

Frequency of Maternal Complications in Obese and Non Obese Pregnant Patients

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ABSTRACT

Objective: To compare the frequency of maternal complications in obese and non obese pregnant patients.

Subject and Methods: This study comprises 82 pregnant patients during their 1st trimester of pregnancy, which were further divided into 2 groups as obese and non obese as per their body mass index BMI. Mean and standard deviation was calculated for BMI and gestational age. Frequency of post operative complications and outcomes like preeclampsia and eclampsia, gestational diabetes mellitus GDM, pre-term delivery and mode of delivery were noted.

Results: The majority of patients were in age group of 26 to 35 years. Mean BMI was 33.19 ± 1.837 in obese group, while in non obese group it was 22.49 ± 1.186 . No significant difference was found in terms of gestational age among both groups. There was significant difference in occurrence of postoperative complications in obese group as compared to non obese group.

Conclusion: An increased BMI increases the chances of preeclampsia, eclampsia, GDM, preterm delivery and C section mode of delivery.

Key Words: Body Mass Index, Maternal Obesity, Gestational Diabetes Mellitus, Preeclampsia, Pre term Delivery

INTRODUCTION

Obesity is a state in which extra body fat has gathered to the point that it may be harmful to one's wellbeing.¹ Obesity has become much more common throughout the world in recent decades, and the World Health Organization (WHO) has labeled it a "global epidemic" that poses a severe danger to community wellbeing.²

Obesity is developing as an epidemic in most industrialized nations, with the incidence of overweight and obesity growing day after day.³ Obesity is more common among women than it is among men. Weight gain during pregnancy, the use of oral contraceptives, and excess weight owing to estrogen are all possible causes. A lack of social life and physical activity is another typical factor for ladies gaining weight.⁴

Obesity in pregnancy was identified by the World Health Organization (WHO) as one of the major noncommunicable illnesses threatening mother and child health in 2009.⁵ At the prenatal booking appointment, obesity in pregnancy is commonly characterised as a mother BMI of 30.¹ Obesity in pregnant women is currently regarded one of the most prevalent concerning factors in obstetrics practise, and obstetricians are progressively dealing with obese women. Such individuals present unique treatment concerns, including greater chances of certain sequelae as well as medical, surgical, and technical difficulties in delivering safe maternity care.⁶

Obesity among women of reproductive age has risen dramatically in recent generations in both high- and middle-income nations.⁷ In India, the projected rate of overweight and obese pregnant women was 21.7 % in 2014, while in the United States it was 33 %.⁷ Even younger women, it appears, are at danger of gaining excessive weight as they reach childbearing years.⁶ As women approach pregnancy with a greater BMI, this has a substantial influence on their reproductive health.⁸

Obese women take lengthier to conceive, with a BMI of 40kg/m² having a nearly 7-fold greater chance of taking longer than 12 months to conceive than women with a standard BMI.^{9,10}

Obesity is an obstetrics threat as well as an antenatal component prepartum or postpartum, both on the foetal and maternal sides, because it does not exempt pregnant women.¹¹ Preeclampsia, gestational diabetes mellitus (GDM), repeated miscarriage, congenital abnormalities, pregnancy-induced hypertension, and caesarean birth are among the pregnancy issues linked to maternal obesity.^{12,13} In terms of postpartum problems, women who are overweight or obese are more likely to experience bleeding during delivery and significant postpartum

haemorrhage.¹⁴ Moreover, 20–35 % of long-term alterations in maternal weight are due to weight increase during gestation.¹⁵

Women's weight maintenance might be a valuable tool in achieving this goal.¹⁶ Obesity has become the biggest prevalent comorbid of pregnancy all across the globe during the last few years. Since several studies have shown that these pregnancies have at danger for various problems, considerable clinical care is essential for the women and growing babies during pregnancy.¹⁷

Obese moms had a considerably greater risk of pregnancy-related problems than normal-weight pregnant women. This study aims to find out the frequency of maternal complications in obese patients in comparison to non obese healthy individuals.

