

Effect of obesity and its outcome among pregnant women

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ABSTRACT

Objective: To identify and assess the effect of obesity on pregnancy and its outcome and to compare it with non obese pregnant women.

Methodology: It is a cross sectional study conducted at Ziauddin Hospital Kemari Campus and Kharader General Hospital Karachi from June 2009 to June 2010. Four hundred twelve women with normal and raised BMI (25 or more) were booked in first trimester. Patients were followed up with regular antenatal check-up and routine investigations of pregnancy. Complications encountered during pregnancy were recorded in both groups. The relative frequency of pregnancy induced hypertension, gestational diabetes, induction of labor was compared in both groups. Mode of delivery and fetal weight were also recorded.

Results: The frequency of pregnancy induced hypertension, diabetes mellitus, and Caesarean section and increased fetal weight were found to be higher in women who are obese in comparison to women who are non obese.

Conclusion: Pregnancies in obese women are considerably at higher risk for pregnancy and labor complications. It is advisable to achieve normal BMI before conception.

KEY WORDS: Obesity, Complication during pregnancy.

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INTRODUCTION

Obesity is considered a global health problem. Its incidence and prevalence are rising steadily throughout the world. Populations in poor countries as well as affluent ones are at risk. In USA its incidence ranges 18.5% to 38.3%, making it one of the most frequent high-risk obstetric situations.¹ An Australian study reported that 34% of pregnant

women were overweight or obese.² According to a western study 28% of pregnant women are overweight and 11% are obese.³

Compared with normal weight, obese women is at higherriskof developing certain complication during pregnancy, during labor and in the postpartum period. The most consistently developed maternal complication during pregnancy and delivery are pregnancy induced hypertension, preeclampsia⁴, venous thromboembolism, gestational diabetes, labor induction⁵ Postpartum hemorrhage and Urinary tract infections.

Maternal overweight is related to a higher risk of cesarean deliveries and a higher incidence of anesthetic and postoperative complications in these deliveries. Obese women are also said to experience increased rates of puerperal infection and decreased rates of breastfeeding initiation or continuation.

Maternal obesity is said to increases perinatal mortality.⁶ It increases the risk of perinatal death and preterm birth.⁷ The risks are Low Apgar scores,

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macrosomia, shoulder dystocia, instrumental delivery, neonatal trauma, feeding difficulties and neural tube defects. These are more frequent in infants of obese mothers than in infants of normal-weight mother.^{8,9}

Prenatal and postnatal care is also higher for overweight mothers than for normal-weight mothers and infants of overweight mothers require admission to neonatal intensive care units more often than do infants of normal-weight mothers. These infants are at higher risk for having congenital anomalies or being stillborn.¹⁰ Maternal obesity is also associated with increased risk of neonatal death. Its association with infant death, post/neonatal death, and cause-specific infant death is less well-characterized.¹¹

This study aimed to identify and assess the effect of obesity on pregnancy and its outcome and to compare it with non obese pregnant women.

METHODOLOGY

This cross sectional study was conducted in Ziauddin Hospital Kemari Campus and Kharader General Hospital Karachi from June 2009 to June 2010. Women coming for antenatal care during the first three months of pregnancy and willing to come for follow up throughout pregnancy were included in the study.

Verbal consent was taken from all women and purpose of study was explained defined to patients before the study. Obstetric data of 412 pregnant women with a parity of 0-5 were collected from booking till delivery including history examination findings, gestational age at delivery, mode of delivery, weight of baby and record of still births. Complications such as pregnancy induced hypertension, Diabetes mellitus, and need for induction of labor were recorded.

Patient height and weight was noted to estimate the body mass index (BMI). The BMI was calculated using the formula weight (in kg)/height (in meters). BMI calculated at booking visit was used for study.

Obstetric outcomes such as type of labor (i.e. spontaneous or induced), the type of delivery (i.e. spontaneous vaginal, instrumental or Caesarean section) and birth weight were recorded. Delivery

Table-I: Basic characteristic of patients.

	<i>Non Obese</i>	<i>Obese</i>	<i>P-value</i>
Age	25.3 ± 5	24.3 ± 2.8	0.003
Weight	58±4	83±5	0.01
Height	154.8	154.8	0.01

and fetal outcome were also recorded. Pregnant women who have essential hypertension, cardiac disease, women with abnormal presentation and women who have an absolute indication for caesarean section and also women with multiple gestations were excluded.

We divided all women in two categories normal (BMI value less than 24.99) and obese (BMI values more than 25). The unpaired t test was used for comparison of quantitative variable value equal to less than .05 was chosen as the level of statistical significance. Statistical analysis was conducted using SPSS version 17.

RESULTS

A total of 412 women were included in the study. Of these, 292 (70.8%) were normal weight and 120 (29.1%) were obese. Table-I presents the basic characteristics of patients and Table-II shows the risk of each complication or intervention in the abnormal BMI categories in comparison with the normal. Our study shows the significant difference in the prevalence of pregnancy induced hypertension, diabetes mellitus, caesarean section and increased fetal weight in women who are obese in comparison to women who are non obese. While we could not find any difference in the rate of induction of labor in the two studied groups.

DISCUSSION

The prevalence of obesity in our study was found to be 29% which is lower than reported in other studies. A study in a public sector hospital of Karachi reported that 47% females above the age of 30 years to be obese.¹² We found that obese

Table-II: Maternal complications, mode of deliveries and baby's weight.

