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Original Article

To study the complications of obesity during pregnancy, labour and postpartum.

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Abstract

Background & Methods: The aim of the study is to study the complications of obesity during pregnancy, labour & postpartum. BP was recorded in lateral recumbent position. The point of muffing of Korotkoff's sound were taken as diastolic pressure when sounds failed to disappear pletely, otherwise the point of disappearance was considered the diastolic BP.

Results: Incidence of gestational hypertention (33%), pre-eclampsia (21%), GDM (2%), shoulder dystocia (2%) was significantly higher in women with BMI>25, which is statistically significant (p=.0461 i.e. significant).

Conclusion: During labour, senior obstetrician should assess progress closely, focusing on induction method and caesarean techiniques. Postpartum care must include assessment particularly for venous thromboembolism & psychological disorders. Given the weight gained during pregnancy, postpartum obese women should be encouraged to consult a dietician, exercise, follow a weight management program & use contraception. Continuous education of health care professionals on the risk of maternal obesity is essential

Keywords: complications, obesity, pregnancy, labour & postpartum.

Study Design: Comparative, non-interventional.

Introduction

Obesity has significant consequences for the reproductive system, depending on the amount & distribution of body fat. Epidemiological evidence clearly shows that being overweight contributes to menstrual disorders, infertility, miscarriage, poor pregnancy outcomes, impaired fetal well-being & diabetes mellitus[1]. Obesity is a significant health issue for women during pregnancy & childbirth, with estimates suggesting that 35% of Australian women aged 25 & 35 years are overweight or obese. Several studies have shown a relationship between maternal obesity, excessive weight gain during pregnancy & fetal macrosomia[2].

While there is an increased incidence of macrosomia among obese pregnant women, there is no precise method of predicting those who are at risk of shoulder dystocia. While pre-

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conception advice & care is the ideal scenario for women with obesity, those women presenting for the first time during pregnancy should be given an early opportunity to discuss potential risks & management options with a healthcare professional[3-5]. The aim is to provide appropriate information sensitively, which empowers the woman to actively engage with health professionals and the services available to her. Relevant information will include the increased risk of pre-eclampsia, gestational diabetes & fetal macrosomia requiring an increased level of maternal & fetal monitoring; the potential for poor ultrasound visualisation of the baby & consequent difficulties in fetal surveillance & screening for anomalies; the potential for difficulty with intrapartum fetal monitoring, anaesthesia & caesarean section which would require senior obstetric & anaesthetic involvement & an antenatal anaesthetic assessment; & the need to prioritise the safety of the mother at all times[6-8]. Women should be made aware of the importance of healthy eating & appropriate exercise during pregnancy in order to prevent excessive weight gain & gestational diabetes. Dietetic advice by an appropriately trained professional should be provided early in the pregnancy[9].

Material & Methods

Present study was conducted from June 2022 to Feb 2023 at Index Medical College Hospital & Research Centre, Indore, M.P. Comprised of 200 singleton pregnant women, divided into two group obese (BMI>25) and non-obese group, both the groups were well matched based on age, parity, height, weight profile and participated were randomly selected. A specially designed proforma used to record detailed history, physical examination and laboratory results.

Inclusion criteria:

1. Obese with BMI> 25 and non-obese pregnant women Singleton pregnancy.

2. Pregnancy >28 weeks.

Exclusion criteria:

1. Women with two previous cesarean section.

2. Multiple Pregnancies.

3. Pregnancy complicated by pre-existing with medical disorders.

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Result

Table 1: Distribution of cases according to maternal age

Age (years)	Group – I Non-Obese	Group – II BMI 25-29.9	Group –III BMI 30-34.9	Group –IV BMI 35-39.9	Group –V BMI ≥40
18-25	112(56%)	27(13.5%)	29(14.5%)	12(6%)	2(1%)
26-35	84(42%)	40(20%)	35(17.5%)	27(13.5%)	7(3.5%)
> 35	4(2%)	9(4.5%)	6(3%)	5(2.5%)	1(0.5%)

Obesity was more prevalent in 26-35 year age group across all BMI Category.