MATERIAL AND METHODS

This case control observational research was conducted at Obstetrics and Gynecology department of Abbasi Shaheed Hospital at Karachi Medical and Dental College, Karachi from Jan 1st 2021 to December 31st 2021. A total of 82 patients were enrolled in the study, which were further divided into 2 groups as mentioned below:

Group A: 41 Obese Pregnant Patients

Group B: 41 Non Obese Healthy Pregnant Patients

Inclusion Criteria

- BMI > 30 were included in Obese group
- BMI 18.5 to 25 were included in Control group
- Singleton pregnancy presented in first trimester having age range of 19 to 35 years.

Exclusion Criteria

- Not willing to participate in the study
- Patients with pre existing medical disorders like Hypertension, Pre pregnancy diabetes, anemia and chronic renal diseases
- Patients with placenta previa
- Patients with multiple miscarriages in past

Data Collection: All of the women who were recruited in the study were monitored at least four times throughout their pregnancy to evaluate prenatal and maternal complications. The maternal complications like gestational diabetes mellitus (GDM), preeclampsia, eclampsia, pre term delivery and mode of delivery noted and their frequency was compared between obese and non obese participants. All Data was analyzed on SPSS Version 21.0. P-value < 0.05 was considered significant.

RESULTS

In this study, most of the patients were in age group of 19 to 35 years, followed by 18 to 25 years in both groups, as shown in Figure 1. The Mean body mass index noted in this study was 33.19 ± 1.837 in obese group, while in non obese group it was 22.49 ± 1.186 . Mean gestational age of participants was 37.21 ± 1.544 in obese group and 37.01 ± 0.431 in non obese group, see table 1 for demographic findings.

The findings showed that the maternal complications were significantly better in women who were non obese as compared to obese women. The rate of preeclampsia was significantly (34.14% vs 17.07%) higher in obese cases in comparison to non obese controls. The rate of eclampsia (26.82% vs 12.19%) and gestational diabetes (31.70% vs 17.07%) was significantly associated with obesity as compared to a normal healthy weight. Preterm delivery (39.02% vs 21.95%), and cesarean section (48.76% vs 31.70%) was observed in obese cases as compared to non obese cases who had normal weight as shown in table 2.

Figure 1: Showing Age Distribution of Patients.

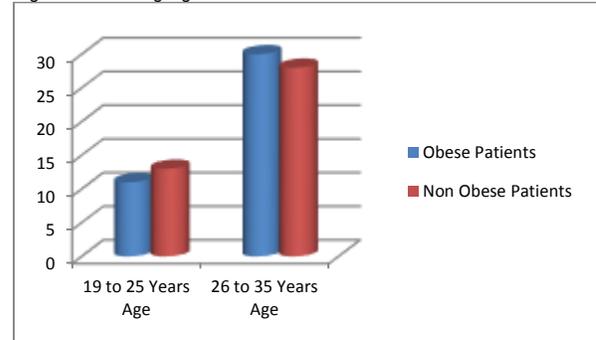


Table 2: Demographic Variables

Variable	Group A	Group B	P Value
	Obese Patients	Non obese patients	
Body Mass Index	33.19 ± 1.837	22.49 ± 1.186	0.001
Gestational Age	37.21 ± 1.544	37.01 ± 0.431	0.312

Table 2: Frequency of Maternal Complications in both Groups

Maternal Complication & Outcomes	Group A		Group B	
	Obese Patients		Non obese Patients	
	Yes	No	Yes	No
Pre-eclampsia	14 (34.14%)	27 (65.85%)	07 (17.07%)	34 (82.92%)
Eclampsia	11 (26.82%)	30 (73.17%)	05 (12.19%)	36 (87.80%)
Gestational Diabetes	13 (31.70%)	28 (68.29%)	07 (17.07%)	34 (82.92%)
Pre term Delivery	16 (39.02%)	25 (60.97%)	09 (21.95%)	32 (78.04%)
Mode of Delivery				
SVD	21 (51.21%)	20 (48.78%)	28 (68.29%)	13 (31.70%)
Cesarean Section	20 (48.78%)	21 (51.21%)	13 (31.70%)	28 (68.29%)

DISCUSSION

At the prenatal booking appointment, obesity in pregnancy is commonly characterized as a mother BMI of 30. The frequency of pre-pregnancy obesity grew by 69 % during a 10-year period, from 13 % in 1993-1994 to 22 % in 2002-2003, according to data from PRAMS (Pregnancy Risk Assessment Monitoring System).¹⁸

