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An Observational Study of Obese Pregnancy

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Case Report

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Abstract

Obesity is becoming a serious concern because it is associated with number of problems such as reduced quality of life and mental health. And when it comes to pregnancy, being obese increases the risk of many complications which affects both the mother and fetus. An obese woman can be affected at all stages of pregnancy. Obese woman can have higher chances of infertility than a normal woman. She can also experience problems such as polycystic ovarian syndrome, can have higher incidences of gestational diabetes mellitus, eclampsia, pre-eclampsia, thromboembolism, risks of miscarriage, Caesarian-section, anesthetic complications and wound infections. Similarly obese mothers have difficulty in initiating lactation and maintaining breast feeding. On the other hand, the fetus is also at a higher risk of prematurity, still birth, congenital anomalies such as neural tube defect, macrosomia and neonatal death.

Keywords: Gestational diabetes mellitus; BMI; Obesity

Background

The purpose of this study is to highlight the complications of obesity during pregnancy and to make a comparison of insulin and metformin in gestational diabetes mellitus. Health is adversely affected in obesity because excess body fats become accumulated and over the past few decades the world side prevalence of obesity has markedly increased. The World Health Organization has considered it a serious threat to public health and has described this as “global epidemic” [1].

Introduction

Obesity can be defined as having a body mass index (BMI) of 30 or greater [2]. The WHO and National Institute for Health and Clinical Excellence published a widely accepted classification of weight status according to BMI, which is given in table below [3].

BMI (kg/m^2)	Classification
<18.5	Underweight
18.5-24.9	Normal/healthy
25.0-29.0	Overweight
30.0-34.9	Obese I
35.0-39.9	Obese II
>40	Obese III

Table 1: Classification of weight status according to BMI

The level of health risks on the basis of general category of obesity can be explained as; people at lowest risk are those that have BMI falling under the range of 30-34.9, people with medium risk are those having BMI

range between 35.0-39.9 and people with highest risk of health are those that have BMI range falling between 40 or greater [2]. Various complications of obesity affecting pregnancy at different levels (obstetric complications, fetal and neonatal complications, post-partum complications) have been summarized below.

Gestational Diabetes Mellitus

An Australian study of 14230 pregnancies showed that chances of developing gestational diabetes in obese women were 2.95 times higher than in normal women [4]. Gestational diabetes increases the risk of having cesarean surgery and the women who have gestational diabetes have higher chances of developing type II diabetes in future life. The children of such women also have the risk of developing diabetes mellitus [2].

Preeclampsia

An Australian study by Callaway et al reported that the prevalence of preeclampsia in normal pregnant women was 2.4 % while in obese women it was 9.1 % [4]. Preeclampsia can cause seizures, kidney failure and in rare cases it can cause stroke [2].

Venous Thromboembolism

It is a life threatening condition which is linked to obesity. In UK 57% of obese pregnant women die of venous thromboembolism [5].

Sleep Apnea

Obesity may also cause sleep apnea which is difficulty in breathing during sleep. Sleep apnea can future cause complications such as eclampsia and preeclampsia [2].

Labour and Delivery

Obese pregnancy can also increase the chances of having a cesarean section and can increase the risk of dysfunctional labour. Obese pregnant women have higher chances of receiving oxytocin and have their labour induced [6].

Congenital Anomalies

Obesity also increases the risk of congenital anomalies. Common examples of such anomalies are spin afibida and heart defects, and researches have shown three folds greater chances of having fetal anomalies [7].

Macrosomia

Macrosomia is a condition in which baby is larger than the normal size. The chances of getting injured during delivery increases in such cases. The baby also has chances of being obese in later life [2].

Case Presentation

A woman attends hospital for the antenatal day assessment unit to discuss the result of her glucose tolerance test. She is 42 years old and this is her sixth pregnancy. All booking tests were normal as were her 11-14 week and anomaly ultrasound scans. She is now 26 weeks gestation and her doctor has arranged a glucose tolerance test.

Chief Complaints: Headache, Fatigue, Shortness of breath

History of Present Illness

The patient had episodes of throbbing headache and had complaints of frequent urination and feeling of thirst more than usual.

Past Treatment History

Regular insulin on sliding scale until the blood glucose level returns to normal Methyl Dopa 2mg once daily.

Past History

She has previously had three Caesarean sections, one early miscarriage and a termination of pregnancy. The main reason for which was obesity resulting in gestational diabetes mellitus.