Table 2: Distribution of cases according to parity

Parity	Group – I Non-Obese	Group – II BMI 25-29.9	Group –III BMI 30-34.9	Group –IV BMI 35-39.9	Group –V BMI ≥40
P0	84(48%)	47(23.5%)	38(19%)	17(8.5%)	4(2%)
P1	76(38%)	17(8.5%)	17(8.5%)	16(8%)	3(1.5%)
P2	22(11%)	8(4%)	13(6.5%)	9(4.5%)	2(1%)
>P3	18(9%)	4(2%)	2(1%)	2(1%)	1(0.5%)

Majority of cases were nulliparous.

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Table 3: Distribution of cases & maternal outcome

Variable	Group – I Non-Obese	Group – II BMI 25-29.9	Group – III BMI 30-34.9	Group – IV BMI 35-39.9	Group – V BMI ≥40
Gestational Hypertension	22(11%)	16(8%)	12(6%)	10(5%)	6(3%)
Pre-eclampsia	16(8%)	8(4%)	6(3%)	8(4%)	4(2%)
Gestational Diabetes Mellitus	0(0%)	0(0%)	1(0.5%)	2(1%)	1(0.5%)
Shoulder dystocia	0(0%)	0(0%)	1(0.5%)	1(0.5%)	2(1%)

Incidence of gestational hypertention (33%), pre-eclampsia (21%), GDM (2%), shoulder dystocia (2%) was found to be increased in women with BMI>25, which is statistically significant (p=.0461 i.e. significant).

Table 4: Distribution of cases with Anesthesia related complications

Variable	Group – I Non-Obese	Group – II BMI 25-29.9	Group – III BMI 30-34.9	Group –IV BMI 35-39.9	Group – V BMI ≥40
Difficulty in venous access	2(1%)	1(0.5%)	1(0.5%)	4(2%)	6(3%)
Difficulty in palpating space	6(3%)	1(0.5%)	4(2%)	4(2%)	8(4%)
Skin prick in Regional Anesthesia > 1	6(3%)	2(1%)	10(5%)	8(4%)	4(2%)
Regional Anesthesia > 3	0(0%)	0(0%)	2(1%)	4(2%)	2(1%)

Increasing BMI correlates with greater difficulty in anesthesia administration, particularly in venous access and Regional Anesthesia.

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Discussion

The finding of this study report a significant increase in Gestational Hypertension, Pre Eclampsia, Gestational Diabetes Mellitus, Shoulder Dystocia among obese women compared with non-obese women.

Women with obesity are also less likely to initiate & maintain breastfeeding. They should receive appropriate advice & support antenatally & postnatally regarding the benefits of breastfeeding, while considering the cultural & individual needs. Women can also be advised that breastfeeding, including exclusive & mixed breastfeeding, is inversely related to postpartum weight retention[10].

Pre-conception counselling and individualized antenatal care are critical strategies to mitigate the adverse effects of maternal obesity:

1. Pre-conception Counselling

• Weight Management: Women with obesity should be counselled on achieve a healthy weight before conception through diet, exercise, and behavioral interventions. Studies, including those by Huang et al., have shown that even modest weight loss can significantly reduce pregnancy risks.

• Nutritional Education: Tailored dietary advice helps women improve nutritional status and reduce excessive gestational weight gain.

2. Tailored Antenatal Care

• Early Screening and Monitoring: Women with obesity should undergo early screening for GDM, hypertensive disorders, and fetal growth anomalies. Regular monitoring ensures timely identification and management of complications. • Multidisciplinary Approach: Involvement of obstetricians, anaesthesiologists, dieticians. and mental health professionals is essential for comprehensive care. For instance, antenatal anaesthetics assessments can help plan for potential delivery complications. • Breastfeeding Support: Obese women are less likely to initiate or sustain breastfeeding. Tailored counselling on the benefits of breastfeeding and practical support can improve outcomes for both mothers and infants.

3 Public Health Interventions

• Community Awareness: Public health campaigns focusing on the risks of obesity during pregnancy and the benefits of a healthy lifestyle can help reduce obesity rates in reproductive-age women.

• Access to Services: Strengthening primary healthcare systems to provide accessible pre-conception and antenatal services is critical, especially in rural and underserved areas of LMICs.

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Conclusion

During labour, senior obstetrician should assess progress closely, focusing on induction method and caesarean techiniques. Postpartum care must include assessment particularly for venous thromboembolism & psychological disorders. Given the weight gained during pregnancy, postpartum obese women should be encouraged to consult a dietician, exercise, follow a weight management program & use contraception. Continuous education of health care professionals on the risk of maternal obesity is essential.

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