Body mass index (BMI) extremes are linked to poor pregnancy consequences. There is mounting indications that the placenta plays a critical effect in foetal growth control. The benefits of losing weight before becoming pregnant are numerous, and it enhances the fetomaternal result. Maintaining diet and lifestyle adjustments after pregnancy is critical for reducing maternal and foetal suffering in the long run.¹⁹

The result of this study emphasizes obesity as an emerging pandemic amongst pregnant women, and Karachi city is also not spared. The mean BMI score in the obese patients recorded in this study was 33.19 ± 1.837 which is far more than normal BMI score. Similar to our data, the study carried out by Takai IU stated that obesity was associated with age ≥ 36 years.²⁰

Obesity's influence on pregnancy has been researched for decades, and it has been shown to have both instantaneous and long-term negative repercussions for both the mother and the child.²¹ Obesity or overweight during pregnancy enhances the risk of pre-eclampsia, eclampsia, GDM, and premature birth, according to research.^{22,23} This current study also encountered similar maternal complications as reported various authors in different parts of world.^{13,24,25}

Pre-eclampsia is a pregnancy complication characterised by high blood pressure and proteinuria that affects 3–5% of pregnancies, worldwide^{1–3} and is one of the primary reasons of maternal and newborn death and morbidity in advanced nations.²⁶ In this present study 14 (34.14%) patients have been reported with

preeclampsia in obese group patients, while only 07 (17.07%) subjects were reported in non obese group. This shows the seriousness of preeclampsia in obese group patients. In accordance with our findings, Robert JM²⁷ et al discovered that the probability of preeclampsia in obese moms is three times higher than in standard weight mothers. Similarly, the study performed by Kaur R³ showed increased incidence of pre eclampsia with obesity with highest percentage in obese group (34.40%) followed by overweight (20%) and normal weight women (12.24%). Since 1996, the preponderance of observational research have found a direct link between maternal BMI and the likelihood of preeclampsia.²⁸

Eclampsia was seen in 11 (26.82%) obese patients as compared to 05 (12.19%) in the non obese group in this current study. Similar findings were reported in terms of eclampsia by Hanif S et al¹³, where they found eclampsia in 21.8% obese group patients.

GDM (gestational diabetes mellitus) raises the probability of type 2 diabetes in the long run. Our study reported 13 (31.70%) patients with GDM in obese group patients, while only 07 (17.07%) subjects were reported with GDM in non obese group. Alfadhli EM²⁹ in his study reported 50.2% obese patients with GDM in Saudi population, this data concludes that there is definitive association of GDM and maternal obesity. Our findings, which were similar to those of Takai IU²⁰, revealed a substantial link between gestational diabetes and obesity. A previous research indicated that gaining weight in the five years leading up to pregnancy, even at a pace of 1.1 to 2.2 kg per year, increased the chance of acquiring GDM, even in women who were not previously overweight.³⁰

Preterm deliveries in this present study were reported in 16 (39.02%) patients of obese group, while in non obese group it was

only in 09 (21.95%). The results of the present study are in accordance with Yazdani et al³¹ who stated that nulliparous women with a higher BMI had a higher percent of pre term labour. Our findings related to pre term delivery are also similar to previous studies from Bhattacharya et al.³²

The rate of c-sections was substantially connected with overweight and obesity, pertaining to the findings of this analysis. When compared to non mothers, the caesarean section rate was considerably high (48.78.6 % vs. 31.70 %). Numerous reports in the literature back up this increased prevalence of c-sections among obese women. According to a study done in the United States, the frequency of c-sections increases as the mother's weight rises.³³ Total 40.8 % of obese women and 56.6 % of severely obese women required caesarean birth, according to the study.³⁴ Although the exact explanation why obese pregnant women are more prone to have a caesarean delivery is unknown, one thought is because they are more prone to have dysfunctional labor.

CONCLUSION

It was thoroughly concluded that maternal obesity is directly linked with maternal complications. An increased BMI increases the chances of preeclampsia, eclampsia, GDM, preterm delivery and C section mode of delivery. Pregnant women with a BMI that is greater than usual should be addressed as high-risk pregnancies, with an appropriate treatment plan in place to minimize maternal problems. Normal weight pregnant women can also be associated with adverse outcomes when they are not properly managed, therefore need adequate management to remain healthy.

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