17429-Saira-Maternal obesity & Preeclampsia with GDM-RSDAuthr

by Saira Jahan

Submission date: 20-Aug-2017 10:41AM (UTC+0500)
Submission ID: 838295370
File name: Revised_manuscript.doc (134.5K)
Word count: 2395
Character count: 13227

TITLE: `

Association of Maternal obesity and Preeclampsia with Gestational Diabetes Mellitus (GDM)

Author:

- *Dr. Saira Jahan (correspondence: docsaraiimc@gmail.com)*

  MPhil PG Trainee (Molecular Biology)

  Islamic International Medical College, Rawalpindi

  Riphah International University, Islamabad

Co Authors:

- *Dr. Wardah Ajaz Qazi*

  Assistant Professor

  Foundation University Institute of Rehabilitation Sciences

  Foundation University, Islamabad

- *Dr. Maria Khalid*

  Assistant Professor

  Yusra Institute of Rehabilitation Sciences, Islamabad

- *Dr. Urooj Rafi*

  Pakistan Railway Hospital

  Rawalpindi

ABSTRACT:

BACKGROUND: *GDM is a state of maternal hyperglycemia which is diagnosed merely for the duration of pregnancy and conquers after pregnancy. It results in a variety of maternal and neonatal outcomes like oligohydramnios and Caeserean delivery in mothers at the same time as macrosomia and obesity in children. Women who are obese are at greater risk of mounting Gestational Diabetes Mellitus (GDM) and it is also a risk factor for mounting high blood pressure and protein in the urine following 20 weeks of pregnancy that is preeclampsia. As prevalence of GDM is growing in our population so we want to find its association with maternal obesity and preeclampsia.*

OBJECTIVE: *The main objective of the study is to evaluate the obesity level/BMI in GDM as compare to non GDM mothers and also to calculate the association of Preeclampsia both in GDM and non GDM mothers.*

METHODOLOGY: *It was a comparative cross sectional survey conducted in Pakistan Railway general hospital Rawalpindi from February 2015 to April 2015. A total of 60 gestational women between the ages of 18 to 38 years were divided into 2 groups, one group was having GDM mothers while other group consisted of non GDM mothers. Women included in the study have gestational age more than 20 weeks. Informed consent was taken from the patient. Patient's name and particulars were recorded. Initial valuation of the patient by history and clinical examination was performed and recorded in the performed data collection sheet. Data was*

collected through Urine RE samples for Preeclampsia and BMI testing done for determination of obesity and data was analyzed by using SPSS Vs 20.

RESULTS: *In GDM mothers group 5 out of 30 (16.6%) were in the normal weight range, 16 (53.3%) found to be overweight while 9 (30%) were obese according to BMI table and no woman was found to be under weight. In the second group of non GDM, 18 mothers (60%) had a normal weight while 6 (20%) were overweight and 6 (20%) were obese. Hence there are more over weight patients with gestational diabetes but we also found obesity in mothers without GDM. On the other hand 5 out of 30 mothers (16.66%) with GDM had Preeclapmsia while in mothers without GDM, 3 (10%) out of 30 had positive preeclampsia*

CONCLUSION: *It is concluded that obese mothers are more at risk of developing GDM as compare to mothers who have normal BMI/body weight and we also found that Preeclampsia has less association with GDM. It is also prevalent in women without GDM*

KEY WORDS: *Gestational diabetes Mellitus, Maternal obesity, Preeclampsia, Body Mass Index*

INTRODUCTION:

Pregnancy is a noteworthy acknowledging risk attribute for persistent or new obesity amongst women[(1)] The incidence of obesity distinctive as a body mass index [BMI] of as a least 30 kg/m^2 is frighteningly high, possess 33.8% amongst US adults in 2008[(2)].Statistics from the United States (US) National Longitudinal Survey of Youth presenting that parous women were 3 to 4 times more prone to develop obesity in the 5 years after childbirth correlate to women devoid of children supersede more than the subsequent time period[(3)] For that origin, young women are confront with short- and longer-term obesity-associated complexities, from gestational diabetes mellitus and hypertension in subsequent pregnancies[(4)] to chronic cardiovascular disease, diabetes mellitus, and conclusively premature death[(5)]

