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The Study of Fetomaternal Outcome in Obese Pregnant Females

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Abstract: ***Introduction: Obesity in pregnancy puts the mother and the fetus at risk of several complications such as gestational diabetes mellitus, preeclampsia, preterm labour, dusfunctional labour, caesarean section, postpartum infections, post delivery deep vein thrombosis. The study finds the incidence of pregnancy complications and neonatal outcome due to maternal obesity. Material methods: It is a prospective study carried out at P.V.P.G.H. sangli over 100 obese pregnant with BMI more than 30 kg /m^2 patients, control being 100 patients with normal BMI. Different risk factors developed during antenatal period like preeclampsia, gestational diabetes mellitus, postdatism and postpartum performance of patient and risk factors like DVT were studied. The neonatal outcome in test and controls were studied. Results: The development of risk factors in antenatal period was directly proportional to the degree of obesity. Incidence of L.S.C.S, instrumental delivery, postpartum haemorrhge and macrosomia were seen significantly more in patients test than in control patients. Conclusion: Obesity acts as an independaant risk factor for several complication . Maintaining an ideal life style with healthy food with antioxidants, exercise and monitoring prepregnaant weight gain will help to reduce the complication to a significant extend.***

Keywords: Body Mass index, risk factors, healthy life style

1. Introduction

Obesity is a state of excess adipose tissue that increases by enlargement of adipocytes. As per RCOG guidelines obesity in pregnancy is defined as BMI >30 kg /m2 at first antenatal consultation. Obesity in pregnancy puts the mother and the fetus at risk of several complications such as gestational diabetes mellitus, preeclampsia, preterm labour, dusfunctional labour, caesarean section, postpartum infections, post delivery deep vein thrombosis .Neonates of obese women are large for gestational age and have high incidence of birth injury, shoulder dystocia, premature deliveries, late fetal deaths ,and congenital malformations mainly spina bifida, cleft lip, cleft palate and heart defects .

This study finds the incidence of pregnancy complications and neonatal outcome due to maternal obesity. The results of the study will enable to highlight a problem that is a modifiable risk factor of cardiovascular diseases and of diabetes mellitus.

2. Material and Methods

This is a prospective observational study conducted in Government Medical College, Hospital, Miraj over 100 patients in a two years duration**.**

2.1 Inclusion criteria

1) Women with BMI > 30 kg /m2 at first antenatal visit irrespective of parity.
2) Women presenting to ANC clinic at first trimester.
3) Women in age group of 18- 34 years .B.M.I is considered as 15-18.5 undeweight, 19-24 normal 25-29 overweight 30-34 obese >35 morbidly obese. Control group was 100 patients with normal BMI.

2.2 Exclusion criteria

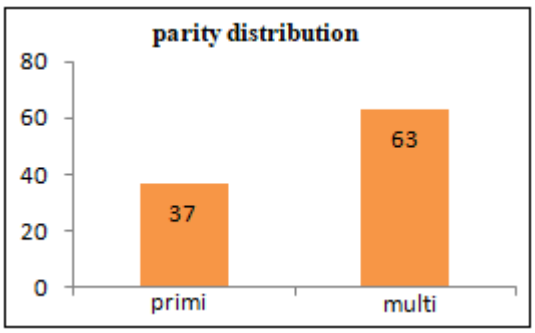
1) Women with BMI <18.5 kg /m2
2) Women who are known case of diabetes mellitus, chronic hypertension, hypothyroidism .

BMI was calculated at first booking visit then they were followed during their antenatal visits for any complication on basis of history, examination and investigations. All the observations regarding mode of delivery, fetal outcome ,complications during labour and delivery or postpartum period were recorded.

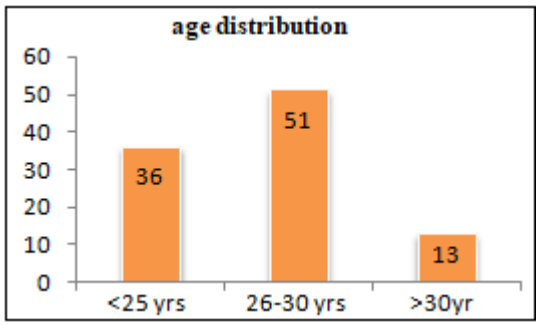
All patients were given postoperative lung exercises, promoted for early ambulation for prevention of deep vein thrombosis.

