup> and Mission *et al.*<sup>[13]</sup>

Postpartum in overweight and obese women is also a critical period where serious complications occur. In this study, 33.3% of women had postpartum complications, the most prevalent were infections and hemorrhages. Indeed, several studies have shown that the most common complication of postpartum in obese women is infection (endometritis, wall infections, cesarean or episiotomy scar disruption).<sup>[11-13,15]</sup> Surgical site infections are two to three times more frequent in overweight patients. These complications lead to a length of stay that increases proportionally with the BMI of patients, regardless of the mode of delivery.<sup>[6]</sup> In addition, the risk of bleeding from delivery also increases

with obesity.<sup>[11-13,15]</sup> The incidence of other complications, such as pulmonary embolism and deep vein thrombosis occur, also increases in obese women.<sup>[5-7,9]</sup>

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