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*RESEARCH ARTICLE*

# EFFECT OF PRELABOUR BMI ON THE MODE OF DELIVERY

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## Manuscript Info

***Manuscript History***
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## Abstract

**Aim:**To analyze the effect of Body Mass Index on the Mode of Delivery
**Design :** Cross sectional study
**Methodology :**
**Sample Size :** 100 Patients
**Inclusion Criteria:** Antenatal patients in Active phase of Labour proceeding for delivery
**Procedure:** After ethical comittee approval and written consents from the patients, this comparative cross sectional study was conducted at a Tertiary hospital at CHRI and performed on a total of 100 antental patients who attended the pre labour unit. Their basic information such as age, height, weight, gestational age, and cervical dilatation were noted. Maternal Body Mass Index was noted from pre pregnancy weight from the pregnancy health card.This study is completely a non invasive study
**Study Duration :** 4 months
**Results :** The study population included 100 participants admitted in pre labour unit in a tertiary care hospital. The results obtained showed healthy Body mass Index group had the favourable outcome, whereas the antenatal patients with increased Prepregnancy Body Mass Index had the worst outcome like Cesarean delivery, increased duration of first stage labour, increased duration of second stage labour, APGAR 1to 5, NICU admission, postpartum hemorrhage.
**Conclusion :** This study concludes that Antenatal patients with Increased Body Mass Index have poorer outcomes when compared to Antenatal Patients with normal values of Body Mass Index. This study can be useful in assessing and reducing the poorer materno-fetal outcomes.

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## Introduction:-

The BODY MASS INDEX is the index of weight for height and calculated by dividing an individual's weight in kilograms by the square of their height in meters[1-3]

$BMI = kg/m^2$

After explaining the complete procedure of the study, written and informed consent was obtained from the patients

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**Study population:**
A total of 100 antenatal women were categorised to 6 groups:
1) Underweight (BMI <18.5)
2) Normal weight (BMI 18.5 to 24.99)
3) Overweight (BMI 25 to 29.99)
4) Obese (BMI 30 to 35)
5) Severe Obesity (BMI >35)

**Inclusion Criteria**:
Age 18-35, known prepregancy Body Mass Index. A living zingleton pregnancy, Gestational age 37-40 weeks, cephalic presentation with no fetal or umbilical corb abnormalities.

**Exclusion Criteria :**
Deliveries were pre pregnancy Body Mass Index was not recorded, Abnormalities of fetus or umbilical cord, antepartum hemorrhage, confounding factors like drugs or smoking.

Antenatal patients with low Body Mass Index (<19.9) showed that there is increased risk of preterm deliveries, low birth weight, anemia. But there is decreased risk for preeclampsia, gestational diabetes, obstetric intervention, post partum hemorrhage[4]

There is a previous study from 2006 showed that there is a linear association between increased Maternal prepregancy Body Mass Index and the rate of increase in the chance of Cesarean section[5]

There is also decreased risk of vaccum assisted vaginal deliveries and forceps delivery in increased Prepregnancy Body Mass Index[6]

## Procedure And Methods:-

Data of the study was collected through full history taking from medical, obstetrical, gynaecological , clinical, ultrasonographic findings by using a pre constructed case sheet.

Routine blood investigations of the patients were obtained like complete blood count, urine routine, Blood sugar levels, liver function test, prothrombin time, activated partial thromboplastin time.

Abdominal examination was also performed (leopold's maneuver) to detect the fetal lie, presentation, engagement of presenting part and also to check the uterine contractions.

Vaginal examination to assess the Bishop scoring like cervical dilatation, effacement, station, consistency, position

Routine ultrasound to assess the fetal status, liquor, placental and umbilical position.

Fetal distress was assessed using partogram and fetal cardiotocography during labour.

First stage of labour is defined as time from the onset of true labour pain to complete cervical dilatation and for a nulliparous women prolonged first stage is <1.2cm/hour.

Second stage of labour is defined as time from the period of complete cervical dilatation to expulsion of fetus and for a nulliparous women prolonged second stage is >2 hours.

Arrest disorder of first stage is considered as no cervical changes for >4 hours with adequate contractions

Arrest disorder of second stage is considered as no progressing of labour after >4 hours

Fetal outcome was assessed by paediatrician for the APGAR scoring and the need for NICU stay

The delivery was conducted by supervisors and expert obstetricians who categorised the mode of deliveries into normal vagi al delivery, instrumental vaginal delivery, planned Cesarean section and emergency Cesarean section.

