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Research Article

### AN EVALUATION OF ANTENATAL OUTCOME IN OBESE OBSTETRIC PATIENTS

<sup>1</sup>Dr. Sadia Latif, <sup>2</sup>Dr. Sham sun Nisa, <sup>3</sup>Dr. Ghulam Zainab.<sup>1</sup>Senior Registrar, Department of Obstetrics & Gynecology, Civil Hospital, Bahawalpur;<sup>2</sup>Assistant Professor, Department of Obstetrics & Gynecology, Quaid-e-Azam Medical College, Bahawalpur; <sup>3</sup>Woman Medical Officer, Bahawal Victoria Hospital, Bahawalpur.

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**Abstract:****Objective:** To evaluate the antenatal outcome in obese obstetric patients presenting at Civil Hospital, Bahawalpur.**Material and methods:** This cross-sectional study was conducted at Department of Obstetrics & Gynecology, Civil Hospital, Bahawalpur from July 2018 to December 2018. Total 150 pregnant obese women having age 20-40 years, gestational age 20-28 weeks primary or multigravida were selected. Pregnancy induced hypertension and gestational diabetes mellitus was assessed.**Results:** In this study total 150 pregnant women were selected. Age range in this study was 20-40 years with mean age  $31.45 \pm 5.37$  years and mean gestational age was  $24.82 \pm 2.49$  weeks. Out of 150 patients, GDM was noted in 40 (27%) patients and PIH was noted in 85 (57%) patients. Out of 65 (43.33) patients of age group 20-30 years, GDM and PIH was found in 36 (50.56) patients and 60 (92.31) patients respectively. In age group 31-40 years, GDM was found in 4 (4.70) patients and PIH was noted in 25 (29.41) patients. Statistically significant association of GDM and PIH with age group was noted.**Conclusion:** Results of present showed a higher rate of pregnancy induced hypertension and gestational diabetes mellitus. Age group 31-40 years was the most common age group and pregnancy induced hypertension and gestational diabetes mellitus was significantly associated with age, gravida and area of residence.**Keywords:** PIH, GDM, pregnancy, gravida, gestation**Corresponding author:****Dr. Sadia Latif,**Senior Registrar, Department of Obstetrics & Gynecology,  
Civil Hospital, Bahawalpur.

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## INTRODUCTION:

Obesity occurs with high calories surplus which stores in the body as fat. Metabolic endocrine, genetics, cultural and psychological factors are considered as the cause of obesity, but its etiology is not precise.<sup>1</sup> According to WHO, obesity is defined as body mass index (BMI) of 30 kg per meter square or more.<sup>2</sup> Prevalence of obesity is rising to epidemic with proportions around the world which include woman of child bearing ages. Obese women are at an increased risk of development of pregnancy induced hypertension and diabetes mellitus.<sup>3-4</sup>

Hypertensive disorders including pre-existing hypertension and pregnancy induced hypertension are more common in women with excess weight, although prevalence rate in different reports vary widely.<sup>5</sup> Pregnancy induced hypertension is defined as woman having diastolic pressure of >90 mmHg or systolic pressure of >140 mmHg two readings 4 hours apart, or a single reading of diastolic >110 mmHg after 20 weeks of pregnancy.<sup>6</sup> Obesity causes more complications in pregnancy and childbirth. Epidemiological studies have shown that maternal obesity causes adverse pregnancy outcomes resulting in maternal complications (Gestational diabetes mellitus, hypertension, preeclampsia), labor and delivery complications, fetal and neonatal death, birth defects especially Neural tube defects (NTDs) and delivery of large-for-gestational age (LGA) infants.<sup>7</sup>

Much work has been done on this topic internationally but the local data is still deficient. Results of this study may help us for the early management of GDM and PIH in obese pregnant women and we may be able to reduced morbidity related to it.

## MATERIAL AND METHODS:

After taking approval from ethical committee of the institution, this cross sectional study was conducted at Department of Obstetrics & Gynaecology, Civil Hospital, Bahawalpur from July 2018 to December 2018. Total 150 obese pregnant women (BMI  $\geq$  30), age range from 20-40 years and gestational age between 20-28 weeks were selected. Pregnant women with history of diabetes mellitus and hypertension, having BMI <30 or any other systemic disease were excluded from the study.

Demographic profile of the all selected patients along with history, parity and gestational age (in weeks) was entered in pre-designed proforma.

Weight and height of all the patients was taken to calculate the BMI.

BP was taken of all patients and was noted on pre-designed proforma and then patients were sent to laboratory for glucose tolerance test and findings were entered in proforma.

Gestational diabetes mellitus was defined as: 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  $\geq$  95mg/dl and 1 hour serum glucose concentration  $\geq$  180mg/dl and 2 hours serum glucose concentration  $\geq$  153mg/dl and patient has two abnormal values out of these three values.

Pregnancy induced hypertension was 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.

All the collected was entered in SPSS version 18 and analyzed. Mean and SD was calculated for age and gestation age and frequency was calculated for GDM and PIH. Chi-square test was used to detect the association of PIH and GDM with different variables and P value  $\leq$  0.05 was taken as significant.

