VOLUME - 10, ISSUE - 10, OCTOBER - 2021 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper | Obstetrics and Gynecology

MATERNAL BODY MASS INDEX AND MATERNAL OUTCOME

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ABSTRACT

BACKGROUND- To assess the impact of BMI on pregnancy outcome

METHODS- Hospital based prospective comparative study was conducted on 200 women in each group including normal and high maternal BMI.

RESULT- Preeclampsia complicated 12% of overweight pregnancies while it was 3.00% in normal weight group. The difference was statistically highly significant. 64% patients in overweight group and 83.00% patients in normal weight group had normal vaginal delivery. PPH in overweight group is 13.00% as compared to 2.00% in normal weight group. The difference was statistically significant ($p < 0.05$).

CONCLUSION -Obesity is an independent risk factor for adverse pregnancy outcomes and hence preventable steps should be taken for reducing the maternal morbidity. A general awareness regarding weight control, food habits and lifestyle modification is required as there are increasing trends of being overweight and obese both in developing as well as developed nations

KEYWORDS : BMI, PPH, Maternal

INTRODUCTION

Maternal body mass index (BMI) is one of the most important predictor of nutritional status of pregnant lady. Both nutritional intake and maternal weight are modifiable factors which can infl uence pregnancy outcome. Either underweight or overweight both can have a significant impact on outcome of pregnancy.[1]

Maternal obesity can have a direct influence on mode of birth and postnatal morbidity. Obese women are more likely to receive medical interventions, including caesarean delivery and general anaesthesia. The rate of induction of labour is reported to be doubled for obese pregnant women, compared to non-obese women. Delay in the first stage of labour is significantly more common, with the risk ranging from 1.5 times to 3 times more likely. Obese women also have a significantly increased risk of caesarean section of between 2-fold to more than 3-fold, with the most common reason for caesarean section being delay during the first stage of labour, even after augmentation with oxytocin.[2]

MATERIAL AND METHODS

Study design: Hospital based comparative study.

Study population: women attending antenatal OPD in first trimester.

Sample size: 200 women in each group including normal and high maternal BMI in the hospital during the above said duration.

Sampling Method: Simple random sampling

INCLUSION CRITERIA:

1.All pregnant women including those with normal, low and high BMI attending antenatal OPD in first trimester and not coming under exclusion criteria.
2. Singleton pregnancies
3. Patient willing to give consent

EXCLUSION CRITERIA:

1. Pregnancies with multiple gestation like twins, triplets
2. All cases of pregnancies with chronic medical illness like diabetes, chronic hypertension, bronchial asthma, cancer or patient on any drug therapy.
3. Pregnancies associated with diagnosed congenital malformations and intrauterine dead fetus

DATA COLLECTION:

After taking written and informed consent and fulfilling inclusion criteria, women attending antenatal OPD in first trimester were included in the study. Their weight was measured (in kilograms) without shoes. Subjects were made to stand erect on the floor barefoot with both ankles together and parallel to each other to note their height (in meters) with the head of the patient held in such a position that the line joining the tragus and outer canthus of eye were in a horizontal plane (Frankfurts Plane) such that the individual was standing straight next to the wall with the heels, buttocks, shoulders and occiput touching the wall.

Normal weight group- 100 antenatal patients with normal BMI ($18.5 kg/m^2 – 24.99 kg/m^2$)

Overweight group- 100 antenatal patients with high BMI (equal to or $>25 kg/m^2$)

DATA ANALYSIS:

To collect required information from eligible patients, a pre-structured pre-tested proforma was used. Data was analyzed with the help of mean, standard deviation and p value was calculated using T test and chi square test using primer software.

RESULTS

Table 1. General characteristics

Variable	Obese group	Normal group	p-value
Preeclampsia	12(12.00%)	3(3.00%)	<0.05
Eclampsia	1(1.00%)	0(0.00%)	<0.05
LSCS : NVD	36 : 64	17 : 83	<0.05
PPH	13(13.00%)	2(2.00%)	<0.05

Preeclampsia complicated 12% of overweight pregnancies while it was 3.00% in normal weight group. The difference was statistically highly significant. 64% patients in overweight group and 83.00% patients in normal weight group had normal vaginal delivery. PPH in overweight group is 13.00% as compared to 2.00% in normal weight group. The difference was statistically significant ($p < 0.05$).

DISCUSSION

Women who are overweight or obese during pregnancy face several possible health risks, including high blood pressure, gestational diabetes, and an increased chance of needing a Cesarean delivery.[4]

In our study preeclampsia complicated 12% of overweight pregnancies while it was 3.00% in normal weight group. The difference was statistically highly significant ($p = 0.01$).

Most common cause of preeclampsia in obesity was low grade inflammation and endothelial activation. Endothelial activation plays an integral role in preeclampsia. In a study conducted by Bhattacharya et al,[5] 14.7% of obese women developed pre-eclampsia.

PPH in overweight group is 13.00% as compared to 2.00% in normal weight group. The difference was however statistically not significant. This could be due to increased chances of instumental delivery in obese patients causing vaginal laceration as well as atonicity of uterus. The risk of PPH in the present study increase significantly with the increase in BMI. Sahu et al also did not find a statistically significant difference in the occurrence of PPH in obese, overweight and normal BMI women ($p > 0.05$). However, Bhattacharya et al in their study found that obese women were more likely to have PPH (OR 1.5; CI 1.3-1.7).[6,7]

CONCLUSION

Obesity is an independent risk factor for adverse pregnancy outcomes and hence preventable steps should be taken for reducing the maternal morbidity. A general awareness regarding weight control, food habits and lifestyle modification is required as there are increasing trends of being overweight and obese both in developing as well as developed nations.

REFERENCES

1. Committee on Obstetric Practice. (2013). Obesity in pregnancy. Committee Opinion No. 549. American College of Obstetricians and Gynecologists. *Obstetrics and Gynecology, 121*, 213–217.
2. Abrams B, Altman SB, Pickett KE. Pregnancy weight gain: still controversial. American Journal of Clinical Nutrition. May 2000; 71:1223-1241.
3. Ott R, Stupin JH, Loui A, Eilers E, Melchior K, Rancourt RC, Schellong K, Ziska T, Dudenhausen JW, Henrich W, Plagemann A.BMC Pregnancy Childbirth. 2018 Jun 20;18(1):250
4. Crane JM, White J, Murphy P, Burrage L, Hutchens D. The effect of gestational weight gain by body mass index on maternal and neonatal outcomes. J Obstet Gynaecol. Jan 2009;31:28-35.
5. Bhattacharya S, Campbell DM, Liston WA, Bhattacharya S. Effect of body mass index on pregnancy outcomes in nulliparous women delivering singleton babies. BMC Public Health. 2007;7:168
6. Kiran TSU, Hemmadi S, Bethal J, Evans J. Outcome of pregnancy in a woman with an increased body mass index. Br J Obstet Gynaecol. 2005;112(6):768-72.
7. Bhattacharya S, Campbell DM, Liston WA. Effect of body mass index on pregnancy outcomes in nulliparous women delivering singleton babies. BMC Public Health. 2007;7(1):168