

FREQUENCY OF PREGNANCY INDUCED GESTATIONAL DIABETES MELLITUS  
AND HYPERTENSION IN OBSTETRICSDr. Sidra Hafeez\*<sup>1</sup> Dr. Sana Shakeel<sup>2</sup> and Dr. Tayyaba Shakeel<sup>3</sup><sup>1</sup>(Nishtar Medical University, Multan).<sup>2</sup>(Services Institute Of medical Sciences).<sup>3</sup>(Nishtar Medical University, Multan).

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## ABSTRACT

**Objective:** To find out frequency of pregnancy induced gestational diabetes mellitus and hypertension in obstetrics. **Setting and duration:** This cross sectional study was conducted at Department of Obstetrics & Gynecology, Nishtar Hospital Multan from April 2018 to October 2018. **Results:** Total 190 obstetric patients were selected for this study. Mean age of the patients was  $30.56 \pm 6.718$  years and mean gestational age was  $23.73 \pm 2.945$  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. Primigravida were 50 (26.23%) and multigravidas were 140 (73.7%). **Conclusion:** Results of this study showing a higher rate of pregnancy induced hypertension and gestational diabetes in obese obstetrics. Findings of this study also showed significant association of pregnancy induced hypertension and gestational diabetes with age, area of residence, education and family income.

**KEYWORDS:** 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)  $\geq 30$  as a crude estimate.<sup>[1]</sup>

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<sup>[2]</sup>**

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.<sup>[3]</sup> 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.<sup>[4]</sup> 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.<sup>[5,6]</sup>

Diabetes mellitus and hypertension 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.

**MATERIAL AND METHODS**

This cross sectional study was conducted at Department of Obstetrics & Gynecology, Nishtar Hospital Multan from April 2018 to October 2018. Total 190 pregnant women BMI  $\geq 30$ , having gestational age 20-28 weeks and age from 20 to 40 years were selected. Patients with history of diabetes mellitus, patients with history of preexisting hypertension, non-obese patients were excluded.

Demographic profile of the all selected patients along with history like educational status (below matric, Matric, intermediate, graduate, master) area of residence (rural/urban), family income (<10,000, 10,000 to 25,000

and >25,000), parity and gestational age (in weeks) was entered in predesigned proforma.

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

Collected data was analyzed by using SPSS version 18. Mean and SD was calculated for numerical data and frequencies were calculated for categorical data.

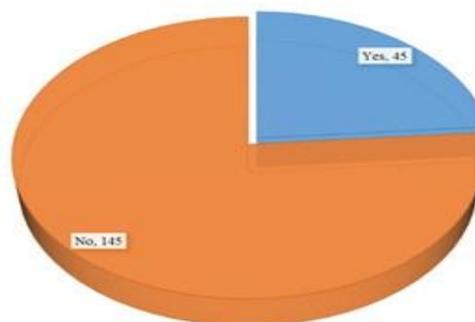
**RESULTS**

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.

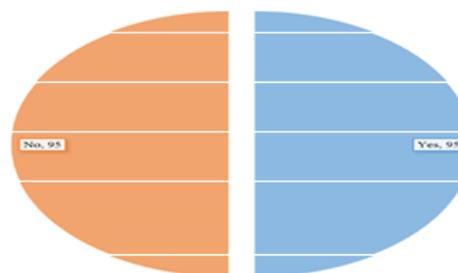
Out of 190 obstetric patients, gestational diabetes mellitus was found in 45 (23.7%) patients and pregnancy induced hypertension was observed in 95 (50%) (Fig. 1-2)

Patients were divided into two age groups i.e. age group 20-30 years and age group 31-40 years. Total 89 (46.84%) patients belonged to age group 20-30 years and 101 (53.16%) patients belonged to age group 31-40 years. GDM and PIH was noted in 45 (50.56%) patients and 89 (100%) patients in age group 20-30 years. In age group 31-40 years, no patients were report with GDM and 89 (100%) patients were reported with PIH. Statistically significant association of GDM and PIH with age group was noted. (Table 1) Two groups were made according to gestational age i.e. 20-24 weeks' gestation and 25-28 weeks gestation. Total 111 (58.42%) patients belonged to 20-24 weeks gestation group and GDM and PIH was noted in 31 (27.93%) patients and 60 (54.05%) patients respectively. In 25-28 weeks gestation group, total 14 (17.72%) patients and 35 (44.3%) patients found with GDM and PIH. There insignificant association of GDM and PIH with gestation groups. (Table 2) Total 50 (26.32%) were primigravida and 140 (73.68%) patients were multigravida. GDM and PIH was noted in 21 (42%) and 45 (90%) primigravida and in 24 (17.14%) and 50 (35.71%) multigravidas. Significant association of GDM and PIH with parity was noted. (Table 3)

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**Fig. 1: Frequency of GDM.**



**Fig. 2: Frequency of PIH.**

**Table 1: Association of GDM and PIH with age.**

Age Group	GDM		Total	P value
	Yes	No		
20-30	45 (50.56)	44 (49.44)	89 (46.84)	0.000
31-40	0	101 (100)	101 (53.16)	
Age group	P IH		Total	P value
	Yes	No		
20-30	89 (100)	0	89 (46.84)	0.000
31-40	6 (5.94)	95 (94.06)	101 (53.16)	

**Table 2: Association of GDM and PIH with gestational age.**

Gestational age	GDM		Total	P value
	Yes	No		
20-24	31 (27.93)	80 (72.07)	111 (58.42)	0.1206
25-28	14 (17.72)	65 (82.28)	79 (41.58)	
Gestational age	P IH		Total	P value
	Yes	No		
20-24	60 (54.05)	51 (45.95)	111 (58.42)	0.2389
25-28	35 (44.3)	44 (55.7)	79 (41.58)	

**Table 3: Association of GDM and PIH with parity.**

Parity	GDM		Total	P value
	Yes	No		
Primigravida	21 (42)	29 (58)	50 (26.32)	0.000
Multigravida	24 (17.14)	116 (82.86)	140 (73.68)	
Parity	P IH		Total	P value
	Yes	No		
Primigravida	45 (90)	5 (10)	50 (26.32)	0.000
Multigravida	50 (35.71)	90 (64.29)	140 (73.68)	

## 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.<sup>[7]</sup> 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.<sup>[8-9]</sup> It is also associated with adverse outcome in the newborn child such as macrosomia, preterm delivery and admission to neonatal intensive care unit. In later life in the adult, it is associated with increased risk of obesity, insulin resistance, dyslipidemia, hypertension and cardiovascular morbidity.<sup>[10]</sup> 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.<sup>[11]</sup> In present study, total 190 obstetric patients were selected. Mean age of the patients was  $30.56 \pm 6.718$  years and mean gestational age was  $23.73 \pm 2.945$  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  $25.91 \pm 6.32$  years which is comparable with our study.<sup>[12]</sup> Out of 190 obstetric patients, gestational diabetes mellitus was found in 23.7% patients. In one study by Mahin et al,<sup>[12]</sup> 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 Zagat et al.<sup>[13]</sup> Similar findings (3.2%) of gestational diabetes mellitus in obstetric women was reported by Ferrara et al.<sup>[14]</sup> In another study by Siribaddana et al, the frequency of gestational diabetes mellitus was 5.5% obstetric patients.<sup>[15]</sup> 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.<sup>[16]</sup> 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.<sup>[12]</sup>

## CONCLUSION

Results of this study showed a higher rate of pregnancy induced hypertension and gestational diabetes in obese obstetrics. Findings of this study also showed significant association of pregnancy induced hypertension and gestational diabetes with age, area of residence, education and family income.

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