## RESULTS:

In this study total 150 pregnant women were selected. Age range in this study was 20-40 years with mean age  $31.45 \pm 5.37$  years and mean gestational age was  $24.82 \pm 2.49$  weeks.

Out of 150 patients, GDM was noted in 40 (27%) patients and PIH was noted in 85 (57%) patients. (Fig. 1 & 2)

Out of 65 (43.33) patients of age group 20-30 years, GDM and PIH was found in 36 (50.56) patients and 60 (92.31) patients respectively. In age group 31-40 years, GDM was found in 4 (4.70) patients and PIH was noted in 25 (29.41) patients. Statistically significant association of GDM and PIH with age group was noted. (Table 1)

Gestational age of 93 (62) patients was between 20-24 weeks and GDM and PIH was found in 28 (30.11) patients and 53 (56.99) patients. Total 57 (38) patients had gestational between 25-28 weeks and GDM was noted in 12 (21.05) patients and PIH in 32 (56.14) patients. Insignificant association of gestational age with GDM and PHI was noted. (Table 2)

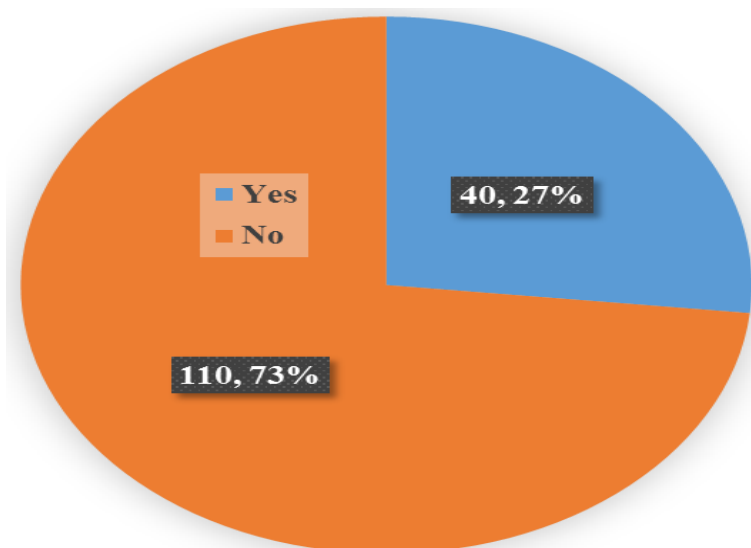
Primary gravidas were 45 (30) and multi gravidas were 105 (70). GDM and PIH noted in 23 (51.11) and

38 (84.44) primary gravidas. GDM was noted in 17 (16.19) multi gravidas and PIH in 47 (44.76) multi gravidas. Association of parity with GDM and PIH was statistically significant. (Table 3)

Out of 82 (54.67) patients of rural area, GDM was noted in 37 (45.12) patients and PIH was noted in 66

(80.49) patients. Total 68 (45.33) patients belonged to urban area, GDM and PIH was found in 3 (4.41) patients and 19 (27.94) patients respectively. Association of residential area with GDM and PIH was statistically significant. (Table 4)

**Fig. 1: Frequency of GDM**



**Fig. 2: Frequency of PIH**

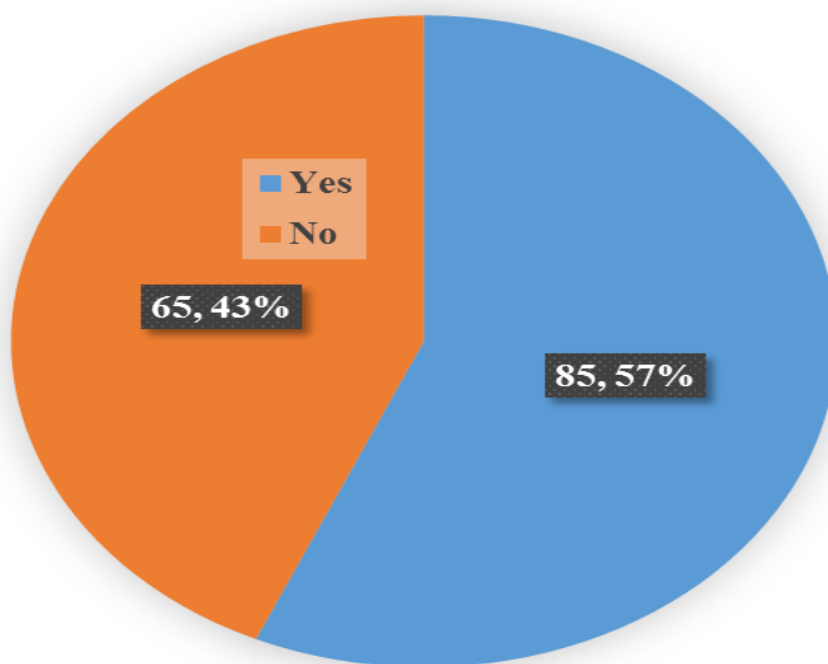


Table 1: Association of GDM with age

Age Group	Total	GDM (P = 0.000)		PIH (P = 0.000)	
		Yes	No	Yes	No
20-30	65 (43.33)	36 (50.56)	29 (49.43)	60 (92.31)	5 (7.69)
31-40	85 (56.67)	4 (4.70)	81 (95.29)	25 (29.41)	60 (70.59)
<b>Total</b>	<b>150</b>	<b>40 (26.67)</b>	<b>110 (73.33)</b>	<b>85 (56.67)</b>	<b>65 (43.33)</b>