3. Observations and Results

All the data was entered in Microsoft excel data sheet and analysed using SPSS 22 version software. Chisqure was used as test of significance to find the association. P value less than 0.05 was considered as statistically significant. We studied 100 cases of obese pregnant patients with BMI >30 and results are plotted as follows



Graph 1



Graph 2

51% were between 26-30 yrs (51%). Occupational classification of patients suggested 74% were housewives and working group was 26 %. 99% patients were literate, 39 % studied till high school. 64 % patients were from middle socioeconomic class and 36% patients were from low economic class. 63 % were multigravida and 37 % were primi.

BMI distribution is as shown in table.

Table 1

BMI	*Frequency*	*percentage*
25-29 (grade 1)	82	82%
30-34.9 (grade2)	15	15%
>35 (grade 3)	3	3%

Patients developing high risk factors during their anc period as a direct or indirect result of obesity are as follows.

Table 2

Risk factor	*No of patients (Test)*	*%*	*No of patients (control)*	*%*
Preeclampsia	41	41%	20	20%
oligohydromnios	11	11%	2	2%
iugr	9	9%	2	2%
Gestational diabetes melltus	11	11%	1	1%
Post date	15	15%	10	10%
Abnormal presentation and positions	5	5%	5	5%
No any risk factor	8	8%	60	60%
Total	100	100%	100	100%

There was a significant association between number of risk factors present and grade of obesity.

Table 3

		Grade 1 obesity		*Grade 2 obesity*		*Grade 3 obesity*	
		No of pt	% of pt	No.of pt	% of pt	No of pt	% of pt
No of risk factors present	0	9	10.5%	0	0%	0	0%
	1	47	49.5%	1	20%	2	66.66%
	2	28	30.7%	2	40%	0	0%
	>= 3	8	9.3%	2	40%	1	33.33%

49.5% patients from grade 1 had atleast one risk factor while as grading increased percentage of risk factors increased in proportion. (p value >0.01). Gestational age at delivery showed preterm 27%, term delivery 58% and postterm delivery 15 %. 57% patients had induction of labour due to preeclampsia or postdate while 43 % patients had spontaneous onset of labour.

Table showing indications of induction.

Table 4

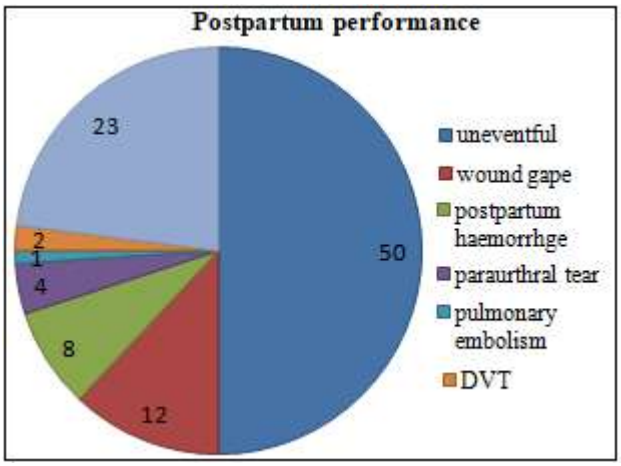
Indication of induction of labour	*No of pt (test)(57)*	*percentage*	*No of patients (control)*	*percentage*
Preelampsia eclampsia	33	33%	11	11%
Postdate	10	10%	18	10%
PROM	7	7%	7	7%
IUGR	3	3%	1	3%
Oligohydromnios	2	2%	2	2%
Intrauterine death	2	2%	2	2%
Spontaneous onset of labour	43	100%	59	100%

54 patients delivered by LSCS (30 by emergency and 24 by elective). 39 delivered by fullterm normal delivery 6 with outlet forceps and 1 needed application of ventuse. Birth weight of newborn are tabulated as follows Table no 5. 56 babies of patients needed NICU admissions. Reasons for admission are IUGR 18 %, Macrosomia 12%, Birth Ashyxia 10%, preterm prematurity 7% ,meconium aspiration 5% ,LBW 4 %,Icterus 1%, congenital anomaly 1% and 1% as mother was in ICU

