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EFFECT OF MATERNAL OBESITY ON MODE OF DELIVERY AND DURATION OF LABOUR

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Abstract:

Introduction: *Obesity has been designated as one of the most important global health threats worldwide, and its prevalence has been increasing among women of reproductive age. Pregnant ladies constitute a critical subpopulation with a hoisted danger of obesity because of over the top weight pick up.* ***Aims and objectives:*** *The basic aim of the study is to analyze the effect of maternal obesity on mode of delivery and duration of labour in local female population of Pakistan.* ***Material and methods:*** *This cross-sectional study was conducted in Health Department Punjab during 2018 to 2019. The data we used for this purpose was secondary data which we obtain from the hospital record. We gathered the data of 200 females from the obstetric records of women with a singleton pregnancy delivering after 24 weeks of gestation.* ***Results:*** *According to the pre-pregnancy BMI, 96 women (11.5%) were underweight, 558 (67.1%) were of normal weight, 134 (16.1%) were overweight and 44 (5.3%) were obese. In addition, birth weight was significantly higher in overweight or obese women than in underweight women ($P < 0.05$). There were no significant differences between the four pre-pregnancy BMI categories in maternal age, parity, height and gestational week.* ***Conclusion:*** *We concluded that more obese women required IOL and that IOL for these women was associated with increased rates of caesarean section delivery. This relationship also held true when specifically examining the outcomes of women with prolonged pregnancy.*

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INTRODUCTION

Obesity has been designated as one of the most important global health threats worldwide, and its prevalence has been increasing among women of reproductive age[1]. Pregnant ladies constitute a critical subpopulation with a hoisted danger of obesity because of over the top weight pick up. It has been demonstrated that maternal obesity and inordinate gestational weight pick up (GWG) are related with unfriendly obstetric and neonatal results including unconstrained fetus removal, gestational diabetes mellitus (GDM), cesarean conveyance, preeclampsia, neonatal macrosomia, and agent and soporific entanglements[2].

To help ideal pregnancy results, the World Health Organization (WHO) prescribed that the Institute of Medicine (IOM) create rules for weight pick up amid pregnancy. In any case, the IOM suggestions on gestational weight pick up depend on pre-pregnancy BMI without mulling over various race/ethnicity, age, or existing pregnancy inconveniences[3]. Ladies with GDM are at expanded danger of maternal and fetal intricacies including preeclampsia, preterm birth, cesarean segment and conveyance of huge for gestational age (LGA) newborn children. As obesity and GDM are much of the time comorbid conditions, obesity and over the top gestational weight pick up may intensify these dangers in GDM. Since fat is an endocrine organ and collaborates with diabetes, it is conceivable that the expanded amassing of fat differentially affects perinatal results for ladies with GDM[4].

Women with high body mass index (BMI) and prolonged pregnancy are therefore becoming an increasingly prevalent clinical problem. To reduce the risk of perinatal mortality in prolonged pregnancy, the National Institute for Clinical Excellence antenatal care guidelines recommend that IOL is offered between 41 and 42 weeks of gestation and, if this is declined, twice weekly cardiotocography and ultrasound assessment of liquor volume are recommended after 42 weeks of gestation[5]. Management of prolonged pregnancies in obese women, however, is difficult because IOL is associated with a high risk of caesarean section and its attendant complications of infection, hemorrhage and thrombosis whereas conservative management is associated with an increased risk of perinatal mortality. The clinician managing an obese woman with a prolonged pregnancy therefore faces the dilemma of whether to; induce her and risk caesarean section delivery and its complications, which can include maternal death, to book an elective caesarean section and thereby reduce the increased risks associated with emergency caesarean section, or to wait so as to maximize the chance of spontaneous labour, thereby reducing the risk of caesarean section but increasing the risk of fetal death, even with outpatient monitoring[6].

Aims and objectives

The basic aim of the study is to analyze the effect of maternal obesity on mode of delivery and duration of labour in local female population of Pakistan.

MATERIAL AND METHODS:

This cross-sectional study was conducted in Health Department Punjab during 2018 to 2019. The data we used for this purpose was secondary data which we obtain from the hospital record. We gathered the data of 200 females from the obstetric records of women with a singleton pregnancy delivering after 24 weeks of gestation.

