The Libyan International Medical University

Faculty of Basic Medical Science

Obesity and recurrent abortion

Aisha ali elrabti 1954

Supervised by: Dr. Essam danna

Assisted by: Dr. Lujien shakmak

Report Submitted to fulfill the requirements for Scientific Research Activity

Date of Submission: …/……/ 2019

Abstract

BACKGROUND: Obesity has become a major health problem worldwide and is also associated with adverse pregnancy outcome.

The aim of this study was to assess the impact of obesity on the risk of miscarriage in the general public. METHODS: This was a nested case–control study. The study population was identified from a maternity database. Obese [body mass index (BMI) >30 kg/m ^{2}] women were compared with an age-matched control group with normal BMI (19–24.9 kg/m ^{2}). Only primiparous women were included in the study to avoid including the subject more than once, and to be able to correctly identify recurrent miscarriages. The prevalence of a previous history of early (6–12 weeks gestation), late (12–24 weeks gestation) and recurrent early miscarriages (REM) (more than three successive miscarriages <12 weeks) was compared between the two groups. RESULTS: A total of 1644 obese and 3288 age-matched normal weight controls with a mean age of 26.6 years [95% confidence interval (CI) 26.5–26.7] were included in the study. The risks of early miscarriage and REM were significantly higher among the obese patients (odds ratios 1.2 and 3.5, 95% CI 1.01–1.46 and 1.03–12.01, respectively; $P = 0.04$, for both]. CONCLUSIONS: Obesity is associated with increased risk of first trimester and recurrent miscarriage.

Introduction

Obesity has become a major health problem across the world. In the UK, obesity affects one-fifth of the female population (*Anonymous, 2001*). Maternal obesity has been reported as a risk factor for adulthood obesity in offspring (*Parsons et al ., 2001*). Obesity may also lead to a poor pregnancy outcome, such as sudden and unexplained intrauterine death (*Froen* et al *., 2001*), and in women with polycystic ovary syndrome (PCOS) receiving infertility treatment is associated with an increased risk of miscarriage (*Hamilton-Fairley* et al *., 1992 ; Wang* et al *., 2000*).

in the general population there is less evidence for a link between obesity and spontaneous miscarriage (*Risch* et al *., 1990*). Definition of spontaneous abortion is the expulsion of products of conception without medical or mechanical intervention (*William W. Beck, Jr*)

Aim of the study

was to determine whether there is any association between obesity and the risk of spontaneous miscarriage in a general population

Materials and Methods

The database of Solihull Maternity Unit from 1985 to 1999 was reviewed. This is a comprehensive, prospectively collected database that records maternal gynaecological and obstetric history, as well as current pregnancy details and outcome. All data are entered at the time of birth; therefore, all the participants in this study gave birth to their first child during that period. The outcome of previous pregnancies of all women who delivered during the study period was retrieved. Only miscarriages occurring after 6 weeks gestation were recorded to avoid confusion with early pregnancy loss. The body mass index (BMI) of all mothers at booking (10–14 weeks gestation) was calculated using the Quintelet formula (weight in kg/height in meters squared).

Obese women (BMI >30 kg/m ^{2}) and an age-matched control group with normal BMI (19–24.9 kg/m ^{2}) were included in the study, based on the WHO criteria. For every obese woman, two age-matched normal weight (BMI 19–24.9) controls were selected at random from the next database entry.

The two groups were compared with regard to their previous history of early (6–12 weeks gestation), late (12–24 weeks gestation) and recurrent early (more than three) miscarriages using binary logistic regression analysis.

Results

A total of 1644 obese women and 3288 normal weight controls (NWC) were included in the study. The percentages (95% CI) of early, late and recurrent early miscarriage (REM) in the obese group were 12.5% (10.9–14), 2% (1.5–2.5) and 0.4% (0.1–0.7), respectively. The same measures in the NWC group were 10.5% (9.5–11.5), 2% (1.5–

2.5) and 0.1% (0.02–0.2), respectively. The relative risks were 1.25, 1 and 4 for early, late and recurrent miscarriages, respectively. The obese women had a significantly higher incidence of early and recurrent early miscarriages compared with the NWC

Discussion

Spontaneous miscarriage affects 12–15% of all pregnancies (*Zinman* et al ., *1996*). Eighty percent of miscarriages occur before 12 weeks of gestation, and the majority are due to chromosomal abnormalities (*Harlap* et al ., *1980*). Our figures from this study population are consistent with previously published data.

The risk of miscarriage after the detection of a fetal heart on ultrasound scan is reduced to 5%, except in patients who have had recurrent miscarriages (van Leeuwen *et al* ., 1993). And the recurrent miscarriages is three consecutive spontaneous abortions. This requires evaluation for causes, which include: (a) cervical incompetence. (b)uterine anomalies. (c) infection. (d) hormone dysfunction. (e)chromosome aberrations *(William W. Beck, Jr*)

In this study, we compared the incidence of early, late and recurrent miscarriage between a group of obese women and a randomly selected group of age-matched NWC.

In generally the type of spontaneous abortion is (a) threatened abortion occurs when bleeding and uterine cramping appear without cervical dilation. (b) inevitable abortion occurs with profuse hemorrhaging, rupture of the membranes , and cramping, with a dilated cervix. (c)incomplete abortion occurs when some products of conception are expelled but some tissue remains in the uterine cavity (d) missed abortion is death of the fetus or embryo without the onset of labor or the passage of tissue. (e) habitual abortion is three consecutive spontaneous abortion.

CONCLUSION

Obesity is associated with increased risk of first trimester and recurrent miscarriage

REFERENCES

1- Anonymous (2001) Tackling Obesity in England. Report by the Comptroller and Auditor General. HC 220 Session 2000–2001, 15 February 2001. Ordered by the House of Commons to be printed on 8 February. The Stationary Office, London, UK.

2- Bellver J, Rossal LP, Bosch E, Zuniga A, Corona JT, Melendez F, Gomez E, Simon C, Remohi J and Pellicer A (2003) Obesity and the risk of spontaneous abortion after oocytes donation. *Fertil Steril*.

3- Fedorcsak P, Storeng R, Dale PO, Tanbo T and Abyholm T (2000) Obesity is a risk factor for early pregnancy loss after IVF or ICSI. *Acta Obstet Gynaecol Scand*.

4- Hamilton-Fairley D, Kiddu D, Watson H, Peterson C and Franks S (1992) Association of moderate obesity with a poor pregnancy outcome in women with polycystic ovary syndrome treated with low dose gonadotrophin. *Br J Obstet Gynaecol*.

5- Harlap S and Shiono PH (1980) Alcohol, smoking, and incidence of spontaneous abortions in the first and second trimester. *Lancet* Ii.

6- Risch HA, Weiss NS, Clarke EA and Miller AB (1990) Risk factors for spontaneous abortion and its recurrence. *Am J Epidemiol*.

7- *William M. Beck, Jr., M.D. Obs and Gyne.*