High gestational weight are the tenacious interpreter of obesity or flabby ensuing pregnancy.[(6)]Additional predictable risk attribute, beside sociodemographic distinctiveness and unsteady, changeable or unstable postpartum demeanor[(1)]elucidation for very modest of the unpredictability and spontaneity in postpartum weight alterations. As an endeavor in part to minimized the tremendously elevated incidence of obesity amongst women in the US[(7)]the Institute of Medicine (IOM) amended gestational weight gain rule in 2009[(8)]suggest smaller gains for women with higher pre-pregnancy body mass indices (BMI). Despite the fact that, at present less than one-third of pregnant women bring about instruction discretionary gains, with the most pregnant ladies gaining higher than IOM recommended levels[(9)]

Higher maternal weight during pregnancy is linked with a number of hostile pregnancy consequences, along with higher incidence of cesarean section, extensive or complicated vaginal delivery and fetal macrosomia[10] alongside with postpartum weight management in the mothers [11]. Furthermore, children born to obese mothers are at higher risk for being overweight them in afterward life.[12] As an end result, maternal obesity has turned out to be one of the most prevalent, ordinary and avoidable risk attribute for a complicated pregnancy.

In association with the gain in maternal weight, populace of ladies with gestational diabetes mellitus (GDM) has enlarged[13]. Various displayed systematic reviews and meta-analyses have archived a self-administering and strong connection amongst heftiness and diabetes in pregnancy; contrasted and normal weight ladies, fat mothers have more than a triple bigger presentation of creating GDM.[14] Obese mothers are additionally expected to have higher glucose levels that don't surpass the cease for GDM, however up till now display supercilious and elevated dangers alike to those joined with GDM.[14] Similar to obesity, GDM is related with entanglements both all through and taking after pregnancy. Ladies with GDM have a higher danger of creating hypertensive issue of pregnancy for instance preeclampsia[15] and pretty much half of ladies with a history of GDM type 2 diabetes mellitus within 5 to 10 years taking after delivery. [13] Children of mothers with GDM are not just more inclined to be macrosomic and have higher muscle to fat quotients at birth time, yet they are additionally at recognized hazard in a while later existence of complimenting overweight and expanding related inconveniences, for example, higher blood pressure and type 2 diabetes.[14] As a result, maternal heftiness brings forth glucose intolerance in pregnancy, which sires extra things of weight and diabetes.[16]

As pervasiveness of GDM and preeclampsia is rising in our population so we wanted to expose their association with maternal obesity.

MATERIAL AND METHOD:

This comparative cross sectional survey was carried out at Pakistan Railway general hospital Rawalpindi from February 2015 to 20th April 2015. A total of 60 gestational women were enlisted in this study and divide into 2 groups of gestational women each, after their 20 weeks of pregnancy and between the age of 18 to 38 years. One group was having women with GDM and the other have non GDM mothers. Written informed consent was taken from the patient. Patient's name and information were documented. Initial assessment of the patients by history and clinical physical examination was performed and listed in the performed data compilation sheet. Demographic profile, BP, Pulse, HR, temperature and /body weight BMI were documented. Data was collected through Urine RE samples for Preeclampsia and BMI testing done for determination of obesity and data was analyzed by using SPSS Vs 20.

RESULTS:

In GDM group, 5 out of 30 mothers (16.6%) were in the normal weight range, 16 (53.3%) found to be overweight while 9 (30%) were obese according to BMI table and no woman was found to be under weight as shown in table no 01.

In the second group of non GDM, 18mothers (60%) had a normal weight while 6 (20%) were overweight and 6 (20%) were obese. Hence there are more over weight patients with gestational diabetes but we also found obesity in mothers without GDM as shown in table no. 01. (Association of BMI between GDM and Non GDM mothers).Comparison between the percentage of BMI of GDM and Non GDM mothers are shown in figure no 01.

On the other hand 5 out of 30 mothers (16.66%) with GDM had Preeclapmsia while in mothers without GDM, 3 (10%) out of 30 had positive preeclampsia as shown in table no 02. Percentage of association of preeclampsia between GDM and Non GDM mothers has shown in figure no 02. Hence there is no absolute association of preeclampsia with GDM.

