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Analysis of Gestational weight gain due to gestational diabetes mellitus in local female population of Pakistan

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Abstract

Introduction: *Obesity has been designated as one of the most important global health threats worldwide, and its prevalence has been increasing among women of reproductive age. Pregnant ladies constitute a critical subpopulation with a hoisted danger of obesity because of over the top weight pick up.* ***Objectives:*** *The main objective of the study is to analyze the gestational weight gain among women with gestational diabetes mellitus in local population of Pakistan.* ***Methodology:*** *The data for this purpose was collected from Multan Pakistan. The data was collected from 100 female patients according to the ethical committee of hospital during the time period of May 2017 to April 2018.* ***Results:*** *According to the pre-pregnancy BMI, 96 women (11.5%) were underweight, 558 (67.1%) were of normal weight, 134 (16.1%) were overweight and 44 (5.3%) were obese (Table 1). The level of glycated hemoglobin was significantly higher in the overweight and obese groups than in normal weight and underweight groups ($P < 0.05$).* ***Conclusion:*** *It is reasoned that high pre-pregnancy BMI and unnecessary GWG are related with higher frequencies of LGA, and in addition other unfavorable results in Chinese ladies with GDM.*

Key words: pregnancy, diabetes, Gestational

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Introduction

Obesity has been designated as one of the most important global health threats worldwide, and its prevalence has been increasing among women of reproductive age[1]. Pregnant ladies constitute a critical subpopulation with a hoisted danger of obesity because of over the top weight pick up. It has been demonstrated that maternal obesity and inordinate gestational weight pick up (GWG) are related with unfriendly obstetric and neonatal results including unconstrained fetus removal, gestational diabetes mellitus (GDM), cesarean conveyance, preeclampsia, neonatal macrosomia, and agent and soporific entanglements[2].

Maternal weight status both before and during pregnancy is an important determinant of birth outcome. Prepregnancy weight has been shown to be a significant determinant of birth weight in both industrialized and developing countries. Similarly, the independent effect of the gestational weight gain has been well correlated. The Institute of Medicine recommended the use of BMI (weight/height) as the preferred measure of studying the relationship betweenthe prepregnancy weight and gestational weight gain on fetal outcome. These guidelines have been validated by recent studies3-6 demonstrating that prenatal weight gain within the suggested ranges is associated with more favorable outcome than weight gain above or below the suggested range.To help ideal pregnancy results, the World Health Organization (WHO) prescribed that the Institute of Medicine (IOM) create rules for weight pick up amid pregnancy. In any case, the IOM suggestions on gestational weight pick up depend on pre-pregnancy BMI

without mulling over various race/ethnicity, age, or existing pregnancy inconveniences[3]. Ladies with GDM are at expanded danger of maternal and fetal intricacies including preeclampsia, preterm birth, cesarean segment and conveyance of huge for gestational age (LGA) newborn children. As obesity and GDM are much of the time comorbid conditions, obesity and over the top gestational weight pick up may intensify these dangers in GDM. Since fat is an endocrine organ and collaborates with diabetes, it is conceivable that the expanded amassing of fat differentially affects perinatal results for ladies with GDM[4].

Albeit a few past examinations have examined the influence of high pre-pregnancy BMI and over the top GWG on perinatal results, for example, cesarean conveyance, preeclampsia and macrosomia, few were directed in China, and generally among non-GDM ladies. There is no immediate proof on the relationship between maternal pre-pregnancy BMI or GWG and the perinatal results of GDM moms, and stays hazy whether the most recent 2009 IOM rules for pregnancy weight pick up are appropriate to GDM populace, given the conceivable compound impact of obesity and gestational diabetes[5-6].

Objectives of the study

The main objective of the study is to analyze the gestational weight gain among women with gestational diabetes mellitus in local population of Pakistan.

Material and methods

The data for this purpose was collected from Multan Pakistan. The data was collected

from 100 female patients according to the ethical committee of hospital during the time period of May 2017 to April 2018.

We designed a study to associate maternal BMI and GWG with pregnancy outcomes in local women of Pakistan with GDM and examine whether these narrower pregnancy weight gain recommendations are predictive of adverse perinatal outcomes in Pakistani population.

Statistical analysis

Student's t-test was performed to evaluate the differences in roughness between group P and S. Two-way ANOVA was performed to study the contributions. A chi-square test was used to examine the difference in the distribution of the fracture modes (SPSS 19.0 for Windows, SPSS Inc., USA).

Results and Discussion

According to the pre-pregnancy BMI, 96 women (11.5%) were underweight, 558 (67.1%) were of normal weight, 134 (16.1%) were overweight and 44 (5.3%) were obese (Table 1). The level of glycated hemoglobin was significantly higher in the overweight and obese groups than in normal weight and underweight groups ($P < 0.05$). In addition, birth weight was significantly higher in overweight or obese women than in underweight women ($P < 0.05$). There were no significant differences between the four pre-pregnancy BMI categories in maternal age, parity, height and gestational weeks (Table 1).

Tables 2 show the effects of pre-pregnancy BMI and GWG on pregnancy outcomes, expressed as the odds of each outcome occurring relative to that in women of normal weight or adequate GWG, respectively.

