



MATERNAL & FETAL OUTCOMES OF HIGH BMI IN PREGNANCY

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ABSTRACT

AIM & OBJECTIVES: The aim is to evaluate effect of high BMI on maternal & perinatal outcome in obesity complicating pregnancy.

RESULTS: Out of 42 patients studied, 12 overweight and 7 obese women were found to have Hypertensive disorders in pregnancy & gestational diabetes was diagnosed in 16 overweight & 5 obese pregnant women. Spontaneous abortions & Still births were also found to be higher in obese women. Rate of Caesarean deliveries were more in obese women when compared to normal vaginal deliveries. Obstetric complications like shoulder dystocia, wound gaping, operative morbidities and fetal complications like macrosomia, LGA, were found to be higher in obese women.

DISCUSSION: BMI is an important predictor of nutritional status of pregnant woman which was considered as prognostic indicator of pregnancy outcomes. Body Mass Index is defined as body mass divided by square of body height (kg/m^2). High BMI is related to adverse pregnancy outcomes such as preeclampsia, Gestational HTN, pre & post term delivery, Induction of labour, macrosomia, caesarean section & postpartum haemorrhage.

CONCLUSION: This study points out maternal & perinatal risks in obese pregnant women that poses a challenge to Obstetrician. The best time of intervention is before a women plans for pregnancy. This emphasises the need of pre-pregnancy advice & counselling to young women. Pregnancy with high BMI must be classified as high risk & appropriate care should be provided with heightened surveillance, anticipation & diagnosis of complications & intervene earlier if complications arises.

KEYWORDS :**INTRODUCTION**

- With the rapid rate of socio-economic development & socio-cultural changes in dietary pattern & lifestyle, increasing BMI has become a healthcare burden to the nation.
- Increasing BMI in women poses multiple threat of illness especially in the reproductive age group impacting pregnancy.
- Pregnant women with Overweight & Obesity are at higher risk of developing complications at all stages of physiological pregnancy, be it antepartum, intrapartum, postpartum, causing an economic burden on healthcare department.
- According to WHO, Globally 1 in 6 adults are obese & nearly 2.8 million individuals die each year due to high BMI & its complications.
- India, the 2nd most populous country in the world with 1.2 billion people is currently experiencing a rapid epidemiological transition.

DEFINITION:

The BMI (Body Mass Index) or Quetelet Index¹ is defined as the body mass divided by the square of body height & is universally expressed in units of kg/m^2 .

CLASSIFICATION of BMI,

- According to World Health Organization,
- Underweight BMI = $< 18.5 \text{ kg}/\text{m}^2$
- Normal BMI = $18.5 - 24.9 \text{ kg}/\text{m}^2$
- Overweight BMI = $25 - 29.9 \text{ kg}/\text{m}^2$
- Obesity BMI = $> 30 \text{ kg}/\text{m}^2$
- Obesity is further categorised into
- Class I BMI $30 - 34.9 \text{ kg}/\text{m}^2$
- Class II BMI $35 - 39.9 \text{ kg}/\text{m}^2$
- Class III BMI $> 40 \text{ kg}/\text{m}^2$

BMI is now accepted measure of underweight, overweight &

obesity.

AIM & OBJECTIVES:

The aim & objective of present study is to report antepartum, intrapartum, postpartum & neonatal outcomes in pregnant women with high BMI.

MATERIALS & METHODS:

- **Study Design:** Retrospective Observational Study.
- **Study Sample:** All pregnant women with high BMI admitted in OBGY department during a period of 8 months (August 2019-March 2020)
- **Source Of Sample :** All pregnant women admitted in GEMS hospital during the period of 8 months (August 2019-March 2020)

INCLUSION CRITERIA :

- 1) All Pregnant women with BMI $\geq 25 \text{ kg}/\text{m}^2$ are retrospectively studied for period of 8 months from August 2019- March 2020.

EXCLUSION CRITERIA :

- 1) Pregnant women with high BMI who are previously known hypertension and diabetes.
- 2) Multiple gestation.

METHODOLOGY:

Medical records of all antenatal women with BMI ≥ 25 admitted to GEMS Hospital during specified period of 8 months were retrospectively analysed & detailed history was noted.

