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Original Research Article

Maternal Adiposity Deliver Adverse Perinatal Consequences

Dr. Mool Chand Khichar[1], Dr. Bajrang Lal Rar[2*]

[1]Assistant Professor, Department of Obstetrics and Gynecology, SP Medical College Bikaner, S. P. Medical Collage, PBM Hospital, Bikaner, Rajasthan 334001, India
[2]Specialist Doctor, Department of Obstetrics and Gynecology, SK Hospital Siker, Rajasthan, India

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***Corresponding author:** Dr. Bajrang Lal Rar

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.

INROUDUCTION

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 life[3].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/m^2). 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 adivice of prepregancy weight control through diet and exercise we can reduce this above morbidties. 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 kg/$m^2$and in second we consider body mass index between 18.5-24.9kg/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, stasticaly analysed. P value <.05 consider stasticaly significant.

OBSERVATIONS AND DISCUSSIONS

Table-1: Cases Disribution According To Fetal Macrosomia

PERINATAL CONSEQENCES		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 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 CONSEQENCES		BMI> 30kg/m2(n-141)		BMI 18.5-24.9 kg/m2(n148)		P value
		NO	%	NO	%	
APGAR Score at 5 Minute	≥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 CONSEQENCES	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.

REFERENCES

1. Royal College of Obstetricians and Gynaecologists. CEMACH 2004 Report.
2. Barker, D. J. (1990). The fetal and infant origins of adult disease. *BMJ: British Medical Journal*, *301*(6761), 1111.
3. Oken, E., & Gillman, M. W. (2003). Fetal origins of obesity. *Obesity research*, *11*(4), 496-506.
4. Ehrenberg, H. M., Mercer, B. M., & Catalano, P. M. (2004). The influence of obesity and diabetes on the prevalence of macrosomia. *American journal of obstetrics and gynecology*, *191*(3), 964-968.
5. 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.
6. Catalano, P. M., Thomas, A., Huston-Presley, L., & Amini, S. B. (2003). Increased fetal adiposity: a very sensitive marker of abnormal in utero development. *American journal of obstetrics and gynecology*, *189*(6), 1698-1704.
7. Kabiru, W., & Raynor, B. D. (2004). Obstetric outcomes associated with increase in BMI category during pregnancy. *American journal of obstetrics and gynecology*, *191*(3), 928-932.
8. Smith, G. C., Shah, I., Pell, J. P., Crossley, J. A., & Dobbie, R. (2007). Maternal obesity in early pregnancy and risk of spontaneous and elective preterm deliveries: a retrospective cohort study. *American journal of public health*, *97*(1), 157-162.
9. Power, M. L., Cogswell, M. E., & Schulkin, J. (2006). Obesity prevention and treatment practices of US obstetrician–gynecologists. *Obstetrics & Gynecology*, *108*(4), 961-968.
10. Vellanki, V. S., Kocherlakota, V. L. N. S., & Kaul, R. (2012). High body mass index in pregnancy, its effects on maternal and fetal outcome. *Journal of Clinical Gynecology and Obstetrics*, *1*(1), 15-18.
11. Sebire, N. J., Jolly, M., Harris, J. P., Wadsworth, J., Joffe, M., Beard, R. W., ... & Robinson, S. (2001). Maternal obesity and pregnancy outcome: a study of 287 213 pregnancies in London. *International journal of obesity*, *25*(8), 1175-1182.
12. Tosson, M. M., & Al-hussaini, T. K. (2005). The impact of maternal obesity on pregnancy outcome at Assiut University Hospital. *Ass. Univ. Bull. Environ. Res*, *8*(2), 1-11.
13. Usha Kiran, T. S., Hemmadi, S., Bethel, J., & Evans, J. (2005). Outcome of pregnancy in a woman with an increased body mass index. *BJOG: an international journal of obstetrics & gynaecology*, *112*(6), 768-772.
14. Jaleel, R. (2009). Impact of maternal obesity on pregnancy outcome. *Journal of Surgery Pakistan (International)*, *14*(1), 2014-1.
15. Mandal, D., Manda, S., Rakshi, A., Dey, R. P., Biswas, S. C., & Banerjee, A. (2011). Maternal obesity and pregnancy outcome: a prospective analysis. *The Journal of the Association of Physicians of India*, *59*, 486-489.
16. Waller, D. K., Mills, J. L., Simpson, J. L., Cunningham, G. C., Conley, M. R., Lassman, M. R., & Rhoads, G. G. (1994). Are obese women at higher risk for producing malformed offspring?. *American journal of obstetrics and gynecology*, *170*(2), 541-548.
17. Watkins, M. L., Rasmussen, S. A., Honein, M. A., Botto, L. D., & Moore, C. A. (2003). Maternal obesity and risk for birth defects. *Pediatrics*, *111*(Supplement 1), 1152-1158.
18. Ali, H. S., & Lakhani, N. (2011). Effect of obesity and its outcome among pregnant women. *Pakistan Journal Medical Science*, 27(5): 1126-1128.