Original Article

Frequency of cesarean section in women with increased body mass index

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Objective: To determine the frequency of cesarean section in women with increased body mass index.

Methodology: This cross sectional study was conducted at the Department of Obstetrics & Gynecology, Bahawal Victoria Hospital, Bahawalpur in a six months period from May to November 2012. Data was collected on a preformed questionnaire and analyzed with SPSS v. 10.

Results: Out of 132 cases, 31.06%(n=41) were between 25-30 years of age. Mean age was 27.89±5.72 years. Mean of duration of pregnancy was 39.67±4.89 weeks. Mean BMI was 29.45±4.21 kg/m.^{2}Cesarean section was performed in 33 (25%) patients.

Conclusion: The frequency of cesarean section is considerable among pregnant women with higher BMI. There is need to reduce the frequency of obesity whether it is pre-pregnancy or after pregnancy. (Rawal Med J 2014;39: 45-47).

Key words: Body mass index, cesarean section, obese pregnant.

INTRODUCTION

Obesity is a most common disorder in the affluent industrialized and developed world.[1] Its prevalence is increasing worldwide and this trend also affects women of reproductive age. Maternal obesity is now the commonest risk factor for maternal mortality in developed countries and is also associated with a wide spectrum of adverse pregnancy outcomes.[2] In Pakistan, very limited data regarding incidence of obesity in pregnancy is available, however, data from National Health Survey of Pakistan 1990-1999 showed the prevalence of obesity in reproductive age as 14% for women in rural areas while 37% in urban areas.[3]

A higher maternal pre-pregnancy body mass index (BMI; kg/m^2) increases the risk of intervention during delivery. Obese women are less likely to have spontaneous onset of labour, more likely to require induction of labor, and more likely to have a failed induction of labor.[4] As maternal BMI increases, both the caesarean section rate and the rates of operative and complicated vaginal delivery increase.[5]Obese women are also more likely to have labor complicated by fetal distress, and to have a reduced chance of successful vaginal birth after cesarean section.[6] The increased risk of an interventional delivery means that the requirement for anesthesia is also increased with higher complications.[7] The current study was carried out to determine relationship of BMI and cesarean section.

METHODOLOGY

Study Design and Sampling:

It was a cross sectional descriptive study conducted at the Department of Obstetrics & Gynecology, Bahawal Victoria Hospital, Bahawalpur, Pakistan in a six months period from May to November 2012. The calculated sample size was 132 pregnant women, with 10% margin of error, 95% confidence level and taking expected proportion of cesarean section in obese patients as 19.9%. The sample was chosen by non-probability purposive sampling technique. Pregnant women with BMI ≥ 25 kg/m,^{2}age 20-40 years and primigravida or multigravida (upto 3)were included in the study. Women with multiple pregnancy, women with diagnosed endocrine disorder like diabetes, hypothyroidism, women with previous cesarean section, women with poly hydromnios and eclampsia and women with placenta previa and mal presentation were excluded from the study. An informed consent was taken from all patients.

A total of 132 pregnant women were recruited for the study from labor room. All women were followed till delivery. Mode of delivery i.e. cesarean section was recorded. The data were analyzed using

SPSS version-10. Descriptive statistics were calculated for quantitative variable like age, duration of pregnancy, maternal height, weight and BMI. Stratification was performed during analysis to nullify the effect modifier.

RESULTS

Out of 132 subjects 41 (31.06%) were between 25-30 years of age(Table 1). Duration of pregnancy was between 37-40 weeks in most women (Table 2).

Table 1. Age distribution of the patients.

Age (in years)	Number	%
20-25	34	25.76
25-30	41	31.06
31-35	30	22.73
36-40	27	20.45
Total	132	100
Mean and SD	27.89±5.72	

Table 2. Duration of pregnancy.

Duration (in weeks)	Number	%
28-32	5	3.79
33-36	9	6.82
37-40	87	65.91
>40	31	23.48
Total	132	100
Mean and SD	39.67±4.89	

Table 3. Stratification of cesarean section for age.

Age (in years)	Number	Cesarean section(n=33)	
		Number	%
20-25	34	8	24.24
25-30	41	17	51.52
31-35	30	5	15.15
36-40	27	3	9.09
Total	132	33	100

Table 4. Stratification of cesarean section for duration of pregnancy.

Duration (in weeks)	Number	Cesarean section(n=33)	
		No. of patients	%
28-32	5	00	00
33-36	9	2	6.06
37-40	87	19	57.58
>40	31	12	36.36
Total	132	33	100

Mean BMI was 29.45±4.21 kg/m^2. Cesarean section was recorded in 33 (25%) and 99(75%) were delivered normally(Table 3).

Stratification of cesarean section for age showed out of 33 cases, 24.24%(n=8) were between 20-25 years, 51.52%(n=17) between 25-30 years, 15.15%(n=5) between 31-35 years and 9.09%(n=3) were between 36-40 years of age. Stratification of cesarean section for duration of pregnancy revealed that out of 33 cases, 6.06%(n=2) were between 28-weeks, 57.58%(n=19) between 37-40 weeks, and 36.36% (n=12) had >40 weeks of gestation (Table 4).

DISCUSSION

Obesity has been recognized by the World Health Organization as a rapidly growing threat to the health of populations of an increasing number of countries worldwide.[8] In the United States, approximately 34% of the population is now overweight.[9] In the UK, 32% of women aged 16–64 years of age are overweight and 20% are obese.[10] The precipitous rise in the prevalence of obesity is mirrored in the antenatal population and the number of obese women entering pregnancy is at an all time high. One in 5 women booking for antenatal care in 2002/2004 in Scotland were obese.[11] A similar study in the United States reported that the percentage of obese women in the antenatal population rose from 16% in 1980 to 36% in 1999.[12]

In our study, mean of BMI of the subjects was calculated as 29.45±4.21 kg/m,^{2} while the frequency of cesarean section was recorded in 25%(n=33). The findings regarding frequency of cesarean section in obese women are in agreement with a recent study conducted in Iran recorded 19.9%,[13] while another recent study[1] conducted by Shababet al who determined the frequency of cesarean section in obese pregnant women in 39.8% cesarean section rate, which is slightly higher than in our study.

Saunders and Paterson suggested that not going into spontaneous labor at term could be a risk factor for difficulties in the birth mechanism such as mal position of occiput and impaired uterine contraction but this needs the proof.[12] Zhang et al. reported reduction in contractility of the obese uterus in vitro

and suggested that this may be due to increased cholesterol deposits in the myometrium.[14] On the other hand, Buhimschi et al. found no difference in intrauterine pressure in the second stage of labor in obese and non obese.[15] Whatever the reason, there appears to be little doubt regarding the association between obesity and cesarean section rate.

Our results highlight overweight and obesity as an important public health issue in our country. Owing to the increasing prevalence of childhood and adolescent obesity, many obese pregnant women are likely to be encountered. Larger studies are therefore required to further investigate the results.

CONCLUSION

Our study revealed that the frequency of cesarean section was considerable among pregnant women with higher BMI. There is need to reduce the obesity whether it is pre-pregnancy or after pregnancy.

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Conception and design: SF
Collection and assembly of data: SF
Analysis and interpretation of the data: NT
Drafting of the article: SF, NT
Critical revision of the article for important intellectual content: SMC
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