OBESITY RELATED MATERNAL COMPLICATIONS IN PREGNANT WOMEN

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ABSTRACT

OBJECTIVE: To determine the frequency of maternal complications in obese antenatal women.

METHODOLOGY: This descriptive cross sectional study was conducted in department of obstetrics and gynecology, Lady Reading hospital, Peshawar-Pakistan, from April 2010 to March 2011. Total 250 consecutive antenatal patients with BMI >25kg/m2 (as per criteria for Asian population) were included in the study that fulfilled the inclusion criteria. Maternal complications associated with obesity like gestational diabetes, pregnancy induced hypertension (PIH), pre-eclampsia, cesarean section and reduced vaginal birth after cesarean section (VBAC) was determined. Data was analyzed by SPSS version 10.

RESULTS: Out of 250 obese antenatal women, 189 (75.6%) were multigravida and 61 (24.4%) were primigravida. In 212 (84.8%) cases, BMI ranged from 26-30 kg/m2 and in 38 (15.2%) cases it was 31-36kg/m2. Majority (n=166; 66.8 %) were ranging in age from 21-30 years and 190 (76%) cases had gestational age of 36–40 weeks. Gestational diabetes (20.4%), pregnancy induced hypertension (17.2%), pre-eclampsia (4.8%), increased, cesarean rate (30.4%), reduced VBAC rates (13.2%) were the common maternal complications in obese antenatal women.

CONCLUSION: Obesity in pregnancy is associated with adverse maternal outcome like gestational diabetes, pregnancy induced hypertension, pre-eclampsia, increased, cesarean rate and reduced VBAC rates.

KEY WORDS: Body mass index (BMI), Pregnancy induced hypertension (PIH), Vaginal birth after cesarean section (VBAC)

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INTRODUCTION

Obesity is a global problem and affecting more than half a billion adults worldwide. According to WHO estimates, about 205 million men and 297 million women over the age of 20 are obese.[1] A recent study showed that 1 in 5 women booking for antenatal care in 2002-2004 were obese.[2] Body mass index (BMI) greater than 30kg/m^2 is a globally accepted definition for obesity while over weight is defined as BMI 25-29.9kg/m^2. The cut off level of BMI for Asian is >23kg/m^2 for overweight and >25kg/m^2 for obese.[3,4] In our country obesity stands out to be a major health hazard with an incidence as high as 13.5%.[5] WHO reports a prevalence of 17.19 % in the developing world.[6]

In pregnancy BMI is calculated using pre pregnancy weight if this is unknown then the first weight measurement at prenatal care is used.[7] Obesity is implicated as a risk factor for both maternal and fetal complication. Studies showed about 14-25% , risk of gestational diabetes and preeclampsia in obese pregnant ladies.[8,9] These women are at double risk of ending in cesarean section.[10,11] Studies also showed increased risk of infectious morbidity, post-partum hemorrhage (PPH), delivery of large for date babies , still birth and intra-partum complications.[12,13]

There are a few local studies from Karachi on effects of obesity on outcome of pregnancy.[14-16] However, there were no study from Khyber Pakhtunkhwa on the obesity related outcome of pregnancy. This study was planned to determine frequency of complication in relation to pregnancy and obesity in our set up, so as to emphasize the importance of optimum BMI preconceptionally in achieving good pregnancy outcome.

METHODOLOGY

This descriptive cross sectional observational study was conducted in department of obstetrics and Gynaecology Lady Reading Hospital, Peshawar from 1st April 2010 till 31st March 2011. A total of 250 obese pregnant women were selected by convenience sampling with age range of 15 to 35 years and BMI >25kg/m^2 having singleton pregnancy, primigravida or multigravida and of any gestational age were included. Multiple pregnancy, polyhydramnios, previous cesarean section with a recurrent cause were excluded. Weight was measured in kilogram by weighing machine with traditional clothing and height measured in meters with measuring tape without shoes and BMI calculated by kg/m^2. Gestational age was calculated by date of last menstrual period or scan available. BP

was measured by mercury sphygmomanometer and 24 hours urinary collection was done to measure loss of protein in urine. Fasting and random (2 hours post prandial) blood sugar were used for detecting diabetes because these test could be conveniently done as the study included emergency patients. Progress of labour was monitored on partogram. Data was analyzed by SPSS version 10.