Table 2: Association of GDM with age

Gestational age	Total	GDM (P = 0.257)		PIH (P = 1.000)	
		Yes	No	Yes	No
20-24	93 (62)	28 (30.11)	65 (69.89)	53 (56.99)	40 (43.01)
25-28	57 (38)	12 (21.05)	45 (78.95)	32 (56.14)	25 (43.86)
<b>Total</b>	<b>150</b>	<b>40 (26.67)</b>	<b>110 (73.33)</b>	<b>85 (56.67)</b>	<b>65 (43.33)</b>

Table 3: Association of GDM with parity

Parity	Total	GDM (P = 0.000)		PIH (P = 0.000)	
		Yes	No	Yes	No
Primary Gravida	45 (30)	23 (51.11)	22 (48.89)	38 (84.44)	7 (15.56)
Multi Gravida	105 (70)	17 (16.19)	88 (83.81)	47 (44.76)	58 (55.24)
<b>Total</b>	<b>150</b>	<b>40 (26.67)</b>	<b>110 (73.33)</b>	<b>85 (56.67)</b>	<b>65 (43.33)</b>

Table 4: Association of GDM with area of residence

Residential area	Total	GDM (P = 0.000)		PIH (P = 0.000)	
		Yes	No	Yes	No
Rural	82 (54.67)	37 (45.12)	45 (54.88)	66 (80.49)	16 (19.51)
Urban	68 (45.33)	3 (4.41)	65 (95.89)	19 (27.94)	49 (72.06)
<b>Total</b>	<b>150</b>	<b>40 (26.67)</b>	<b>110 (73.33)</b>	<b>85 (56.67)</b>	<b>65 (43.33)</b>

## DISCUSSION:

The prevalence of obesity in the general population and among women of childbearing age has increased dramatically during past 25 years.<sup>8</sup> More than one-third of women of reproductive age are overweight or obese in middle or high income countries.<sup>9-10</sup> Being overweight or obese increases maternal and neonatal morbidity and obese women have higher infertility rates and are at increased risk of various adverse pregnancy outcomes.<sup>11-12</sup> Moreover, the perinatal nutritional environment may have a direct impact on development of obesity later in the life.<sup>13</sup>

Most of the studies that investigated the relation of obesity with adverse perinatal outcomes were done in Western countries.<sup>14-15</sup>

In this study total 150 pregnant women were selected. Age range in this study was 20-40 years with mean age  $31.45 \pm 5.37$  years and mean gestational age was  $24.82 \pm 2.49$  weeks. Out of 150 patients, GDM was noted in 40 (27%) patients and PIH was noted in 85 (57%) patients. In one study by Asim et al,<sup>16</sup> frequency of PIH was 41% which is not comparable with our

findings. A international study by Gudeta et al reported PIH as 7.9%.<sup>17</sup>

This difference might be attributed to differences in the study period and study design. The population might also be different in lifestyle and culture and health seeking behaviors of pregnant women.

In this study most common age group was 31-40 years and significant association of PIH and GDM with age group was observed with p value 0.000. Faisal et al reported that frequency of GDM was significantly associated with reproductive age group 25-34 years (64%), Illiteracy in mothers (53.8 %) from rural area (>50%) housewives (83%).<sup>18</sup> Fatima reported that out of the 1,210 patients, 17.2% had gestational diabetes and gestational diabetes was associated with advancing age.<sup>19</sup>

Several studies in western world have shown that obesity is associated with adverse pregnancy outcomes.<sup>20</sup> Among pregnancy complications, gestational diabetes mellitus and pregnancy induced hypertension are significantly more common in obese women. These facts are also supported by a

population-based study conducted in Canada comparing pre-pregnant BMI categories with obstetrical and neonatal outcomes.<sup>21</sup>

A study conducted in Australia<sup>22</sup> to assess the prevalence and impact of overweight and obesity shows that hypertensive disorders of pregnancy and gestational diabetes as well as increased neonatal morbidity is more common in obese women. It was concluded that increasing BMI was associated with maternal and neonatal outcomes that may increase the cost of obstetric care.

Another cohort study conducted in Norway observed the adverse pregnancy outcome in overweight urban women.<sup>23</sup> It concluded that overweight women are more prone to develop hypertension during pregnancy.

These findings are also consistent with this study in which increased maternal weight increases the risk of PIH. A multicenter study conducted in New York concluded that obesity is an independent risk factor for adverse obstetric outcomes including gestational hypertension.<sup>24</sup>

### CONCLUSION:

Results of present showed a higher rate of pregnancy induced hypertension and gestational diabetes mellitus. Age group 31-40 years was the most common age group and pregnancy induced hypertension and gestational diabetes mellitus was significantly associated with age, gravida and area of residence.

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