

Intrapartum Evaluation Of Maternal Weight & Its Correlation with Obstetric Outcome.

Thesis

Submitted in fulfillment of Master Degree in
Obstetrics and Gynecology

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Professor of Obstetrics and Gynecology, faculty of medicine, Cairo University for her help, continuous support and unlimited assistance Certainly his help was more than words could express

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ABSTRACT

Background

The increasing prevalence of obesity and severe decrease in maternal weight

In young women (underweight) are major health problems. These trends have a major effects on pregnancy outcomes in these women which have been documented by several researches. This paper examine the effect of increasing Body Mass index (BMI) on pregnancy outcomes in nulliparous women delivering singleton babies.

Methods

This is a prospective study , including 100 pregnant women, all nulliparous women delivering singleton babies during year 2010, women were categorized into two groups – normal (BMI 20- 25 Kg/m²) and obese (BMI 30-40 kg/m²) . obstetric and perinatal outcomes were compared.

Results

This study showed increased incidence of macrosomic babies (6,3%) in obese women than in normal women , increased rates of shoulder dystocia (3,8%) rate of admission to neonatal intensive care unites (20%). And primary post partum hemorrhage (2%) than in normal weight women . No statistical significance difference was found concerning IUGR, delayed wound healing, wound infection .

Conclusion

Increasing BMI is associated with increased incidence of failed progress of labour, labour induction ,instrumental delivery , macrosomic babies and shoulder dystocia.

Keywords

Maternal obesity-under weight –prevention and treatment in pregnancy and postpartum period

Introduction

Obesity is characterized by excessive accumulation of weight and defined as body mass index (**BMI**) of 30 or more (World Health Organization (**WHO**), **2003**). BMI is **WHO**, **2003**). calculated by dividing body weight (kg) over height squared (m²). Obesity is described as a major public health challenge of the 21st century across the globe (According to the WHO report (2003), adult obesity ranges from below 5% in China, Japan and some African countries to over 75% in urban Samoa. However, even in countries with a low prevalence of obesity such as China, there is a wide variation in the extent of the problem, reaching 20% in some cities. In the UK, 23% of the population are obese and it is predicted that more than half of the adult population will be obese by 2050 (**McPherson et al**, **2007**). It is also a growing problem for women of reproductive age and about one fifth of pregnant women are obese in the UK (**Kanagalingam et al**, **2005**).

Obesity is a condition in which excess body fat has accumulated to an extent that health may be negatively affected Obesity in absolute terms is an increase of body adipose (fat tissue) mass. In a practical setting this is difficult to determine directly and therefore, the common clinical methods used to estimate obesity are by body mass index (BMI) and in terms of its distribution via the waist-hip ratio.

Haslam and James, 2005

Maternal obesity is a significant risk factor for adverse outcome during labour. In early pregnancy there is an increased risk of spontaneous abortion and congenital anomalies. In later gestation maternal metabolic manifestations of metabolic syndrome, such as gestation hypertensive disorders and diabetes, become clinically recognized because of the insulin resistance in obese people. At parturition the obese patient is at increase risk of cesarean delivery and associated complications of anesthesia, wound disruption, infection, and later deep venous thrombosis. For the fetus there are short –term risks of fetal macrosomia, fetal distress risks of adolescent components of the metabolic syndrome

Catalano, 2007

The obstetric complications of maternal obesity are generally related to issue of maternal pre-gravid obesity rather than excessive weight gain during gestation that results in a non-obese women becoming obese. Weight gain in pregnancy is generally considered to be the difference between a woman's weight at the last antenatal visit and her pre-gravid weight or her weight at first antenatal visit. **(Institute of Medicine, 1990)**. This issue has recently been addressed in the American college of Obstetricians and Gynecologists (ACOG) in committee opinion No. 315,"obesity in pregnancy" **(ACOG, 2005)**

Obesity is becoming a growing concern among both genders and all age groups. In 1962, 13% of the American population was classified as obese. By 1994, this number had increased to 23%. Yet, just six years later in 2000, this number had skyrocketed to over 30%. Today, an estimated two-thirds of Americans are considered overweight while one in three is obese. This means that almost 67 million Americans are obese. In fact, in America, being obese has officially become a marker for classifying a pregnancy as high risk." **Catalano 2007"**