DISCUSSION:

Hossainpervaz et al gave a perspective on obesity and diabetes in the developing world in 2007 in which he mentioned that India and China would face greater confront in diabetic epidemics, according to WHO, the number of diabetic people will increase from 84 million to 228 million . Hypertension is five times more in people in diabetes and obesity similarly cardiovascular disease trends.[17]

R. Iqbal et al did a prospective cohort study in south Asian women at Agha khan university hospital Karachi.By measuring BMI he establish that increase body fat percentage (OR 1.07,CI 1.03-1.13) is a risk factor of developing GDM along with physical activity and diet quality.[18]

Meta analysisdone by Chu SY et.al complemented our study that risk of developing GDM is two times higher in overweight, four times in obese and eight times higher in severely obese women when they compared it with normal weight gestational women.[19]

Martin N.Montoro et al compared the insulin resistance in GDM mothers with and without pre eclampsia and found women with preeclampsia were not more insulin resistant in their third trimester and even fifteen months post partum but had higher blood pressure level as compare to non preeclamptic GDM women.[20]

Yogev Yet al aimed to find the rate of preeclampsia with GDM through a retrosecptive study on 1813 GDM patients and diagnosed preeclmpsia in 9.6% of them but we have not found significant association in our study, may be the limitation is our sample size. They establish preeclampsia in obese younger age group women with high nulliparty ratio. They associated it with severity of GDM while we have not assessed the severity of GDM and glycemic profile control hence it should be further investigated with keeping in view the severity level of GDM.[21]

A study by Wiznitzer A et al gave an approach of considering lipid profile in gestational women with GDM and preeclampsia. They exposed abnormal levels of TGs with these complications of pregnancy but they have not given its isolated effects on GDM and preeclampsia. Hence a research gap should be field by comparing the lipid profile changes with or without preeclampsia.[22]

CONCLUSION:

It is concluded that obese mothers are more at risk of developing GDM as compare to mothers who have normal BMI/body weight and we also found that Preeclampsia has less association with GDM. It is also prevalent in women without GDM.

REFERENCES:

1. Herring SJ, Nelson DB, Davey A, Klotz AA, Oken E, Foster GD. Determinants of excessive gestational weight gain in urban, low-income women. Women's Health Issues. 2012;22(5):e439-e46.

2. Flegal KM, Carroll MD, Ogden CL, Curtin LR. Prevalence and trends in obesity among US adults, 1999-2008. Jama. 2010;303(3):235-41.

3. Althuizen E, van Poppel MN, Seidell JC, van Mechelen W. Correlates of absolute and excessive weight gain during pregnancy. Journal of Women's Health. 2009;18(10):1559-66.

4. Pediatrics AAo. American Academy of Pediatrics: Children, adolescents, and television. Pediatrics. 2001;107(2):423.

5. Blumberg SJ, Bialostosky K, Hamilton WL, Briefel RR. The effectiveness of a short form of the Household Food Security Scale. American journal of public health. 1999;89(8):1231-4.

6. Gunderson EP, Abrams B, Selvin S. The relative importance of gestational gain and maternal characteristics associated with the risk of becoming overweight after pregnancy. International journal of obesity. 2000;24(12):1660-8.

7. Lesko J, Peaceman A. Pregnancy outcomes in women after bariatric surgery compared with obese and morbidly obese controls. Obstetrics & Gynecology. 2012;119(3):547-54.

8. Chasan-Taber L, Schmidt MD, Pekow P, Sternfeld B, Solomon CG, Markenson G. Predictors of excessive and inadequate gestational weight gain in Hispanic women. Obesity. 2008;16(7):1657-66.

9. Chu SY, Callaghan WM, Bish CL, D'Angelo D. Gestational weight gain by body mass index among US women delivering live births, 2004-2005: fueling future obesity. American journal of obstetrics and gynecology. 2009;200(3):271. e1-. e7.

10. Group HSCR. Hyperglycemia and Adverse Pregnancy Outcome (HAPO) Study associations with neonatal anthropometrics. Diabetes. 2009;58(2):453-9.

11. Gore SA, Brown DM, West DS. The role of postpartum weight retention in obesity among women: a review of the evidence. Annals of Behavioral Medicine. 2003;26(2):149-59.