The maternal variables that we assessed were; age, race, height and weight at booking, parity, smoking status, gestation at delivery, delivery outcome including onset of delivery, mode of delivery, reason for delivery mode, labour length (first, second and third stages), estimated blood loss, second and third degree tears and episiotomy. Neonatal characteristics included sex, birthweight, Apgar score at 1 and 5 minutes after delivery, cord blood pH and the incidence of shoulder dystocia and stillbirth. Maternal BMI was calculated based upon maternal height and weight measurements provided during pregnancy booking between gestational weeks 10 and 12.

A chi-square test was used to examine the difference in the distribution of the fracture modes (SPSS 19.0 for Windows, SPSS Inc., USA).

RESULTS:

According to the pre-pregnancy BMI, 96 women (11.5%) were underweight, 558 (67.1%) were of normal weight, 134 (16.1%) were overweight and 44 (5.3%) were obese (Table 1). The level of glycated hemoglobin was significantly higher in the overweight and obese groups than in normal weight and underweight groups ($P < 0.05$). In addition, birth weight was significantly higher in overweight or obese women than in underweight women ($P < 0.05$). There were no significant differences between the four pre-pregnancy BMI categories in maternal age, parity, height and gestational weeks (Table 1).

Table 01: Gestational weight gains in pregnancy

Variables	Excessive GWG (N = 293)		
	N (%)	AOR (95% CI)	P
Cesarean section[a]	177 (60.4)	1.60 (1.15–2.23)	0.005
PPH[a]	60 (20.5)	1.44 (0.94–2.19)	0.094
Preterm delivery[b]	6 (2.0)	0.63 (0.23–1.73)	0.369
PPROM[b]	51 (17.4)	1.01 (0.66–1.54)	0.965
GHT[c]	11 (3.8)	1.23 (0.50–2.98)	0.655
Macrosomia[c]	39 (13.3)	1.94 (1.11–3.38)	0.020
SGA[b]	7 (2.4)	0.78 (0.29–2.08)	0.615
LGA[b]	97 (33.1)	1.31 (0.92–1.85)	0.133

Analysis of the reason for delivery by caesarean section following induction highlighted that women who were obese had a greater incidence of 'unsuccessful induction' noted as reason for caesarean section compared with their normal weight counterparts.

Table 02: Mode of labour onset for deliveries according to maternal BMI category

BMI group	Mode of labour onset			
	Spontaneous	Elective caesarean section	Emergency caesarean section	Induction
Underweight (%)	69.0	4.7	2.1	24.2
Normal (%)	64.1	7.4	2.4	26.2
Overweight (%)	56.9	10.1	2.5	30.5
Obese (%)	50.5	11.7	3.4	34.4
Very obese (%)	43.7	13.3	3.0	40.0
Morbidly obese (%)	35.5	16.7	4.1	43.6
Overall (%)	59.6	8.8	2.5	29.1

DISCUSSION:

The current obesity epidemic presents frequent challenges to the obstetrician. Our study is consistent with those of others who found that maternal obesity is a significant risk factor for post-term delivery. We found a significant increase in caesarean deliveries with increasing BMI[7]. This is in accordance with the findings of several larger studies. A review by Wispelwey et al. summarized the main risk modulators of caesarean delivery in obese women, including difficulty in initiation of labour and increased induction rate. Since our study only describes women who initiated active labour, and we adjusted for medical induction in statistical analyses it seems likely that there is an independent effect of obesity on the risk of caesarean delivery[8].

We found that obese women were granted fewer hours of active labour before a caesarean was performed compared with women of normal weight[9]. This could be explained by a possible earlier onset of labour complications within the obese population. However, since there was no difference in the numbers within the different levels of emergency caesareans, this seems unlikely. Alternatively, an increased consciousness amongst healthcare staff concerning the issue of maternal obesity may have had an indirect influence on treatment. A more cautious approach to managing these women might have been unknowingly adopted, resulting in an earlier decision to perform a caesarean delivery[9].

CONCLUSION:

We concluded that more obese women required IOL and that IOL for these women was associated with increased rates of caesarean section delivery. This relationship also held true when specifically examining the outcomes of women with prolonged pregnancy.

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