Apart from obstetric complication, during pregnancy obesity has has many other effects during child bearing ages , for example, obesity has anegative impact on fertility , This is because fat stores change level of sex hormone in obese woman

Effects of obesity on pregnancy and birth outcomes

According to the Confidential Enquiry into Maternal and Child Death **(CEMACH, 2007)**, obesity is associated with over half of the total maternal deaths from direct and indirect causes. There is also clear evidence that it is associated with considerable adverse outcomes during pregnancy and birth. These include congenital anomalies **(Watkins et al, 2003)**, intrauterine fetal death and macrosomia, as well as an increased risk of caesarean section (CS) **(Weiss et al, 2004)**, induction of labour, instrumental birth, gestational diabetes, pre-eclampsia, postpartum hemorrhage, urinary and genital tract infection and wound infection **(Sebire et al, 2001)**.

Obesity in pregnancy has considerable implications for health service provision. A qualitative study of 16 maternity units in the north east of England confirmed that there was an increased health burden on maternity service providers **(Heslehurs et al, 2007)**. There is no reliable, national information on the actual cost of obesity in pregnancy on the health services due to the complexity of contributing factors and a lack of robust, routinely collected data within maternity units. However, it is estimated that obese mothers stay in hospital on average 4.43 days longer and their babies are 3.5 times more likely to be admitted to the special care baby units than normal weight women. Therefore, it is reported that the cost of obese pregnancy care is at least five times greater than that of normal weight mothers **(Galtiere-Dereure et al, 2000)**.

The adverse outcomes of pregnancy seem to be exacerbated by excessive weight gain during pregnancy **(Guelinckx et al, 2008)**. This is particularly pronounced in the women who were obese before conception. **(Guelinckx et al 2008)** in their literature review showed a positive linear trend between CS and maternal pre-pregnancy BMI, which amplified in magnitude when combined with excessive weight gain during pregnancy. They included six studies to compare the CS rates in the group of women defined as obese in comparison with women who were considered to be of normal weight.

Huang and colleagues (2000) found increased Pre- pregnancy weight to be the risk factor strongly to be associated with 196 un-explained fetal death even after adjusting for maternal ages and excluding women with diabetes and hypertensive disorders

. **nohr and associates (2005)** confirm this association in 54,000 birhs from 1998 to 2001 .compared with normal weight women ,the fetal death rate among obese women increased with gestational age .the hazard ratio was 2.1 at 28 to 36 weeks ,and 3,5 at 37 to 39 weeks ,and 4,6 at 40 weeks or more weeks .the still birh was 240 percent greater in obese compared with normal weight women.**(William 2007)**

In addition to the increased risk of complications during pregnancy and birth, excessive weight gain **(Öhlin and Rossner, 1995)** and pre-pregnancy obesity **(Soltani and Fraser, 2000)** can lead to additional retention of fat and further development of obesity at the

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postpartum period in the obese mothers compared to those who were of normal weight before pregnancy. Excessive gestational weight gain is also associated with obesity in the offspring (**Oken et al, 2007**).

Patient and Methods

In this prospective study , 100pregnant women coming to Kasr El Aeny hospital during year 2010 in department of Gynecology and obstetric , women selected will be normal weight according to pre-pregnancy BMI of 18.5-24.9 Kg/m²,

Defined as weight in kilograms divided by the square of height in meters and obese women whom BMI of 30-40 Kg/m². At pregnancy term, all women will be stratified according to term BMI into two groups:

Group A Normal (BMI=18.5-24.9 Kg/m²)

Group B Obese (BMI=30-40 Kg/m²)

60 pregnant will deliver by normal vaginal delivery and 40 pregnant will deliver by cesarean delivery and we will compare the effect of obesity on delivery and on neonatal outcome

The analysis will be performed to assess the effect of increased BMI on labor events morbidity, presumed to increase the risk of adverse outcome of pregnancy

- **Inclusion criteria included:**

1. Women in full term pregnancy between 37-40 weeks carrying singleton viable
2. Fetus coming to Kasr El Aeny hospital , whose age ranged between 20-40 years
3. Women with no medical disorder.

- **Exclusion criteria included:**

1. Pregnant less than 37 weeks gestation come for delivery, there ages less than 20 or over 40 years.
2. Obese patient whose BMIs are not within previously mentioned parameters.
3. Women with any medical disorder.

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