**Outcomes**
**Primary :**
The mode of delivery (Vaginal and Cesarean)

**Secondary :**
Duration of first and second stage

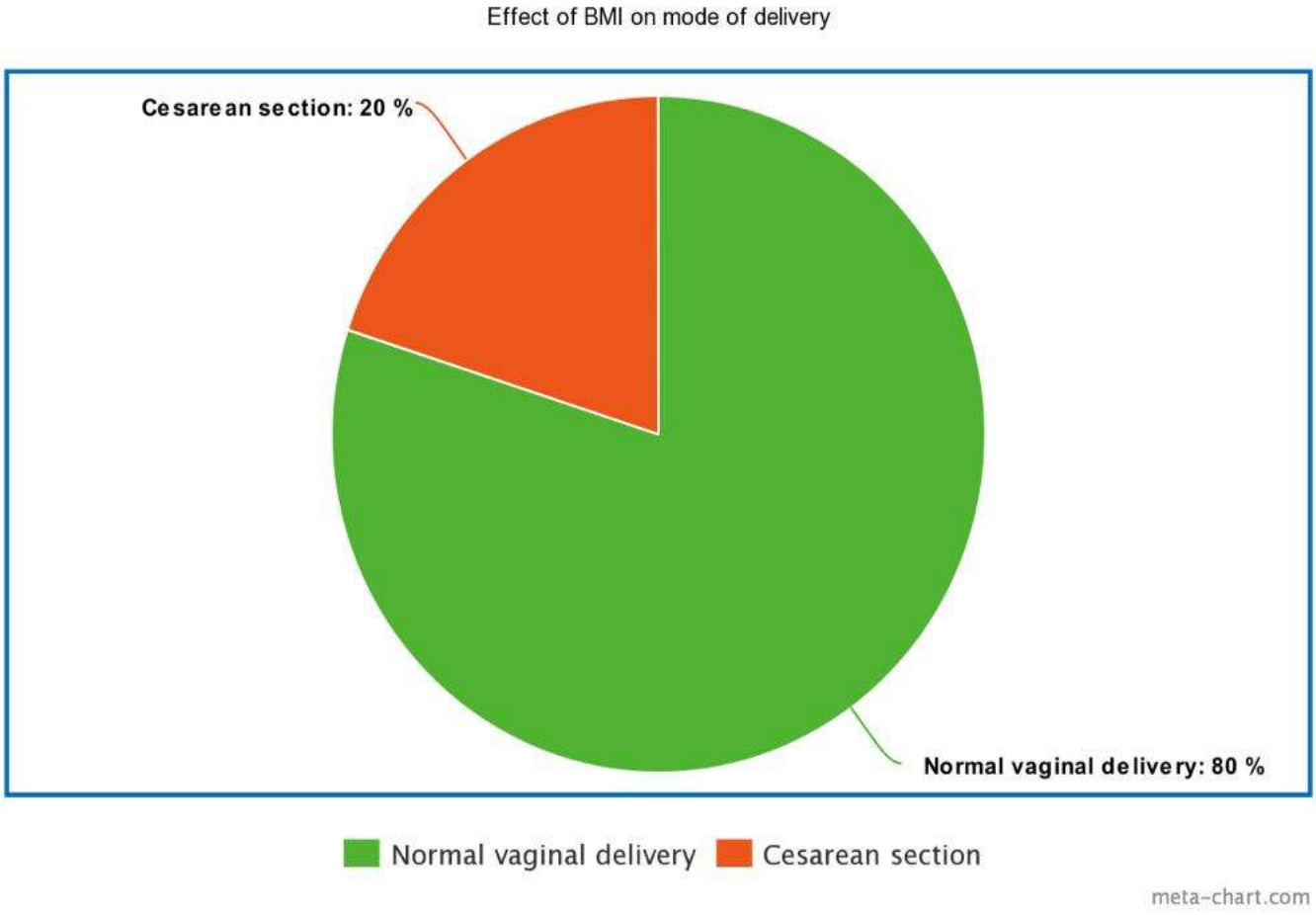
**Complicaltions**
**Maternal :**
Post partum hemorrhage

**Fetal :**
Low birth weight, APGAR at first and fifth minute, perinatal death, need for NICU stay, neonatal birth injuries

