

Maternal Adiposity Deliver Adverse Perinatal Consequences

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Abstract

Aim and Objective: To compare perinatal outcome of maternal adiposity to normal BMI Women. **Material And Method:** This is hospital based prospective study .results-a fatty women deliver more Macrosomic baby, need more NICU admission, more birth trauma, more hospital stay, more congenital anomaly baby, low apgar at 5 minite.

Keywords: BMI, NICU, maternal adiposity.

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INTRODUCTION

A maternal adiposity or fatty women problem increasing worldwide. Confidential EnquiryIn to Maternal and Child Health (CEMACH) 2004 report that in India every fifth pregnant women is fatty [1]. Economic, technologic, and life style changes have created an abundance of cheap, high- calorie food coupled with decreased required physical activity. We are eating more and moving less. There is evidence for metabolic dysregulation among fatty women that has been linked with a number of possible environmental factors, including contaminants from modern industry. Maternal adiposity is a significant public health concern and is likely to remain so for the foreseeable future. Maternal health can have a significant impact onthe in utero environment and, thus, on fetal development and the health of the child later in life [2].

According to the in utero fetal programming hypothesis (Barker hypothesis), size at birth is related to the risk of developing disease later in life.² Although the Barker hypothesis originally focused on low birth weight, there is evidence that high birth weight may have its own set of complications later in life.

A link between maternal adiposity problem in the first trimester and obesity in children has been demonstrated. Birth weight has also been shown to be directly correlated with body mass index (BMI) later in life³.Maternal adiposity is associated with abnormal fetal growth. Women who are heavier are less likely to have a pregnancy complicated by a small-for-gestational age infant or intrauterine growth restriction,

but this protective effect appears to dissipate once the maternal BMI reaches the level of obesity (> 30 kg/m²). The major concern in obese pregnant women is fetal macrosomia (defined as an estimated fetal weight of greater than or equal to 4500 g), which appears to be increased 2- to 3-fold in obese [4].

Maternal obesity is associated also with an increased risk of neural tube defect (NTD) in the offspring, even after controlling for ethnicity, maternal age, education, and socioeconomic status. Parturients [5] To being larger, infants born of pregnancies complicated by GDM also have significantly larger skin folds at all areas of measurement (triceps, subscapular, flank, thigh, abdomen) and, as such, are at increased risk of shoulder dystocia and resultant birth injury leads to high NICU admission and hospital stay. In neonates, maternal obesity is associated with increased risk of stillbirths, prematurity [6-8] and associatedrespiratory distress in near term neonates.so timely physian advice of prepregnancy weight control through diet and exercise we can reduce this above morbidities. On a positive note, a recent survey of 900 obstetrician-gynecologists by The American College of Obstetricians and Gynecologists showed that 80% routinely counsel their pregnant patients about weight control, although only 35% believe that such prenatal counseling will significantly affect the incidence of obesity [9].

AIMS AND OBJECTIVES

- To evaluate maternal adiposity and their effect on perinatal outcome
- To timely consider intervention on maternal adiposity and prevent perinatal morbidity

MATERIAL AND METHOD

This study done in sms medical college jaipur during period 2013-14 .it was a prospective longitudinal study. We taken cases during antenatal care early as early possible. We grouped patient in two. In first group

we consider body mass index $>30 \text{ kg/m}^2$ and in second we consider body mass index between $18.5-24.9 \text{ kg/m}^2$, then follow up done of patient of both group till patient and their new born discharge from hospital. Inclusion criteria-all nullipara women. Exclusion criteria-women with medical disorder, previous cesarian, plecenta pravia etc. In each group 150 patient taken and data collected, stastically analysed. P value $<.05$ consider stastically significant.

OBSERVATIONS AND DISCUSSIONS

Table-1: Cases Disribution According To Fetal Macrosomia

PERINATAL CONSEQUENCES		BMI> 30kg/m2(n-141)		BMI 18.5-24.9 kg/m2(n148)		P value
		No.	%	No	%	
FETAL WEIGHT	>4KG	5	3.55	0	0.00	<.05
	>3.5 KG	16	11.35	3	2.03	<.005

Table-1 shows hiigh BMI group have 5 macrosomic bay compared to zero in normal BMI group. P value is significant. High BMI group have 11.35% baby $>3.5 \text{ kg}$ compared to 2.03% in normal bmi

group. Presence of gestational diabetes in obese women causes heavier baby. Similar result found by Lakhani N *et al.*, [18], Velanki [10], N Sebiri [11].

Table-2: Cases Distribution According To Apgar Score

PERINATAL CONSEQUENCES		BMI> 30kg/m2(n-141)		BMI 18.5-24.9 kg/m2(n148)		P value
		NO	%	NO	%	
APGAR Score at 5 Minute	$\geq 7/10$	117	82.98	136	91.89	<.05
	$< 7/10$	24	17.02	12	8.11	<.05

Table-2 shows 24 newborn have APGAR score at 5 minute is $< 7/10$ minute compared to 12 in normal BMI Group. P value is significant. Because presence of Pregnancy induced hypertensive disorder/gestational diabetes in obese group, we induced labour early. This might be a cause for more

preterm babies and increase risk for infections in obese group. There is also more risk of hypoglycemic episodes in newborn of diabetic mother. This may lead to low APGAR score.. Similar result found by Usha Kiran *et al.*, [13], Madiha *et al.*, [12].

Table-3: Cases Distribution According To Nicu Admission, Preterm Baby Etc

PERINATAL CONSEQUENCES		BMI> 30kg/m2(n-141)		BMI 18.5-24.9 kg/m2(n148)		P value
		NO.	%	NO.	%	
NICU Admission		34	24.11	14	9.93	<.005 (HS)
Preterm Baby Below 37 Weeks		33	23.40	12	8.51	<.005 (HS)
Birth Trauma		7	4.73	1	0.71	<.05
IUFD (>20 weeks)		3	2.13	1	0.71	$>.05$
Neonatal Death		3	2.13	1	0.71	$>.05$
Congenital Anomaly		2	1.42	0	0.00	$>.05$

Table-3 shows NICU admission is more in high BMI group compared to normal BMI group. P value is significant. Preterm baby admission is 23.4% compare to normal BMI group it was only 8.51%. Birth truma is more common in high BMI group. There is no significant differences in IUFD, neonatal death and congenital anomaly.

In high BMI group compared to normal BMI group presence of PIH, diabetic we prior induced labour early that lead to more NICU admission.PIH and diabetic baby also heavier compared normal BMI group, lead to more birth trauma. Similar result found

by Debasmita *et al.*, [15] and Rifat Jaleel *et al.*, [14]. Table-3 also shows that congenital anomaly more in obese group but difference were not statistically significant (P-value $>.05$). The mechanism underlying the increased risk of NTD in pregnancies complicated by maternal obesity is unknown. However, a number of theories have been proposed, including a reduction in the amount of folic acid reaching the developing embryo due to insufficient absorption and greater maternal metabolic demands, chronic hypoxia, and increased circulating levels of triglycerides, uric acid, estrogen, and insulin (due, in part, to increased insulin resistance) [16, 17].

CONCLUSION

From our study we conclude that maternal adiposity has significant deleterious effect on the outcome of pregnancy and leads to major maternal and fetal complications. Primordial prevention, dietary modifications from early life and life style changes can be helpful in achieving the goal we all strive for, a healthy mother and a healthy baby.

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