12. Whitaker RC. Predicting preschooler obesity at birth: the role of maternal obesity in early pregnancy. Pediatrics. 2004;114(1):e29-e36.

13. Dabelea D, Snell-Bergeon JK, Hartsfield CL, Bischoff KJ, Hamman RF, McDuffie RS. Increasing prevalence of gestational diabetes mellitus (GDM) over time and by birth Cohort Kaiser Permanente of Colorado GDM Screening Program. Diabetes care. 2005;28(3):579-84.

14. Herring SJ, Oken E. Obesity and diabetes in mothers and their children: can we stop the intergenerational cycle? Current diabetes reports. 2011;11(1):20-7.

15. Linne Y. Effects of obesity on women's reproduction and complications during pregnancy. Obesity reviews. 2004;5(3):137-43.

16. Ehrenberg HM, Mercer BM, Catalano PM. The influence of obesity and diabetes on the prevalence of macrosomia. American journal of obstetrics and gynecology. 2004;191(3):964-8.

17. Hossain P, Kawar B, El Nahas M. Obesity and diabetes in the developing world—a growing challenge. New England journal of medicine. 2007;356(3):213-5.

18. Iqbal R, Rafique G, Badruddin S, Qureshi R, Cue R, Gray-Donald K. Increased body fat percentage and physical inactivity are independent predictors of gestational diabetes mellitus in South Asian women. European journal of clinical nutrition. 2007;61(6):736-42.

19. Chu SY, Callaghan WM, Kim SY, Schmid CH, Lau J, England LJ, et al. Maternal obesity and risk of gestational diabetes mellitus. Diabetes care. 2007;30(8):2070-6.

20. Montoro MN, Kjos SL, Chandler M, Peters RK, Xiang AH, Buchanan TA. Insulin resistance and preeclampsia in gestational diabetes mellitus. Diabetes care. 2005;28(8):1995-2000.

21. Yogev Y, Xenakis EM, Langer O. The association between preeclampsia and the severity of gestational diabetes: the impact of glycemic control. American journal of obstetrics and gynecology. 2004;191(5):1655-60.

22. Wiznitzer A, Mayer A, Novack V, Sheiner E, Gilutz H, Malhotra A, et al. Association of lipid levels during gestation with preeclampsia and gestational diabetes mellitus: a population-based study. American journal of obstetrics and gynecology. 2009;201(5):482. e1-. e8.

Table no: 01

Association of BMI between GDM and Non GDM mothers

BMI	*GDM mothers*	*Non GDM mothers*	*P value*
18.5-24.9	*5*	*16*	*< 0.05*
25-29.9	*16*	*6*	*< 0.05*
4	*9*	*6*	*< 0.05*
Total	*30*	*30*	