RESULTS:

A total number of 42 cases were noted in 8 months period. Among those 30 members were found to have BMI within $25 - 29.9 \text{ kg}/\text{m}^2$ (overweight) & 12 members with BMI $\geq 30 \text{ kg}/\text{m}^2$ (obesity).

ANTENATAL OUTCOMES:

ANTENATAL COMPLICATIONS	Overweight n =30	%	Obese n=12	%
Abortions	0	0%	1	8%
Gestational HTN	8	26%	4	33%
Preeclampsia	4	11%	3	25%
Gestational DM	16	53%	5	45%
PROM	4	11%	5	45%

MODE OF DELIVERY:

MODE OF DELIVERY	Overweight n=30	%	Obese n=12	%
vaginal	16	55%	4	32%
LSCS	7	23%	6	50%
Instrumental/ assisted	7	23%	2	16%

POSTPARTUM OUTCOMES:

PREGNANCY OUTCOMES	Overweight n=30	%	Obese n=12	%
PPH	1	3%	2	16%
Wound infections	2	6%	2	16%
DVT	0	0%	0	0%

NEONATAL OUTCOMES:

NEONATAL OUTCOMES	Overweight n=30	%	Obese n=12	%
Preterm	0	0%	0	0%
Post term	0	0%	2	16%
Macrosomia	2	6%	2	16%
Shoulder dystocia	0	0%	1	8%
Meconium aspiration	4	13%	4	32%
Stillbirths	0	0%	1	8%
Birth injuries	0	0%	0	0%

DISCUSSION:

- In present study, pre-eclampsia as maternal outcome was majorly seen in obese people (33%) rather than overweight (26%).
- In other studies carried out by Dasgupta et al³ showed 55% in obese people and in study done by Battacharya S et al⁴ it was found to be 28.2%, hence pre-eclampsia was found to be statistically significant in women with raised BMI.
- In present study Induced labor was mostly seen in obese group (34%) whereas it is 66.6 % & 49 % in Dasgupta et al, & Battacharya S et al respectively.
- Gestational diabetes in present study was seen in 53 % in overweight & 45 % of obese where as in similar studies showed 23% in Verma A et al.
- Present study shows no significance of preterm labour & BMI whereas other studies by Battacharya S et al showed some significance.
- Abortions in present study majorly seen in obese group (8%) whereas Dasgupta et al shows no women in obese group with abortion.
- In present study, women underwent LSCS were more in obese (48%) group followed by overweight(23%) whereas Battacharya S et al study shows 42.7 % & 30.8 % respectively.
- Macrosomia in present study was seen in obese (16%) & overweight (6 %) whereas in Verma A et al shows 23 % & 17 % respectively.

CONCLUSION:

- High BMI is a leading, preventable cause of mortality worldwide & it is one of the most serious public health problems of 21st century.
- Maternal BMI shows strong associations with pregnancy complications & outcomes.
- High BMI is associated with increased incidence of preeclampsia, gestational HTN, gestational diabetes, induced delivery, Instrumental / assisted deliveries, caesarean delivery, NICU admissions & perinatal

mortality complicating perinatal outcomes.

- Therefore, education programmes, health services & nutrition consultation are recommended for women of reproductive age.
- Health care professionals need to encourage & assist obese women to make life style changes, lose weight preconceptionally in an attempt to optimise & potentially decrease risk of complications.
- Pregnancy with high BMI must be classified as high risk & appropriate care should be provided with heightened surveillance, anticipation & diagnosis of complications & intervene earlier if required.

Recommendations In Pregnant Women With High Bmi:

- Consider regular weight monitoring in antenatal visits.
- Regular screening for complications associated with weight gain.
- By giving pre-operative broad spectrum antibiotics 20-30 minutes before skin infection to reduce the risk of wound infections.
- Closure of subcutaneous layer if more abdominal fat is present.
- Avoid subcuticular skin closure to allow serous fluids to drain out of incision.
- By placing pneumatic compression stockings to prevent DVT.
- Early ambulation to be advised.

Limitations:

- This study was a retrospective observational study.
- The duration of study was only 8 months.

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