

Research Article

**Antenatal outcome in obese obstetric patients presenting
at tertiary care hospital**

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ABSTRACT

The World Health Organization (WHO) defines obesity as an abnormal or excessive fat accumulation that presents a risk to health, using the body mass index (BMI) ≥ 30 as a crude estimate. Complications of obesity seriously affect the obstetric outcome of such women, endangering both maternal and fetal health and well-being. Chinese researchers estimate that increasing BMI is associated with increased risks of adverse obstetric outcomes, such as pre-eclampsia, gestational diabetes, and preterm delivery among Chinese.

Objective: To study the antenatal outcome in obese women presenting with pregnancy at BVH Bahawalpur.

Material and methods: This cross sectional was conducted at Department of Obstetrics & Gynecology, Bahawal Victoria Hospital, Bahawalpur from January 2018 to June 2018 over the period of 6 months. Total 190 pregnant obese women were selected and pregnancy induced diabetes mellitus and pregnancy induced hypertension was assessed in selected patients.

Results: Total 190 obstetric patients were selected for this study. Mean age of the patients was 30.56 ± 6.718 years and mean gestational age was 23.73 ± 2.945 weeks. Out of 190 obstetric patients, gestational diabetes mellitus was found in 45 (23.7%) patients. Pregnancy induced hypertension was observed in 95 (50%). Minimum gestational age was 20-24 weeks and maximum gestational age was 25-28 weeks. Primary gravidas were 50 (26.23%) and multi gravidas were 140 (73.7%).

Conclusion: Results of this study showing a higher rate of pregnancy induced hypertension and gestational diabetes on obstetrics. Findings of this study also showing significant association of pregnancy induced hypertension and gestational diabetes with age and parity.

Key words: Obesity, Pregnancy, Body mass index, Hypertension, Fetal macrosomia, Cesarean section

INTRODUCTION

The World Health Organization (WHO) defines obesity as an abnormal or excessive fat accumulation that presents a risk to health, using the body mass index (BMI) ≥ 30 as a crude estimate.¹

The WHO characterizes obesity as a pandemic issue, with a higher prevalence in females, especially those of child-bearing age, than in males. Over the last several years the rising rate of obesity has become a major public health

concern not only in the West but also among Asian populations.²

Pregnancy complications in obese women were identified as early as 1945. Complications of obesity seriously affect the obstetric outcome of such women, endangering both maternal and fetal health and well-being.³ Chinese researchers estimate that increasing BMI is associated with increased risks of adverse obstetric outcomes, such as pre-eclampsia, gestational diabetes, and preterm delivery among Chinese.⁴ Since then, a number of studies have reported a clear association between maternal obesity and adverse pregnancy and neonatal outcomes. In particular, obesity in pregnancy is associated with a high rate of preeclampsia, pregnancy-induced hypertension, gestational diabetes, abnormal labor, cesarean section, fetal macrosomia, lower respiratory tract infections, and infant birth defects.^{5,6}

Diabetes mellitus and hypertension are most frequently occur in obese patients. A study is planned to determine the outcome (gestational diabetes mellitus and pregnancy induced hypertension) of pregnancy in obese patients. Results of this study will guide us in screening and early management of obese pregnant patients for hypertension and diabetes mellitus.

OPERATIONAL DEFINITION

ANTENATAL OUTCOME:

- **Gestational diabetes mellitus:**

Any degree of glucose intolerance with onset and 1st recognition during pregnancy after 20 weeks of gestation having oral glucose tolerance test value of fasting serum glucose ≥ 95 mg/dl and 1 hour serum glucose concentration ≥ 180 mg/dl and 2 hours serum glucose concentration ≥ 153 mg/dl and patient has two abnormal values out of these three values.

- **Pregnancy induced hypertension:**

Defined as diastolic blood pressure of at least 90mmHg or systolic blood pressure of at least 140mmHg measured on at least two occasions 6hours or more apart after gestational age of 20 weeks.

MATERIAL AND METHODS

Study Design: Cross Sectional study.

Setting: The study was conducted at Department of Obstetrics & Gynecology, Bahawal Victoria Hospital, Bahawalpur.

Inclusion Criteria:

- All pregnant women BMI ≥ 30 .
- Gestational age 20-28 weeks. (on ultrasound)
- Age from 20 to 40 years.

Exclusion Criteria:

- Patients with history of diabetes mellitus.
- Patients with history of pre-existing hypertension. (on history)
- Non obese patients. (Having BMI < 30)

DATA COLLECTION PROCEDURE

Total 190 patients were included in this study after scrutinized by inclusion criteria and after taking written consent from ethical committee of hospital. Written informed consent was taken from every patient.

Demographic profile of the all selected patients along with history like parity and gestational age (in weeks) was entered in pre-designed proforma. BP was taken of all the patient and noted on pre-designed proforma and sent patient to laboratory for glucose tolerance test and findings was entered in proforma.