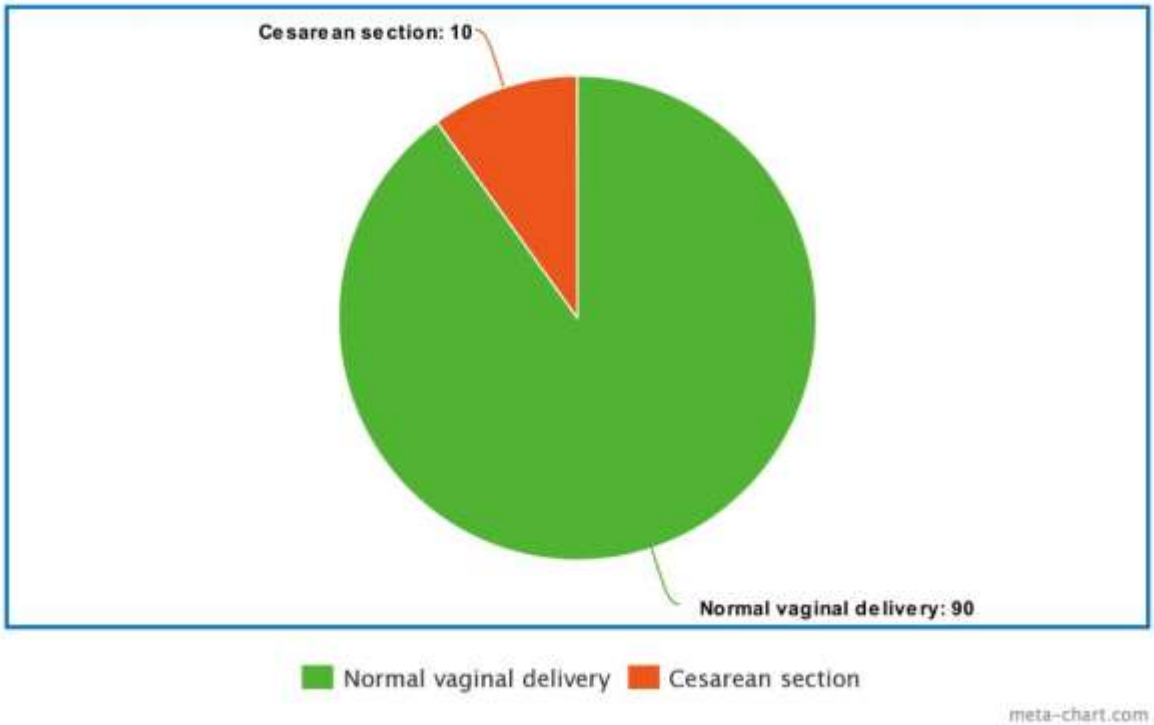
**Ethical Consideration :**
The patient's data were anonymous. The results presentation was presented by patient's diagnosis and not by means of patient's name. The patient's personal details were protected and with the informed consent obtained they were represented by numbers as their initials and only the investigator knew about them.