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Table 01: Gestational weight gains in pregnancy

Variables	Excessive GWG (N = 293)		
	N (%)	AOR (95% CI)	P
Cesarean section[a]	177 (60.4)	1.60 (1.15–2.23)	0.005
PPH[a]	60 (20.5)	1.44 (0.94–2.19)	0.094
Preterm delivery[b]	6 (2.0)	0.63 (0.23–1.73)	0.369
PPROM[b]	51 (17.4)	1.01 (0.66–1.54)	0.965
GHT[c]	11 (3.8)	1.23 (0.50–2.98)	0.655
Macrosomia[c]	39 (13.3)	1.94 (1.11–3.38)	0.020
SGA[b]	7 (2.4)	0.78 (0.29–2.08)	0.615
LGA[b]	97 (33.1)	1.31 (0.92–1.85)	0.133

CI, confidence interval; GWG, gestational weight gain; PPH, postpartum hemorrhage; PPROM, preterm premature rupture of membranes; GHT, gestational hypertension; SGA, small for gestational age; LGA, large for gestational age. AORs are presented relative to the adequate GWG group.

Table 02: Effects of pre-pregnancy body mass index on pregnancy outcomes

Variables	Over weight		obese		
	AOR (95% CI)	N (%)	N (%)	AOR (95% CI)	P
Cesarean section[a]	41 (42.7)	0.165	282 (50.5)	86 (64.2)	1.95 (1.29–2.96)
PPH[a]	12 (12.5)	0.501	88 (15.8)	31 (23.1)	1.60 (0.99–2.59)
Preterm delivery[b]	3 (3.1)	0.937	19 (3.4)	2 (1.5)	0.39 (0.09–1.70)
PPROM[b]	21 (21.9)	0.153	89 (15.9)	23 (17.2)	1.05 (0.63–1.75)
GHT[c]	1 (1.0)	0.499	10 (1.8)	8 (6.0)	4.10 (1.56–10.81)
Macrosomia[c]	2 (2.1)	0.031	41 (7.3)	15 (11.2)	2.02 (1.05–3.88)
SGA[b]	3 (3.1)	0.967	17 (3.0)	3 (2.2)	0.59 (0.17–2.13)
LGA[b]	10 (10.4)	0.001	132 (23.7)	47 (35.1)	2.14 (1.40–3.26)

Discussion

Maternal, perinatal and neonatal complications are strongly associated with GDM. The frequency of GDM in China has expanded since 2000 and this has

turned into a critical open issue[7]. A Chinese national review had detailed predominance of the IADPSG criteria-characterized GDM of 14.7% out of 2004–2009. This occurrence of GDM is like different investigations in Asian populaces, yet higher than the rate of GDM in the United Kingdom (3.5%) and the United States (8.6%). Occurrence of GDM appears to rely upon variables, for example, ethnicity and geological areas. In 2007 through 2008, about 60% of conceptive age American ladies were accounted for to be overweight or corpulent, with the predominance of overweight or obesity announced at around 21.4% in our investigation. In spite of the fact that the occurrence of obesity is bring down in Chinese and Asian ladies contrasted and different ethnicities, past investigations have demonstrated that Asians have a significantly higher danger of GDM, even at a low BMI[8].

Ladies with GDM are in danger of maternal and neonatal entanglements in pregnancy, and being overweight or fat with unreasonable gestational weight pick up seems to exacerbate this hazard. The principle discoveries of the present investigation are that, contrasted with ladies of ordinary weight, overweight and fat ladies with GDM had a higher frequency of cesarean segment, GHT, macrosomia and LGA, while underweight ladies had a lower occurrence of both macrosomia and LGA. Besides, contrasted and GWG inside the IOM proposals, over the top GWG expanded the frequency of cesarean area and newborn child macrosomia, while deficient GWG diminished the occurrence of LGA[9]. Albeit most examinations tending to the impacts

of maternal BMI on unfriendly results incorporate ladies with GDM, a couple have detailed these relationship in overweight or hefty ladies with typical glucose resilience. Sparse information exist that exhibit the collaboration between high maternal pre-pregnancy BMI, gestational weight pick up and perinatal results in ladies with GDM[10].

In our investigation, add up to GWG and mean weight pick up every week diminished with expanding pre-pregnancy BMI. These information accommodated with past reports that ladies in the most astounding BMI class put on less weight than those in the least classification among nondiabetic or blended populaces of pregnant ladies[11]. In any case, albeit add up to GWG was bring down in overweight/hefty ladies, the extent of ladies with a GWG that surpassed the IOM proposals was higher in overweight ladies than in ladies of ordinary or corpulent BMI. Despite the fact that these outcomes can't be entirely clarified by the present investigation, they may feature a predisposition in the accentuation on administration of diabetes amid pregnancy among mind suppliers, where by the message identifying with weight administration is strengthened more energetically in corpulent instead of overweight ladies[12-13].

Conclusion

It is reasoned that high pre-pregnancy BMI and unnecessary GWG are related with higher frequencies of LGA, and in addition other unfavorable results in Chinese ladies with GDM.

Contribution of author

All the authors contributed equally.

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