DATA ANALYSIS PROCEDURE

Data was entered on computer software SPSS version 16. The quantitative variables of the study i.e. age and gestational age were presented as Mean \pm SD. The qualitative variables like gestational diabetes mellitus, pregnancy induced hypertension and parity were presented as frequency and percentages. Pie chart was drawn for frequency of gestational diabetes mellitus and pregnancy induced hypertension. Stratification was done for age, gestational age and parity. Post stratification chi-square test was applied to see the effect of these on outcome variables (gestational diabetes mellitus and pregnancy induced hypertension). P.value ≤ 0.05 was considered as statistically significance.

RESULTS

Total 190 obstetric patients were selected for this study. Mean age of the patients was 30.56 ± 6.718 years and mean gestational age was 23.73 ± 2.945 weeks. Patients were divided into two age groups i.e. age group 20-30 years and age group 31-40 years. Total 89 (46.8%) patients belonged to age group 20-30 years and 101 (53.2%) patients belonged to age group 31-40 years. (Fig. 1) Minimum gestational age was 20-24 weeks and maximum gestational age was 25-28 weeks. Patients were divided into two groups according to gestational age i.e. gestational age group 20-24

weeks and gestational age group 25-28 weeks. (Fig. 2) Primary gravidas were 50 (26.23%) and multi gravidas were 140 (73.7%). (Fig. 3) Out of 190 obstetric patients, gestational diabetes mellitus was found in 45 (23.7%) patients. (Fig. 4) Pregnancy induced hypertension was observed in 95 (50%) (Fig. 5) As shown in table 1, GDM was significantly associated with age and parity but insignificantly associated with gestational age. As shown in table 2, PIM was significantly associated with age and parity but insignificantly associated with gestational age.

