

# A Study on Assessment of Maternal Obesity on Mother and Fetus: A Hospital Based Prospective Study

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## ABSTRACT

**Background:** The increasing rate of maternal obesity provides a major challenge to obstetricians. Maternal obesity can result in negative outcomes for both mother and fetuses. The present prospective study was conducted to assess impacts of Maternal Obesity on Mother and Fetus.

**Materials and Methods:** The present prospective study was conducted at the Department of Obstetrics & Gynecology, Government Medical College, Barmer, Rajasthan, India. Sample size was 80 which were divided into two groups, group 1 was subjects and group 2 was control. All obese pregnant women (i.e pre-pregnancy BMI/BMI at the first antenatal visit >30 kg/m<sup>2</sup>) attending OPD were taken as subjects. All mothers were followed up with regular antenatal check-ups. The data was assessed using SPSS for windows release 21.0 (SPSS, Chicago, IL, USA).

**Results:** In the present study in pregnant women with BMI $\geq$ 30 had pregnancy induced hypertension in 42.5% pregnant women whereas in pregnant women with BMI<30 had pregnancy induced hypertension in 10% pregnant women. Gestational diabetes was present in 7.5 % pregnant women with BMI $\geq$ 30 whereas it was present in 2.5% pregnant women with BMI<30. Intrauterine growth restriction was present in 10 % pregnant women with BMI  $\geq$  30 whereas it was present in

2.5% pregnant women with BMI<30. Low birth weight was present in 15% pregnant women with BMI $\geq$ 30 whereas it was present in 2.5% pregnant women with BMI<30. Macrosomia was present in 17.5% pregnant women with BMI $\geq$ 30 whereas it was present in 2.5% pregnant women with BMI<30. Perinatal death was present in 2.5% pregnant women with BMI $\geq$ 30 whereas it was present in 0% pregnant women with BMI<30.

**Conclusion:** Our study concluded that maternal and fetal complications were present in pregnant women with BMI $\geq$ 30.

**Keywords:** Obese, Pregnancy, Fetal.


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## INTRODUCTION

India is facing dual burden of nutrition of under nutrition and escalating rise in overweight and obesity problem. India has more than 30 million obese people and the number is increasing alarmingly.<sup>1-3</sup>

WHO describes obesity as "one of the most blatantly visible, yet most neglected public health problems that threaten to overwhelm both more and less developed countries".<sup>4</sup> Obesity is a "killer disease" at par with HIV and malnutrition according to WHO. The WHO estimates that in 2014, approximately 1.9 billion people worldwide were overweight and atleast 600 million adults were obese.<sup>5</sup> Maternal obesity is associated with a wide array of adverse maternal pregnancy outcomes and increased risks in the offspring.<sup>6</sup> Nearly one third of the women of childbearing age group are overweight or obese.<sup>7</sup>

Overall maternal obesity is associated with increased risk of miscarriage, recurrent abortions and other congenital anomalies and intrauterine death. Maternal complications include increased

prevalence of gestational diabetes mellitus, gestational hypertension, pre-eclamptic toxemia, increased rate of operative delivery, post-operative infections and deep vein thrombosis.<sup>8-10</sup> The present prospective study was conducted to assess impacts of Maternal Obesity on Mother and Fetus.

## MATERIALS AND METHODS

The present prospective study was conducted at the Department of Obstetrics & Gynecology, Government Medical College, Barmer, Rajasthan, India. Before the commencement of study, ethical approval was taken from the ethical committee of the institution and the informed consent was signed by the patient. Sample size was 80 which were divided into two groups, group 1 was subjects and group 2 was control. All obese pregnant women (i.e pre-pregnancy BMI/BMI at the first antenatal visit >30 kg/m<sup>2</sup>) attending OPD were taken as subjects. All pregnant women with singleton pregnancies, booked with the hospital and pregnant

women who were regular with follow up till delivery were included in the study. Cases with no data on pregnancy, delivery or birth outcome, Twin pregnancies, abortions, fetal deaths, women who lost to follow up, known case of hypertensives, diabetes mellitus and thrombophilias were excluded from the study. All mothers were followed up with regular antenatal check-ups with measurement of blood pressure and investigations such as urine protein, OGCT with 75 gm glucose were done. They are closely

monitored in every antenatal visit for any development of pre-eclampsia, gestational diabetes mellitus. Relevant complications if any, were treated as per protocol. Mode of delivery was decided according to obstetric indication. They are monitored in their hospital stay and till the end of delivery to know the rate caesarean sections and prevalence of macrosomic babies. The data was assessed using SPSS for windows release 21.0 (SPSS, Chicago, IL, USA).