RESULTS

This study was performed on 250 antenatal patients with a BMI greater than 25 kg/m^2. Only 30 (12%) were booked in our unit. They were followed regularly in antenatal clinic as well as during labour and in postpartum period. Rest of 220 (88%) women were admitted in emergency. Most of the patients belonged to low or middle socioeconomic class. Out of 250 women, 189 (75.6%) were multigravida and 61 (24.4%) were primigravida. Majority of patients (n=160; 66.8 %) were ranging in age from 21-30 years. Out of 250 cases, 190 (76%) cases presented in 36-40 weeks of gestation (Table 1). In 212 (84.8%) cases, BMI ranged from 26-30 kg/m^2 and in 38 (15.2%) cases it was 31-36kg/m^2.

Frequency of complications in obese antenatal women is given in Table II. Gestational diabetes mellitus (GDM) was diagnosed in 51 (20.4%) cases and Pre-eclampsia was observed in 12 (4.8%) patients. Out of 76 (30.4%) patients ending in cesarean section, 21 (8.4%) cases had failure to progress of labour in first stage, 9 (3.6%) had failure to progress in 2nd stage of labour as detected on partogram and 46 (18.4%) had cesarean section due to fetal distress.

DISCUSSION

The purpose of study was to test the hypothesis that obesity in pregnancy puts mother at risk of adverse outcome. According to recommendation by WHO regional office for Asia pacific regional published in February 2000 we took obesity at BMI > 25. Patients in our set up seldom report for pre-pregnancy check-up and most of them come at term on in labour. So we included all those patients who had BMI of > 25kg/m^2, irrespective of gestational age and were fit according to inclusion criteria. Pregnancy induced hypertension was observed in 17.2% cases and pre-eclampsia in 4.8% of cases in the study. PIH was observed in 10.1% of cases in study conducted by Jaleel R.[14] Also as most of the patients came at term or in labour and as there was limited follow up we were not able to exactly separate PIH cases from chronic hypertension. We used large size cuff for BP measurement in obese women because false high BP level are obtained with normal size cuff. Finding of Sebire NJ at al[17] show a lower trend in PIH but they concentrated mainly on pre eclampsia. GDM was found in 20.4% of one cases. We excluded those patients who were type II diabetic and concentrated only on gestational diabetes. Linne Y et al,[8] Jaleel R et al,[14] Callaway LK et al,[18] Arendas K et al,[19] Galtier F et al,[20] and Abenhaim HA et al,[21] all found the same result during their study.

Obesity is also associated with increased rates of cesarean section both elective and emergency cesarean. We observed increase frequency of cesarean section which is consistent with other studies like Jaleel R[14] and Sebire.[17] Uterine contractility is suboptimal in obese women even after augmentation with syntocinon and increase fats in pelvis may also obstruct labour. The operating time and post operative hospital stay and infectious morbidity is increased in these patients. Failure to progress in first and second stage of labour was seen in 8.4% and 3.6% cases as compared to 6%

TABLE 1: AGE AND GESTATIONAL AGE OF OBESE ANTENATAL WOMEN

Characteristics		Frequency (n=250)	Percentage (%)
AGE	15-20 YEARS	3	1.2 %
	21-30 YEARS	160	66.8 %
	31-35 YEARS	87	32 %
GESTATION	28–30 WEEKS	5	2 %
	31–35 WEEKS	33	13.2 %
	36–40 WEEKS	190	76 %
	>40 WEEKS	22	8.8 %

TABLE II: FREQUENCY OF COMPLICATIONS IN OBESE ANTENATAL WOMEN

Complications	Frequency (n=250)	Percentage
Cesarean section	76	30.4 %
Gestational Diabetes	51	20.4 %
Pregnancy induced Hypertension	43	17.2 %
Vaginal birth after delivery	33	13.2 %
Preeclampsia	12	4.8 %

and 1.5% in a study by Sheiner E et al.[11] VBAC was observed in 13.2% of cases. Chuhan et al[22] observed that in women weighing more than 136 kg, VBAC was successful in only 13% cases which is lower than cited for general population at 60 to 80% cases. The increase rate of failed VBAC may be because monitoring of obese patients for scar tenderness and fetal heart rate is more difficult than in patients with normal BMI. Thus this simple observational study supplements the findings of other studies that obesity in pregnancy increases the maternal risk which persists even after confounding factors are taken into account.

CONCLUSION

Obesity in pregnancy is associated with adverse maternal outcome like gestational diabetes, pregnancy induced hypertension, pre-eclampsia, increased, cesarean rate and reduced VBAC rates. This study emphasize the importance of normal BMI prepregnancy and during pregnancy to avoid the complication and hence to decrease work load on health related staff.

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AUTHOR'S CONTRIBUTION

The sole author (WS) has made substantial contributions to the manuscript in conception and design, acquisition of data, drafting the manuscript and final approval of the version to be published. Author agrees to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CONFLICT OF INTEREST

Authors declare no conflict of interest

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