Table 5

Birth weight	*No of pt Test*	*%*	*No of pt control*	*%*
<2.5 kg	32	32%	14	14%
2.5-4 kg	41	41%	78	78%
>4 kg	2 7	27%	8	8%
total	100	100%	100	100%

Postpartum performance of patients is as shown in graph no.3



4. Discussion

The worldwide prevalence of obesity has increase substantially over past few deacades. Economic, technological and life style changes have created an abundance of cheap high calory food coupled with decreased required physical activity. In United states the percentage of women who are overweight or obese has increased by approximately 60 % in the past 30 yrs [1].In India also we

are facing the problem of obesity. As more and more women enter into antenatal period health facilities be more trained in tackling the complication. In our study 92 % patient had grade 1 obesity and only 3 % had morbid or grade 3 obesity. High prepregnancy BMI and/or excessive gestational weight gain (GWG) have negative implications on pregnancy outcomes, and this amplifies the burden of chronic diseases putting health of both mother and the infant at risk.[2]

The different risk factors studied are seen more with obese pregnant females. Preeclmpsia being the highest in 41% while gestational diabetes in 11%. Only 8 % patients were without any risk factor. This was comparable with control group with preeclmpsia in only 20 % patients and GDM in 1 %. 60% patients from control group were without any risk factor. This concludes that obesity is significantly associtedwith Preeclampsia and GDM. Study conducted by Susan Y Chu [3] indicate that high maternal weight is associated with a substantially higher risk of GDM.The study carried out by N. G. Sebire [4]also mentions that the risk factors as GDM,preeclamsia,induction of labour ,wound complications are comparably more in pregnant obese patients. The risk increases with the degree of obesity and persists after accounting for other confounding demographic factors. Higher maternal BMI in the first trimester and a greater change in BMI during pregnancy were associated with longer gestation and an increased risk of postdates pregnancy. Higher maternal BMI during the first trimester was also associated with decreased likelihood of spontaneous onset of labour at term and increased likelihood of complications. [5] In our study 57% patients needed induction of labour as compared to 41 % patients in control group. Important causes being preeclampsia and postdate. The need Induction of labour and delivery by caesarean section were both more common in obese women .The frequency of both elective and emergency caesarean section was almost twice as high for very obese women as it was for women of normal BMI, which may have in part been related to the increased rate of induction of labour and malpositions and malpresentations. 41 % patients had an average birth weight between 2.5 to 4 kg average being 2.8 kg. 27 % had> 4 kgbaby weight at birth. The results are similar to study carried out by Schrauwer et al [6]. In postnatal period 50 % patients had uneventful outcome in our study. Prepregnant Overweight and Obesity Diminish the Prolactin Response to Suckling in the First Week Postpartum.[7]. In our study 23 % patients were unable to establish lactation satisfactorily in first7 days .Obesity impairs wound healing .We had 12 patients with wound gape which needed secondary suturing. The overall prevalence of wound sepsis (including post LSCS wound discharge (7%) and episiotomy wound gape (5%) was 12 %. It increased with obesity (OR: 3.2) signifi cantly among the morbidly obese (OR: 9.1).

Postpartum haemorrhage (atonic) rates were signifi cantly raised (8%) with obesity in our study. Prolonged duration of labour, increased instrumental deliveries and c-sections were directly related to atonicity. Sebire et al [8]reported a 44% increased risk of PPH with BMI > 30 Kg/m2.Smoking and obesity are risk factors for VTE in pregnancy and the puerperium. [9].In our study there were 2 patients with DVT treated conservatively and one patient of pulmonary embolism needed ventilatory support .Prophylactic treatment with LMWH in grade2 an 3 patients with deep breathing exercises and early ambulation help in preventing the complication.

5. Conclusion

Overweight & obesity is a growing problem in pregnant females associated with increased risks of fetomaternal complications like preeclampsia, gestational diabetes, cesarean delivery, and delivery of a macrocosmic infant. Obesity acts as an independant risk factor for several complication. Maintaining an ideal life style with healthy food with antioxidants, exercise and monitoring prepregnant weight gain will help to reduce the comlication to a significant extend .

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