General Examination

- Height – 5 feet 7 inches
- Weight - 89 Kg
- BMI – 31 kg/m^2
- Pulse Rate - 78 beats/min, regular
- BP – 149/87 mmhg
- Respiratory Rate -19/minute
- Heart Rate - 78/minute
- Temperature - 98.4 F

Lab Investigations

- 2 Hours Glucose Tolerance Test Is 11.3mmol/L
- Pre Test Fasting Blood Glucose Is 6.4 mmol/L
- Symphysiofundal Height Is 29 Cm
- Fetal Heart Rate Is Normal
- Urinalysis Is 1 + Glycosuria

Treatment Chart

- Tab Metformin 500mg Bid For One Month
- Tab Methyldopa 2mg Bid
- Tab Orlistat 120mg Tid (Self Medication)

Intervention

Nowadays, there have been increasing studies comparing metformin with insulin. But the use of metformin in pregnant women is still controversial. Meta-analysis of 5 RCTs involving 1270 participants detected that average weight gains after enrollment were much lower in the metformin group; average gestational ages at delivery were significantly lower in the metformin; incidence of preterm birth was significantly more in metformin group; the incidence of pregnancy induced hypertension was significantly less in the metformin group. The following figure shows the comparison between metformin and insulin [8].

Study(year)	Patients on metformin	Patients on insulin	Metfomin group requiring insulin (%)	Dose of insulin (u)	Dose of metfmorin (mg)	Side effects of metformin
Moore, et al.	32	31	0	Not reported	1000-2000	0
Rowan, et al.	363	370	46.3	30-90	1750-2500	39
Ijas, et al.	47	50	31.9	30	750-2250	5
Alavi, et al.	80	80	14	Not reported	1000-2500	6
Tertti, et al.	110	107	20.9	Feb-42	500-2000	2

Table 2: Comparison between metformin and insulin

Discussion

GDM should initially be treated with dietary and weight advice. Dietary advice and counseling are the initial interventions (reduced fat and carbohydrate intake with weight control). Blood glucose monitoring at home should be initiated with pre and post- prandial levels at each meal. Insulin may be needed if blood glucose levels remain high. The fetus should be monitored with regular ultrasound scans for growth. Delivery should be planned by 40 weeks. Sliding scale insulin should be initiated in labour for women on insulin. The insulin can be stopped immediately post-partum as normal glucose homeostasis returns rapidly after delivery. The fetus should be carefully monitored for neonatal hypoglycemia. The mother should have a repeat glucose tolerance test6 weeks post-partum to rule out pre-existing diabetes. Massage or pumping may soften and extend the obese nipple for easier lactation.

Conclusion

The incidence of maternal obesity and its attendant comorbid conditions (diabetes, cardiovascular disease) continues to increase at an alarming rate, with major public health implications. Not only does maternal obesity affect the woman, but it also impacts the health of the child, leading to increased childhood obesity and diabetes. Given the major economic and medical consequences of pregnancy in overweight women, all attempts should be made to prevent obesity in women of childbearing age and to encourage weight loss before pregnancy. The consequences of obesity on maternal and fetal morbidity and mortality might be minimized through appropriate multidisciplinary management. GDM should be treated with dietary and weight control. Metformin could be used in women with GDM in view of the comparative glycemic control and neonatal outcomes, especially for those mild GDM patients. However, the risk of preterm birth could not be ignored. Clinicians should weigh in practice according to the condition of the patients. Counsel the patient to avoid self-medication during pregnancy.

References

1. WHO (2000) Obesity: preventing and managing the global epidemic. World Health Organization 1-252.

2. Broadney MM, Chahal N, Michels KA, McLain AC, Ghassabian A, et al. (2017) Impact of parental obesity on neonatal markers of inflammation and immune response. International Journal of Obesity 41(1): 30-37.

3. CPHE NICE, NCCP Care (2006) Obesity: the prevention, identification, assessment and management of overweight and obesity in adults and children.

4. Callaway LK, Prins JB, Chang AM, McIntyre HD (2006) The prevalence and impact of overweight and obesity in an Australian obstetric population. Medical Journal of Australia 184(2): 56-59.

5. Cantwell R, Clutton-Brock T, Cooper G, Dawson A, Drife J, et al. (2011) Saving Mothers' Lives: reviewing maternal deaths to make motherhood safer: 2006-08. The Eighth Report on Confidential Enquiries into Maternal Deaths in the United Kingdom. BJOG 118(Suppl 1): 1-203.

6. Vahratian A, Zhang J, Troendle JF, Savitz DA, Siega-Riz AM (2004) Maternal prepregnancy overweight and obesity and the pattern of labor progression in term nulliparous women. Obsstetrics & Gynecology 104(5): 943-951.

7. Watkins ML, Rasmussen SA, Honein MA, Botto LD, Moore CA (2003) Maternal obesity and risk for birth defects. Pediatrics 111(5): 1152-1158.

8. Wang Z, Dou K (2004) Relationship between expressions of transforming growth factor-β1 and nm23-H1 protein in hepatocellular carcinoma and their surrounding liver tissue [J]. China Journal of Modern Medicine 4: 021.