<i>Complication</i>	<i>Non Obese</i>	<i>Obese</i>	<i>P-value</i>
Pregnancy induced hypertension	12(4.1%)	28(23.3%)	0.01
Diabetes Mellitus	2(0.6%)	5(1.7%)	0.013
Induction of labor	17(5.8%)	12(10%)	0.132
Mode of delivery			
Spontaneous vertex delivery	184(63%)	62(51%)	0.03
Caesarean section	108(36.9%)	58(48%)	
Baby's weight			
Normal	253(86.6%)	82(68.3%)	0.01
Overweight	39(13.3%)	38(31.6%)	

women were at increased risk compared with the normal weight women to pregnancy induced hypertension, preeclampsia, gestational diabetes mellitus, macrosomia and caesarean section. These finding are consistent with other studies.^{6,13,14}

Increase in Caesarean rate as quoted by Sherrord¹⁴ could be due to reduced rate of cervical dilatation and increased depot of soft tissues in maternal pelvis leading to obstructed labor or cephalo-pelvic disproportion.

Compared to most authors reporting a higher frequency of induction of labor in obese woman we could not find a significant difference. This could be due to less number of cases in our study compared to others. Obesity is well known to be associated with macrosomia leading to potential adverse maternal outcomes from obstetric intervention (induction of labor, cesarean section) and adverse neonatal out comes from shoulder dystocia (birth injuries such as nerve palsies).

Higher mean birth weight and macrosomia was found in our overweight patients, which is compatible with studies by other researchers.^{15,16} The study is limited because of small number of patients and included only those women attending the outpatient clinic of two hospital settings. However it adds to the increasing body of evidence suggesting that obesity, measured by BMI, predisposes women to increased risk of cesarean delivery and pregnancy induced hypertension diabetes mellitus and increased risk of having macrocosmic babies. Managing these problems and reducing their occurrence can pose a challenge to obstetrical care providers.

CONCLUSION

In conclusion, the results of our study indicate that obesity carries a significant increased risk for complications during pregnancy and delivery for both mother and fetus. Such patients should be advised for postpartum nutritional counseling, Preconception counseling, careful prenatal

management, tight monitoring of weight gain, and long-term follow-up to minimize the social and economic consequences.

REFERENCES

1. Gross T, Sokol RJ, King KC. Obesity in pregnancy: Risks and outcome. *Obstet Gynecol.* 1980;56:446-450.
2. Callaway LK, Prins JB, Chang AM, McIntyre HD. The prevalence and impact of overweight and obesity in an Australian population. *Med J Aust.* 2006;184(2):56-59.
3. Abrams B, Parker J. Overweight and pregnancy complications. *Int J Obesity* 1988;12:293-303.
4. Bhattacharya S, Campbell DM, Liston WA. Effects of body mass index on pregnancy outcomes in nulliparous women delivering singleton babies. *BMC Public Health.* 2007;7:168.
5. Sebire NJ, Jolly M, Harris JP, Wadsworth J, Joffe M, Beard RW, et al. Maternal obesity and pregnancy outcome. Study of 287213 Pregnancies in London. *Int J Obes Relat Metab Disord.* 2001;25:1175-1182.
6. Galtier-Dereure F, Boegner C, Bringer J. Obesity and Pregnancy: Complications and cost. *Am J Clin Nutr.* 2000;71(Suppl):1242S-1248S.
7. El Gilany AH, Hammad S. Body mass index and obstetric outcomes in Saudi Arabia a prospective cohort study. *Ann Saudi Med.* 2010;30:376-380.
8. Kiran U, Hemmadi S, Bethel J, Evans J. Outcome of pregnancy in a woman with an increased body mass index. *BJOG An Int J Obstetrics and Gynecology* 2005;112(6):768-772.
9. Castro LC, Avina RL. Maternal obesity and Pregnancy outcome. *Curr opin Obstet and Gynecol.* 2002;14:601-606.
10. Morin KH, Reilly L. Caring for Obese Pregnant Women. *JOGNN.* 2007;36(5):482-489.
11. Chen A, Feresu SA, Fernandez C, Rogan WJ. Maternal Obesity and the Risk of Infant Death in the United States. *Epidemiology.* 2009;20:74-81.
12. Shafi S, Rao MS, Soomro IBM. The effect of lifestyle and socio-economic factors in the development of obesity in young adults. *Pak J Med Res.* 2004;43:65-69.
13. Kristensen J, Vestergaard M, Wisborg K, Kesmodel U, Secher NJ. Pregnancy weight and risk of stillbirth and neonatal Death. *BJOG* 2005;112:403-408.
14. Sherrard A, Platt RW, Vallerand D, Usher RH, Zhang X, Kramer MS. Maternal anthropometric risk factors for caesarean delivery before or after onset of labor. *BJOG.* 2007;114:1088-1096.
15. Callaway LK, Prins JB, Chang AM, McIntyre HD. The prevalence and impact of Overweight and obesity in an Australian obstetric population. *Med J Australia* 2006;184:56-59.
16. Arendas K, Qin Q, Gruslin A. Obesity in pregnancy: Pre-conceptional to postpartum consequences. *J Obstet Gynaecol Can.* 2008;30:477-488.