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Available online at: http://www.iajps.com ***Research Article***

IMPACT OF GESTATIONAL WEIGHT GAIN ON MODE OF DELIVERY AT TERM PREGNANCIES IN PRIMIGRAVIDA

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Abstract:

BACKGROUND: *The incidence of maternal weight gain during gestation just keeps growing. Believed to be helpful, despite ample research advising against it owing to the instances of gestational diabetes and other complications, this issues needs to be explored further in terms of increased risk of cesarean delivery among overweight or obese compared with normal weight women.*

OBJECTIVE: *To evaluate the effect of gestational weight gain and increased body mass index (BMI) on cesarean risk during labor.*

METHODOLOGY: *This prospective cohort was conducted upon a sample of 100 women with singletons ≥37 weeks and no prior cesarean deliveries, and known BMI (pre-conception) and at labor, scheduled to undergo delivery at Indus Medical College, Hospital from January 2018 to December 2018. The data obtained was recorded onto a structured questionnaire and analyzed using SPSS v.21 & Microsoft Excel 2016.*

RESULTS: *The mean age of the mothers stood at 32 (SD ± 3.7). Among the total sample, 54.0% had cesareans. Cesareans increased with increasing BMI for nulliparas and multiparas. The risk for cesarean increased as BMI increased for all subgroups, P .001. The risk for cesarean increased for nulliparas and multiparas, respectively, for each 1 kg/m^2 increase in BMI. There was no significant difference however in risk between women who became overweight or obese as a result of gestational weight gain and those who were overweight and/or obese prior to pregnancy.*

CONCLUSION: *After careful consideration, it can be concluded that Admission BMI is significantly associated with delivery route in term laboring women.*

RECOMEMNDATION: *Maintaining a healthy B.M.I and avoiding gestational weight gain is highly recommended.*

KEYWORDS: *Cesarean, Mode of Delivery, Gestational Weight Gain, Obesity & Maternal Health.*

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INTRODUCTION:

Amid an epidemic of obesity around the world, obesity among pregnant women has risen dramatically. Overweight and obese individuals are at increased risk of developing diabetes, hypertension, dyslipidemia, cardiovascular disease, stroke, gout, sleep apnea, osteoarthritis, menstrual irregularities, and some forms of cancer. **[1]**

The increased perinatal morbidity associated with maternal obesity such as birth defects, preeclampsia, gestational diabetes, stillbirth, abnormal fetal growth, and cesarean deliveries has caught the attention of obstetrician-gynecologists. **[2]**

Long-term adverse outcomes of maternal obesity, including childhood and adolescent obesity for their offspring, are becoming well known. **[3]** Another critical issue in obstetrics is the rising cesarean rate, estimated at 31.8% in 2007. **[4]** In addition to the known short-term complications such as infectious morbidity and thromboembolic events, cesarean deliveries are associated with long-term complications such as abnormal placentations and hysterectomies. **[5]**

Labor management as well as cesarean delivery in the obese gravida presents many clinical challenges as well as operative risks, including anesthesia complications, wound infection, and dehiscence. **[6]** The relationship between body mass index (BMI) and cesarean delivery is well established with some studies showing a direct linear relationship between the two. **[7, 8]**

Obstetricians in most countries care for pregnant obese and morbidly obese women daily. **[9]** The prevalence of morbid obesity (body mass index [BMI, calculated as weight (kg)/[height (m)]2] 40 or more) among U.S. women aged 20–39 years in 2007–2008 was 7.6%. The corresponding figures concerning morbid obesity in early pregnancy were 1.4% in the United Kingdom, 2.0% in Australia, and 1% in Sweden. **[10]**

However, prior studies have not independently evaluated the associations among gestational weight gain and the resultant increase in BMI, and the mode of delivery. The objective of this study was to characterize the impact of gestational weight gain as measured by B.M.I upon the mode of delivery. **[11]**

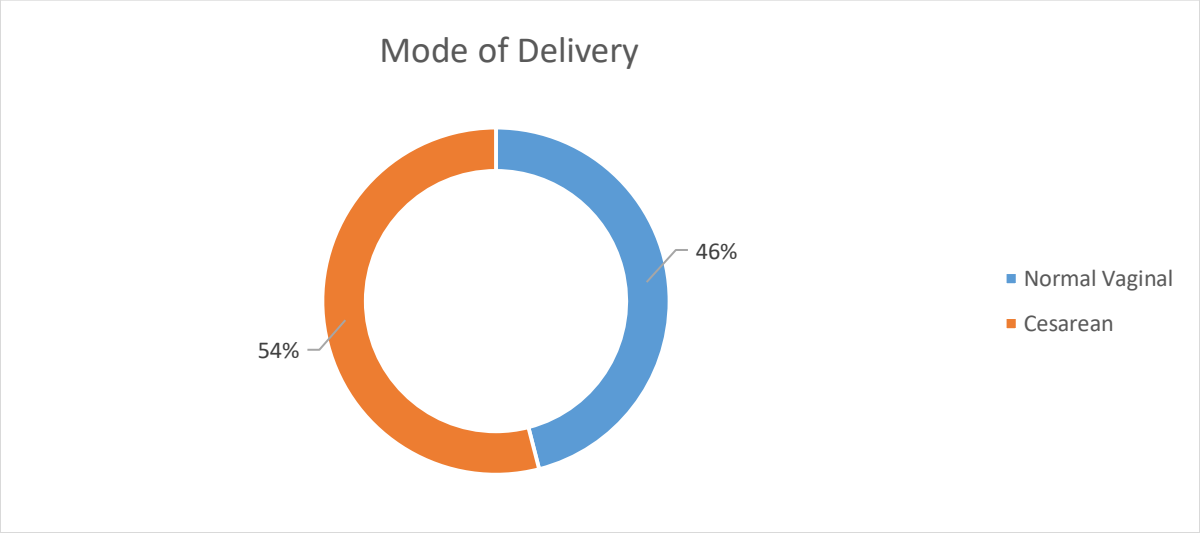
METHODOLOGY:

This prospective cohort was conducted upon a sample of 100 women with singletons ≥37 weeks and no prior cesarean deliveries, and known BMI (pre-conception) and at labor, scheduled to undergo delivery at Indus Medical College, Hospital from January 2018 to December 2018. World Health Organization (WHO) definitions were adopted as normal, 25.0 kg/m2; overweight, 25.0-29.9 kg/ m2; obese, class I, 30.0-34.9 kg/m2; obese, class II, 35.0-39.9 kg/m2; and obese, class III, >40 kg/m2. The mode of delivery was recorded for all women. The data obtained was recorded onto a structured questionnaire and analyzed using SPSS v.21 & Microsoft Excel 2016.

RESULTS

The mean age of the mothers stood at 32 (SD ± 3.7). Among the sample, 54.0% had cesareans.

Maternal Age Group	Frequency
Up to 20 years	11
21 to 25 years	15
25 to 30 years	21
31 to 35 years	37
36 years and above	06



Cesareans increased with increasing BMI for all subgroups, nulliparas (p = 0.01) and multiparas (p = 0.04). A closer look revealed that the risk for cesarean increased for nulliparas and multiparas, respectively, for each 1 kg/m^2 increase in BMI.

Parity	Normal		Overweight		Obese I		Obese II		Obese III	
	N.V	C	N.V	C	N.V	C	N.V	C	N.V	C
Nullipara	11	01	09	03	07	05	04	07	01	07
Multipara	06	03	05	04	05	06	03	08	05	10

There was no significant difference however in risk between women who became overweight or obese as a result of gestational weight gain and those who were overweight and/or obese prior to pregnancy.

DISCUSSION:

In this analysis, we explored the association between pre-pregnancy obesity (based on BMI) and the risk of cesarean delivery. The overall cesarean delivery rate was 54% and since it was a strictly singleton - no prior cesarean data set, it represents the primary cesarean delivery rate. These findings, which are similar to those in the literature, suggest that women who are obese before pregnancy are at increased risk for cesarean delivery. **[12]**

Research has reported that greater weight gain during pregnancy and resultant high B.M.I (among other factors such as increased maternal age, preeclampsia, prior cesarean delivery, and increased birth weight were associated with an increased risk of cesarean delivery). Our findings confirm those of previous research. **[13]**

Research has shown that there are no thresholds of BMI above which the cesarean risk climbed but we noted an increased risk of cesarean delivery with increasing pre-pregnancy BMI. Literature suggests that perhaps dystocia due to an increased deposition of soft tissues in the maternal pelvis may lead to the observed increase in the cesarean delivery rate. Our study is unique in that the data were accumulated over a long time, for whom we had a hudred percent completeness of data. **[14]**

Potential errors in our study include miscoding diagnoses and there may be error in the self-reporting of pre-pregnancy weight. However, previous reports comparing self-report of weight and height to actual measurements of weight and height resulted in few corrections to BMI; therefore, this probably did not cause significant error in our study. Our data include an inherent error in that we used the singleton-no prior cesarean delivery data set to estimate the risk of primary cesarean rate. In addition, there may be confounding variables that were not included in the data set and therefore were unidentified. **[15]**

Obese women should receive intensive pre-conception counseling on life-style and behavioral modifications to achieve weight loss before pregnancy. Throughout

pregnancy, they should be counseled on proper diet and activity level. Obesity is not a contraindication to pregnancy, but it is a sign for the physician to initiate intensified prenatal care and patient education so that there may be successful pregnancy outcome. We speculate that a decrease in obesity before pregnancy should lead to a decrease in the cesarean delivery rate, with a substantial cost savings. **[16]**

CONCLUSION:

After careful consideration, it can be concluded that delaying cord clamping increases the red cell mass in term infants. It is a safe, simple and low cost delivery procedure that should be incorporated in integrated programs that are aimed at reducing iron deficiency anemia in infants in developing countries. Vaginal delivery facilitates this action.

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