Effects of Maternal Obesity On Obstetric Outcome

Thesis

Submitted in fulfillment of Master Degree in Obstetrics and gynaecology

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بسم الله الرحمن الرحيم

سَنُرِيهِمْ آيَاتِنَا فِي الْآفَاقِ وَفِي أَنْفُسِهِمْ حَتَّىٰ يَتَبَيَّنَ لَهُمْ
أَنَّهُ الْحَقُّ أَوَلَمْ يَكْفِ بِرَبِّكَ أَنَّهُ عَلَىٰ كُلِّ شَيْءٍ
شَهِيدٌ

صدق الله العظيم

Abstract

In early pregnancy there is an increased risk of spontaneous abortion and congenital anomalies. In later gestation maternal metabolic manifestations of the metabolic syndrome, such as gestational hypertensive disorders and diabetes, become clinically recognized because of the insulin resistance in obese people. At parturition the obese patient is at an increased risk of cesarean delivery and associated complications of anesthesia, wound disruption, infection, and deep venous thrombophlebitis. For the fetus there are short-term risks of fetal macrosomia, more specifically obesity, and long-term risks of adolescent components of the metabolic syndrome.

Key words:

Maternal Obesity Outcome

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Abbreviations

ACOG: American college of Obstetricians and Gynecologists

ACTH: Adrenocorticotrophic hormone

AFP: Alfafetoprotein

AGA: Average gestational age

BMI: Body mass index

CCK: Cholecystokinin

CDC: Centers for disease control

CNS: Central nervous system

CRH: Corticotrophin releasing hormone

CT: computed tomography

DEXA: Dual energy X-ray absorptiometry

DNA: Deoxyribonucleic acid

DSM_IVR: Diagnostic and Statistical Manual of Mental Disorders

DVT: deep venous thrombosis

E2: Estradiol

FFN: Fetal fibronectin

FTO: Fat mass and obesity associated gene

GDM: Gestational Diabetes Mellitus

GH: Growth hormone

HDL: High density lipoprotein

HELLP: Haemolysis, elevated liver enzymes and low platelet count

HPL: Human placental lactogen

IGF: Insulin –like growth factor 1

IOM: Institute of Medicine

IUGR: Intrauterine growth retardation

LDL: Low density lipoprotein

MRI: Magnetic Resonance Imaging

NCE: National Cholesterol Education

NPC:Neimann Pick Type C

NPY:Neuropeptide Y

PPY:Polypeptide Y

PROM:Premature rupture of membranes

PTL:Preterm labour

SGA:Small gestational age

STAT: signal transducer and activators of transcription

SSE:Sterile speculum examination

TSH:Thyroid stimulating hormone

WHO:World Health Organization

Introduction

Obesity is an epidemic not only in the United States and developed countries but also in the developing world. Indeed, it is now so common that, it (obesity) is replacing die more traditional public healthcare concerns including under-nutrition and infectious disease as one of the most significant contributors to ill health. In women of reproductive age in the United States, the prevalence of obesity was 30.2%, while the prevalence of overweight was 56.7% in the latest Centers for Disease Control and Prevention (CDC) reports. The problems relating to the management of obesity in pregnancy are many. There are both short-and long-term complications and implications for both mother and fetus.**[WHO, 2009]**

Obesity is a condition in which excess body fat has accumulated to an extent that health may be negatively affected Obesity is commonly defined as a body mass index (BMI) of 30 kg/m2 or higher. 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 pre-gravid obesity is a significant risk factor for adverse outcomes during pregnancy. In early pregnancy there is an increased risk of spontaneous abortion and congenital anomalies. In later gestation maternal metabolic manifestations of the metabolic syndrome, such as gestational hypertensive disorders and diabetes, become clinically recognized because of the insulin resistance in obese people. At parturition the obese patient is at an increased risk of cesarean delivery

and associated complications of anesthesia, wound disruption, infection, and deep venous thrombophlebitis. For the fetus there are short-term risks of fetal macrosomia, more specifically obesity, and long-term risks of adolescent components of the metabolic syndrome. **[Catalano, 2007]**

The obstetric complications of maternal obesity are generally related to issues 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]**

Therefore, as recommended by the ACOG committee opinion, obese women should be encouraged to decrease weight before considering pregnancy. Patients should offer readiness to make behavioral changes. Lifestyle measures of calorie-restricted diets and exercise, when employed together, are potentially more beneficial than either modality alone. Fad diets, even ones with a potential physiological basis such as low-glycemic diets, are controversial at best with respect to long-term efficacy. Also approved weight-loss medications and bariatric surgeries can be used**. [ACOG, 2005]**

Although preconceptual weight loss is certainly a laudable goal for the obese woman, many, if not most, pregnancies are unfortunately not planned. The limited success in normalization of pregravid glucose control in women with pregestational diabetes to decrease the risk of congenital malformations is an analogous example of the limitation of preconceptual management of lifestyle issues. Long-term public health programs addressing awareness of the problems of obesity, like those

programs in recent decades that promoted smoking cessation programs and legislation, hold promise for success in the future. In the meantime we need not give up hope, because some obese patients with the proper counseling can achieve meaningful weight loss before conception.

[WHO , 2000]

Hendler et al, suggest that all pregnancies in obese women be acknowledged as high risk and managed according to strict guidelines. Management should include pre-pregnancy counseling to reduce weight; shared antenatal care and appropriate management of complications. The evidence for obesity as an important complication in pregnancy is mounting; it is time to inform practice based on this evidence.

[Hendler et al., 2005]

Aim of work

The aim of the present study is to show effect of obesity on pregnancy outcome.