Figure: 01

Percentage of BMI between GDM and Non GDM mothers

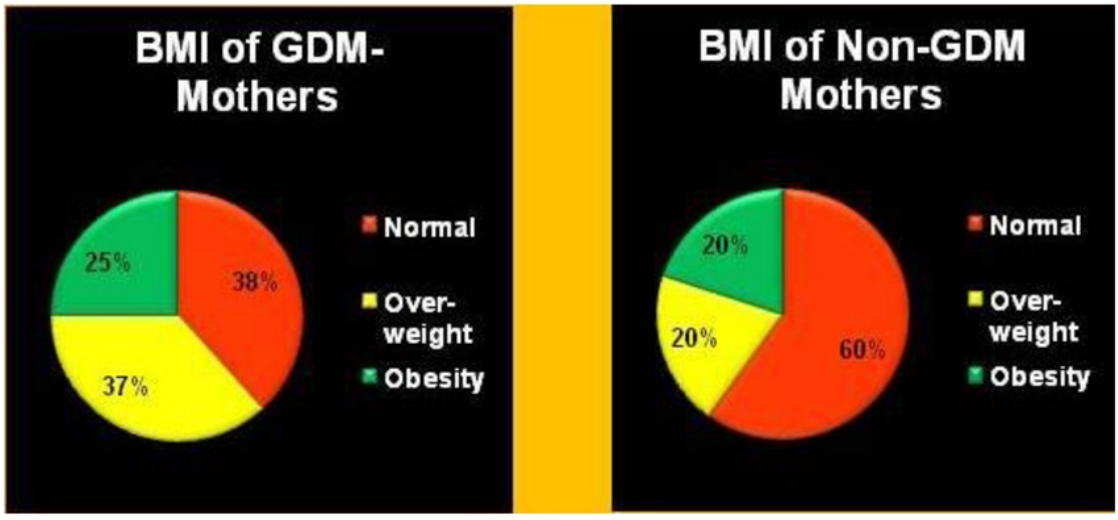
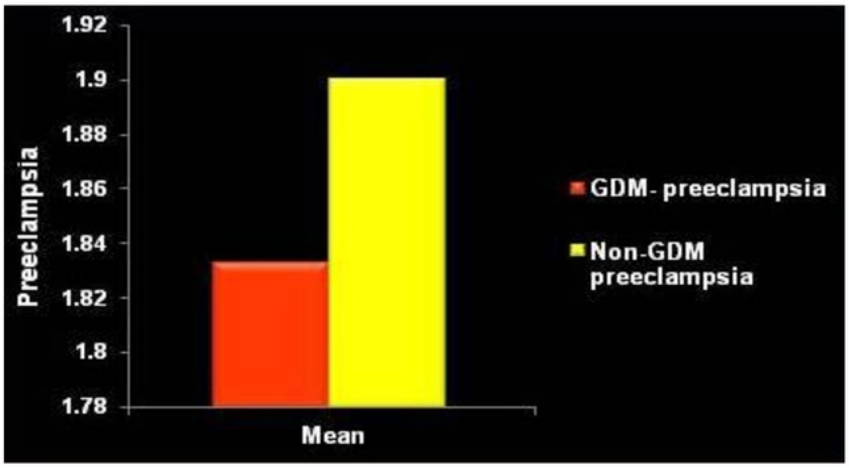


Table: 02

Preeclampsia	*GDM mothers*	*Non GDM mothers*	*p value*
Positive	*5*	*3*	*> 0.05*
Negative	*25*	*27*	*> 0,05*
Total	*30*	*30*	

Figure: 02



17429-Saira-Maternal obesity & Preeclampsia with GDM-RSDAuthr

ORIGINALITY REPORT

23%	14%	23%	%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	www.ncbi.nlm.nih.gov Internet Source	7%
2	Herring, Sharon J., Deborah B. Nelson, Adam Davey, Alicia A. Klotz, La Vette Dibble, Emily Oken, and Gary D. Foster. "Determinants of Excessive Gestational Weight Gain in Urban, Low-Income Women", Women s Health Issues, 2012. Publication	5%
3	Alam, N, HILR Khan, AW Chowdhury, MS Haque, MS Ali, KMN Sabah, and MG Amin. "Elevated serum homocysteine level has a positive correlation with serum cardiac troponin I in patients with acute myocardial infarction", Bangladesh Medical Research Council Bulletin, 2012. Publication	3%
4	Vidanalage, C.J. Kande, U. Senarth, K.D. Silva, U. Lekamge, and I.J. Liyanage. "Effects of initial body mass index on development of	2%

gestational diabetes in a rural Sri Lankan population: A case-control study", Diabetes & Metabolic Syndrome Clinical Research & Reviews, 2016.
Publication

5	www.nature.com Internet Source	1%
6	Nie, Mingyue, Weiyuan Zhang, and Xiaokui Yang. "A retrospective study of maternal and neonatal outcomes in overweight and obese women with gestational diabetes mellitus", International Journal of Diabetes in Developing Countries, 2015. Publication	1%
7	care.diabetesjournals.org Internet Source	1%
8	www.ijmbr.com Internet Source	1%
9	pubmedcentralcanada.ca Internet Source	1%
10	www.mayoclinic.com Internet Source	1%

Exclude quotes	On	Exclude matches	< 1%

Exclude bibliography On

17429-Saira-Maternal obesity & Preeclampsia with GDM-RSDAuthr

GRADEMARK REPORT

FINAL GRADE

/0

GENERAL COMMENTS

Instructor

PAGE 1

PAGE 2

PAGE 3

PAGE 4

PAGE 5

PAGE 6

PAGE 7

PAGE 8

PAGE 9

PAGE 10

PAGE 11

PAGE 12

PAGE 13

PAGE 14

PAGE 15

PAGE 16

PAGE 17