## Results:-

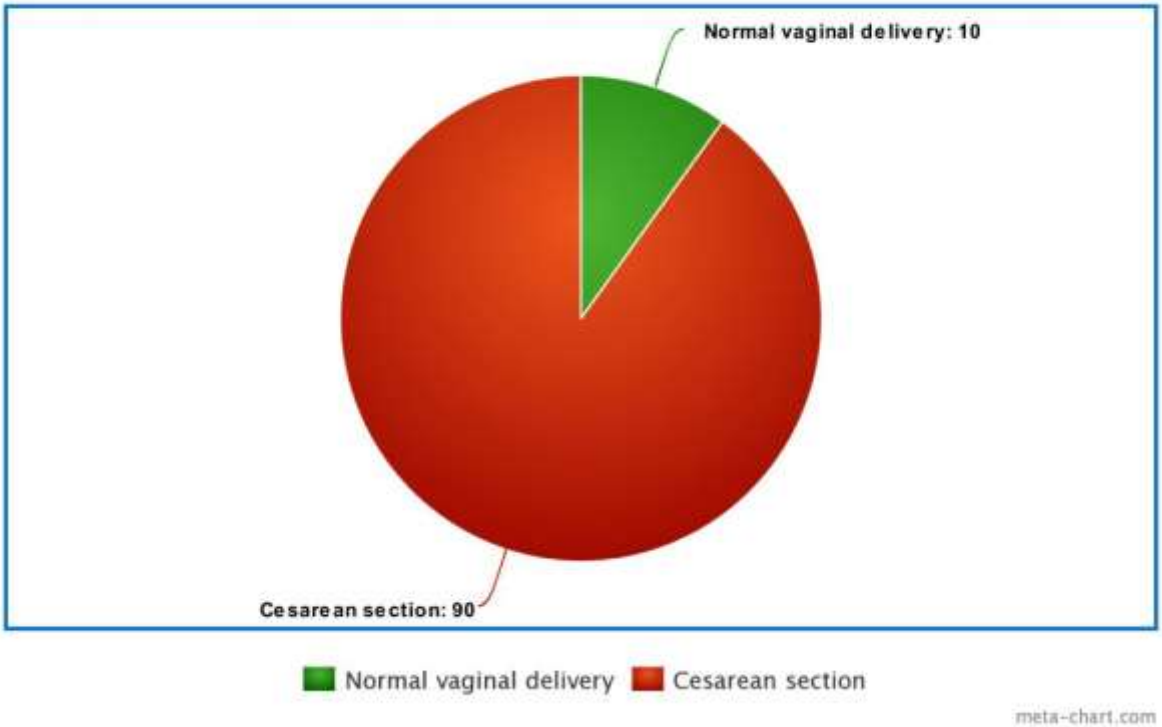
Datas were presented by means of charts

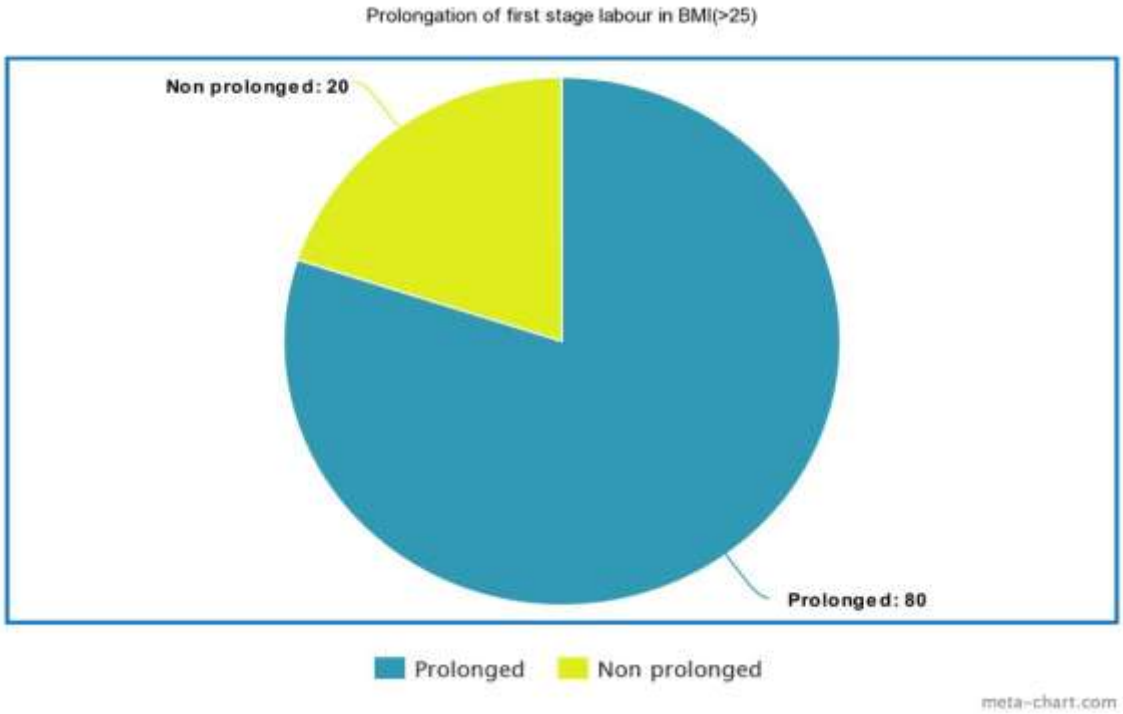


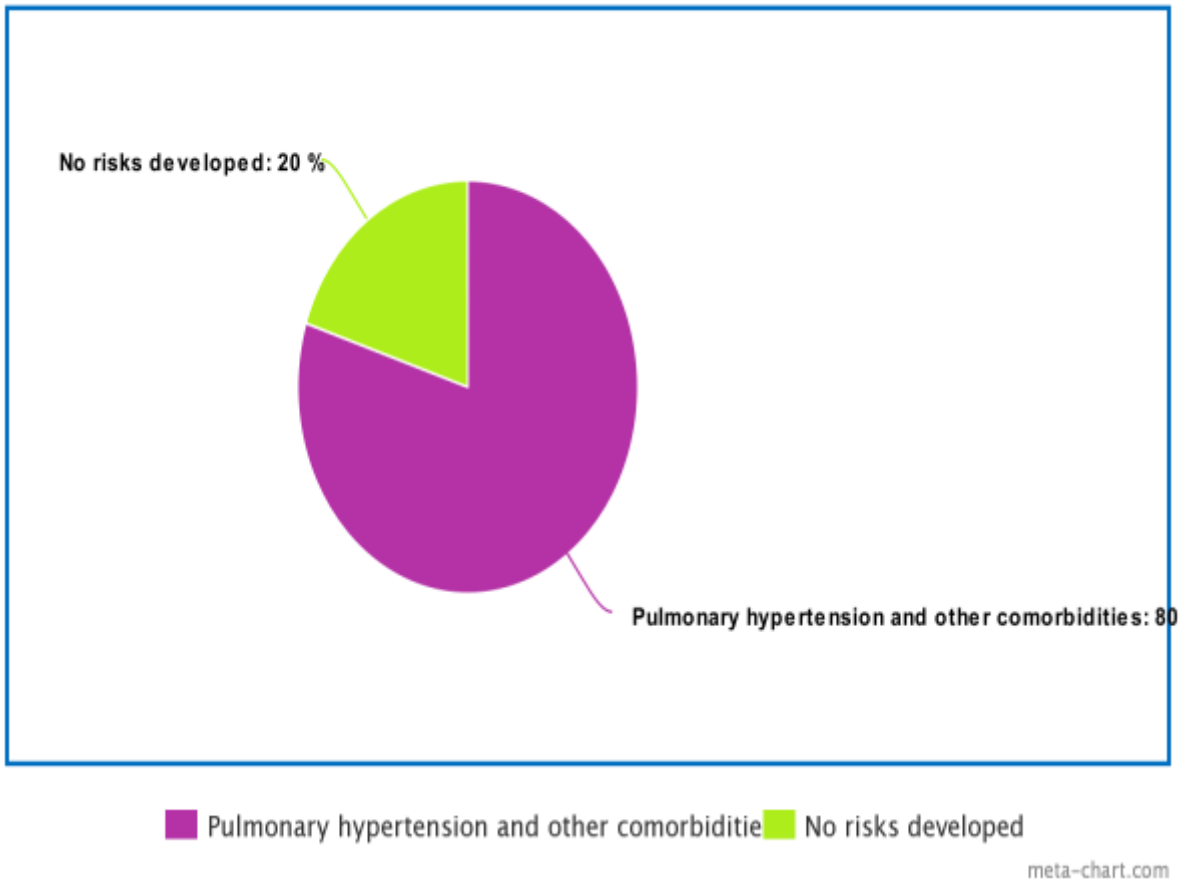
Mode of delivery among Normal BMI




Mode of delivery with prepregnancy BMI (>25)




Prolongation of first stage labour in BMI(>25)
Non prolonged: 20
Prolonged: 80
Prolonged
Non prolonged
meta-chart.com


Consequences in increased pre prgnancy BMI
No risks developed: 20 %
Pulmonary hypertension and other comorbidities: 80
Pulmonary hypertension and other comorbiditie
No risks developed
meta-chart.com

## Discussion:-

According to the study results, high maternal prepregnancy Body Mass Index is associated with increased chances of Cesarean section also with short and long term consequences both for the child and the mother.

In this study we aimed to assess the effect of Body Mass Index on the mode of delivery.Duringthisstudy200patientswereassessedforeligibilityand100patientswerecategorisedintosixdifferentgroups ofBodyMassIndex.
Duringthestudy200patientswereassessedforeligibiltyand100patientswereincludedinthestudyaccordingtoinclusionand exclusioncriteriaandtheywerecategorisedintosixdifferentgroupswith20ineachgroup.
1)Underweight(BMI<18.5)
2)Normalweight(BMI18.5to24.99)
3)Overweight(BMI25to29.99)
4)Obese(BMI30to35)
5)SevereObesity(BMI>35)

The current study showed that Cesarean section was least common in patients with Prepregnancy Body Mass Index of less tha 25 and becomes most frequent in patients with prepregancy Body Mass Index of more than 25

Regarding the progression of labour, the study results showed that first and second stage labour was prolonged in patients with Body Mass Index of more than 25 whereas decreased in patients with Body Mass Index of less than 25.

## Conclusion:-

As evident as it is from the study that prepregancy Body Mass Index is very important and an independent risk factor for Cesarean section. A significant difference was observed between normal Body Mass Index patients and increased Body Mass Index patients and there isnprolongation of labour is seen in patients with increased Body Mass Index.

Maternal obesity is closely associated with increased risk of maternal and neonatal complications.

Effective preventive methods to prevent the maternal obesity can result in significant beneficial outcomes. Public health care measures are beneficial to effectively manage the obesity among reproductive age group.

## References:-

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