**Table 1: Complications and its relation with BMI**

Complications	Subjects (BMI ≥ 30)	Controls (BMI < 30)	P-Value
	N (%)	N (%)	
Pregnancy induced hypertension	17(42.5%)	4(10%)	<0.05
Gestational diabetes mellitus	3(7.5%)	1(2.5%)	
Intrauterine Growth Restriction	4(10%)	1(2.5%)	

**Table 2: Fetal complications**

Complications	Subjects (BMI ≥ 30)	Control (BMI < 30)	P-Value
Low birth weight	6(15%)	1(2.5%)	<0.05
Macrosomia	7(17.5%)	1(2.5%)	
Perinatal death	1(2.5%)	0(0%)	

**RESULTS**

In the present study in pregnant women with BMI≥30 had pregnancy induced hypertension in 42.5% pregnant women whereas in pregnant women with BMI<30 had pregnancy induced hypertension in 10% pregnant women. Gestational diabetes was present in 7.5 % pregnant women with BMI≥30 whereas it was present in 2.5% pregnant women with BMI<30. Intrauterine growth restriction was present in 10 % pregnant women with BMI≥30 whereas it was present in 2.5% pregnant women with BMI<30. Low birth weight was present in 15% pregnant women with BMI≥30 whereas it was present in 2.5% pregnant women with BMI<30. Macrosomia was present in 17.5% pregnant women with BMI≥30 whereas it was present in 2.5% pregnant women with BMI<30. Perinatal death was present in 2.5% pregnant women with BMI≥30 whereas it was present in 0% pregnant women with BMI<30.

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In general, 1-3% of all pregnancies are diagnosed to have gestational diabetes, while in obese women it is found to be approximately 17% according to Gabee et al.<sup>12</sup>

Paiva and colleagues also observed that maternal obesity during late pregnancy is independently associated with postpartum infectious complications.<sup>13</sup>

**DISCUSSION**

Obesity has reached epidemic proportions in India in the 21st century, affecting 5% of the country’s population.<sup>13</sup> Obesity initially thought to be a problem of urban population due to their life style and food habits is now seen commonly even in rural population where health problems related to under nutrition is still a major concern. Thus, India faces a double burden with under nutrition or anemia in one hand and overweight and obesity on other hand.<sup>11</sup>

In the present study in pregnant women with BMI≥30 had pregnancy induced hypertension in 42.5% pregnant women whereas in pregnant women with BMI<30 had pregnancy induced hypertension in 10% pregnant women. Gestational diabetes was present in 7.5 % pregnant women with BMI ≥30 whereas it was

**CONCLUSION**

Our study concluded that maternal and fetal complications were present in pregnant women with BMI≥30.

**REFERENCES**

1. International institute for population sciences. national family health survey (NFHS-2). 1998-99: 2000;438.
2. International institute for population sciences. national family health survey (NFHS-3) 2005-06: In dia VII. Mumbai: International Institute for Population Sciences. 2007:168.
3. International institute for population sciences. National family health survey (NFHS-3) 2005-06: India. VI. Mumbai: International Institute for Population Sciences. 2007:540.

4. James WPT. WHO recognition of the global obesity epidemic. *Int J Obes*. 2008;32(7):20-6.
5. World Health Organization. Obesity and overweight. Fact sheet N 311, Jan 2015. [www.who.int/mediacentre/factsheets/fs311/en/](http://www.who.int/mediacentre/factsheets/fs311/en/).
6. Rowlands I, Graves N, de Jersey S, McIntyre HD, Callaway L. Obesity in pregnancy: outcomes and economics. *Semin Fetal Neonatal Med*. 2010;15(2):94-9.
7. Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of childhood and adult obesity in the United States, 2011-2012. *JAMA*. 2014 26;311(8):806-14.
8. Crane JMG, Murphy P, Burrage L, Hutchens D. Maternal and Perinatal Outcomes of Extreme Obesity in Pregnancy. *J Obstet Gynaecol Can*. 2013;35(7):606-11.
9. Joy S, Istwan N, Rhea D, Desch C, Stanziano G. The Impact of Maternal Obesity on the Incidence of Adverse Pregnancy Outcomes in High-Risk Term Pregnancies. *Am J Perinatol*. 2009;26(05):345-9.
10. Ovesen P, Rasmussen S, Kesmodel U. Effect of Prepregnancy Maternal Overweight and Obesity on Pregnancy Outcome. *Obstet Gynecol*. 2011;118:305 -12
11. Misra A, Pandey RM et al. High prevalence of diabetes, obesity and dyslipidemia in urban slum population in northern India. *Int J Obes Relat Metab Disord*. 2001;25(11):1722-9.
12. Gabbe S. Gestational diabetes mellitus. *N Engl J Med*. 1986;315:1025-6
13. Paiva LV, Nomura RM, Dias MC, Zugaib M. Maternal obesity in high-risk pregnancies and postpartum infectious complications. *Rev Assoc Med Bras*. 2012;58(4):453-8.

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