Fig. 1: Age distribution

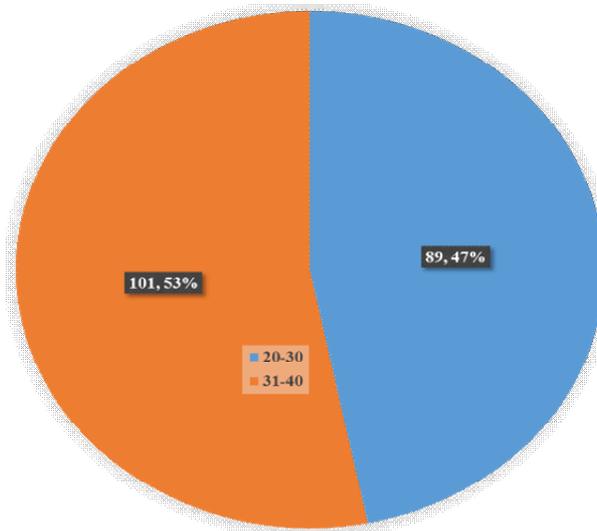


Fig. 2: Distribution of patients according to parity

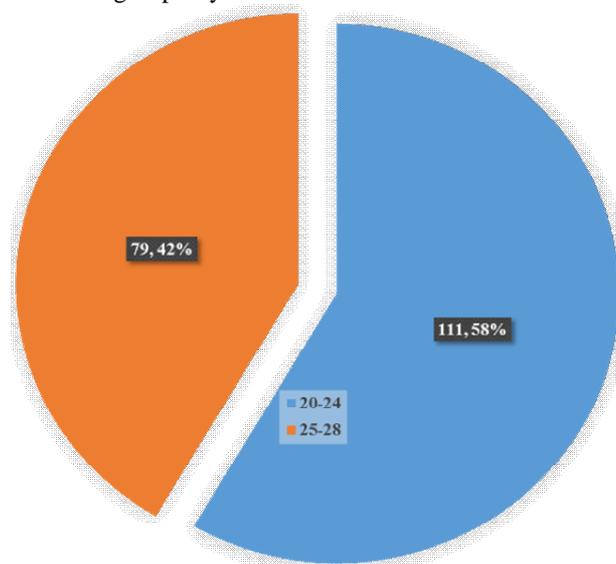


Fig. 3: Distribution of patients according to parity

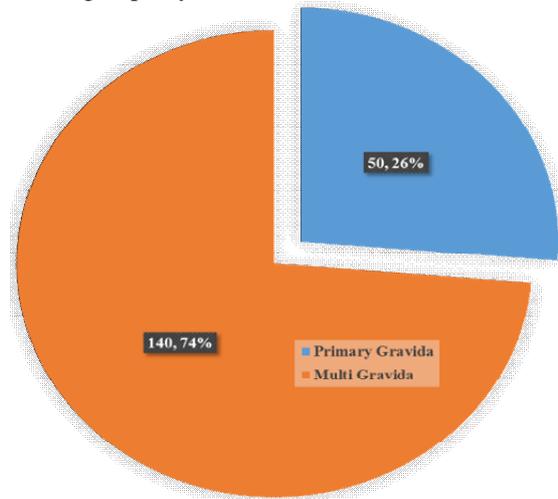


Fig. 4: Frequency of GDM

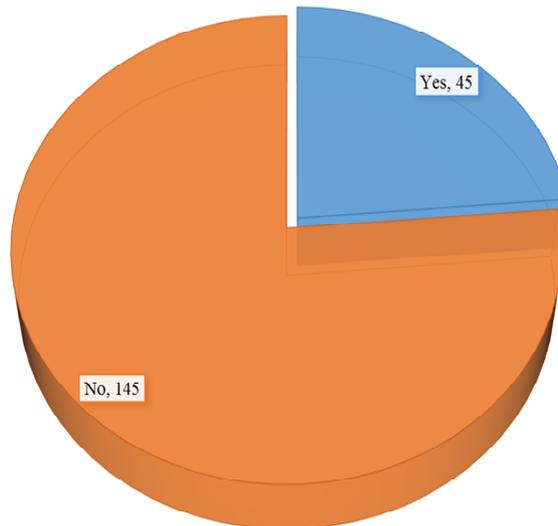


Fig. 5: Frequency of PIH

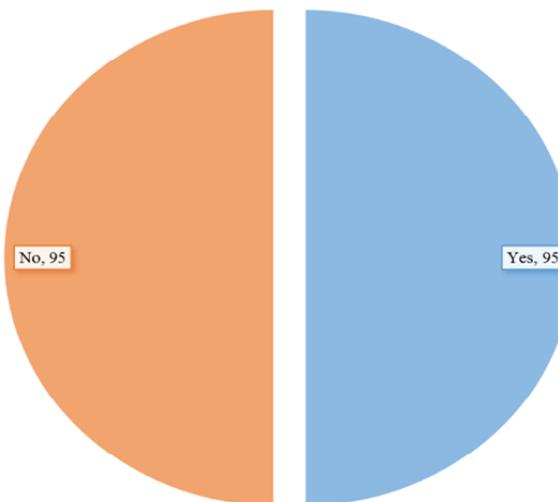


Table 1: Association of GDM with different variables

Association of GDM with age				
Age Group	GDM		Total	P value
	Yes	No		
20-30	45	44	89	0.000
31-40	0	101	101	
Total	45	145	190	
Gestational age	GDM		Total	P value
	Yes	No		
20-24	31	80	111	0.1206
25-28	14	65	79	
Total	45	145	190	
Parity	GDM		Total	P value
	Yes	No		
Primary Gravida	21	29	50	0.000
Multi Gravida	24	116	140	
Total	45	145	190	

Table 2: Association of PIM with different variables

Association of PIM with age				
Age group	PIM		Total	P value
	Yes	No		
20-30	89	0	89	0.000
31-40	6	95	101	
Total	95	95	190	
Gestational age	PIM		Total	P value
	Yes	No		
20-24	60	51	111	0.2389
25-28	35	44	79	
Total	95	95	190	
Parity	PIM		Total	P value
	Yes	No		
Primary Gravida	45	5	50	0.000
Multi Gravida	50	90	140	
Total	95	95	190	

DISCUSSION

In the past three decades, the prevalence of overweight and obesity in women of reproductive age and in pregnant women has increased in most parts of the world and trebled in the United Kingdom.⁷⁻⁸ Maternal obesity is associated with a plethora of complications for the mother, such as increased maternal mortality, gestational diabetes, pre-eclampsia, thromboembolism and increased Caesarean section rate.⁹⁻¹⁰ It is also associated with adverse outcome in the newborn child such as macrosomia, preterm delivery and admission to neonatal intensive care unit; and in later life in the adult offspring, it is associated with increased risk of obesity, insulin resistance, dyslipidaemia,

hypertension and cardiovascular morbidity.¹¹ If this adult offspring is a female, she is more likely to enter pregnancy obese and thus continue an intergenerational cycle of obesity and its adverse outcomes. It is of public health importance that interventions be developed to intercept this cycle.¹²

In present study, total 190 obstetric patients were selected. Mean age of the patients was 30.56 ± 6.718 years and mean gestational age was 23.73 ± 2.945 weeks. Minimum gestational age was 20-24 weeks and maximum gestational age was 25-28 weeks. Patients were divided into two groups according to gestational age i.e. gestational age group 20-24 weeks and gestational age group 25-28 weeks. In one study by Mahin et al mean age

of obstetrics was 25.91 ± 6.32 years which is comparable with our study.¹³

Out of 190 obstetric patients, gestational diabetes mellitus was found in 23.7% patients. In one study by Mahin et al,¹³ frequency of GDM was 38% which is higher than our study.

The overall prevalence of GDM was 3.8% in obstetric patients reported in one by study by Zargar et al.¹⁴ Similar findings (3.2%) of gestational diabetes mellitus in obstetric women was reported by Ferrara et al.¹⁵ In another study by Siribaddana et al, the frequency of gestational diabetes mellitus was 5.5% obstetric patients.¹⁶ Findings of all these studies are much higher than our findings. In present study, pregnancy induced hypertension was observed in 95 (50%). In one study by Asim et al, the frequency of pregnancy induced hypertension was 41% in obese obstetric patients.¹⁷ which is comparable with our findings. In another study by Mahin et al, frequency of pregnancy induced hypertension was reported as 23.5% in obese obstetric patients.¹³

CONCLUSION

Results of this study showing a higher rate of pregnancy induced hypertension and gestational diabetes on obstetrics. Findings of this study also showing significant association of pregnancy induced hypertension and gestational diabetes with age and parity.

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