

MATERNAL OBESITY AND PREGNANCY OUTCOME

A PROSPECTIVE COHORT STUDY

By

Dr. KUMAR RAMASAMY

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ABBREVIATIONS

ABBREVIATIONS

LIST OF ABBREVIATIONS

BMI	Body mass index
CI	Confidence interval
CTG	Cardiotocograph
DVT	Deep vein thrombosis
EL	Elective
EM	Emergency
GDM	Gestational diabetic mellitus
IOL	Induction of labour
IUD	Intra uterine death
IUGR	Intra uterine growth retardation
LGA	Large for gestational age
LSCS	Lower segment caesarean section
MAS	Meconium aspiration syndrome
MOH	Ministry of health
NICU	Neonatal intensive care unit
NIDDM	Non insulin dependent diabetic mellitus
OR	Odd ratio
PE	Pre-eclampsia
PIH	Pregnancy induced hypertension
PNM	Perinatal mortality

POA	Period of amenorrhoea
PPH	Post partum haemorrhage
PPROM	Preterm prelabour rupture of membrane
PROM	Prelabour rupture of membrane
SPSS	Statistical Package for Social Sciences
SVD	Spontaneous vaginal delivery
USM	Universiti Sains Malaysia
VBAC	Vaginal birth after caesarean section
WHO	World Health Organisation

ABSTRACT

ABSTRAK

PENGENALAN

Lebihan berat badan dan kegemukan saling berkaitan dengan hubungan psikologikal dan sosial yang serius selain daripada mempengaruhi kesihatan fizikal seseorang. Diseluruh dunia ketika ini kegemukan telah pun mencapai kadar epidemik dimana hampir satu bilion orang menderita akibat lebihan berat badan atau kegemukan. Kadar kekerapan berlakunya kegemukan di antara wanita dalam golongan kumpulan umur reproduktif telah meningkat selaras dengan peningkatannya di kalangan masyarakat dunia. Kekerapan berlakunya kegemukan semasa mengandung dilaporkan di antara 6% hingga 28%. Keadaan ini memberi kesan yang kritikal kepada kesihatan ibu dan janin sebelum, semasa dan selepas masa kelahiran.

OBJEKTIF

Kajian ini bertujuan untuk menganalisa kesan daripada kegemukan ibu yang mengandung terhadap kesihatan ibu itu sendiri dan bayi di dalam kandungannya (sebelum, semasa dan selepas kelahiran) dan membandingkannya dengan ibu yang memiliki berat badan yang normal semasa mengandung.

METODOLOGI

Kajian prospektif kohort ini di jalankan di Jabatan Obstetrik dan Ginekologi, Hospital Ipoh dari bulan Oktober 2005 hingga bulan Oktober 2006. Semua ibu mengandung yang menjalani pemeriksaan di Hospital Ipoh dan Klinik Kesihatan yang berdekatan sebelum atau semasa 16 minggu kandungan dan mematuhi kriteria yang telah di tetapkan di pilih menyertai kajian ini. Setelah seseorang ibu itu di masukan dalam kajian ini segala perkembangan yang berlaku kepada diri dan janinnya di ikuti sehingga dan enam minggu selepas waktu kelahiran. Indeks Berat Badan (BMI) dikira dengan mengambil kira berat dan tinggi antara 12 hingga 16 minggu kandungan untuk mengukur kegemukan. Ibu-ibu yang terlibat dalam kajian ini dibahagikan kepada dua kumpulan. Kumpulan pertama ialah kumpulan kajian yang terdiri daripada ibu-ibu dengan BMI = 27.5 kg/m² ("obese mothers"). Kumpulan kedua ialah kumpulan kawalan yang terdiri daripada ibu-ibu dengan berat badan yang berpatutan (BMI: 18.5 – 22.9 kg/m²). Setelah dimasukkan dalam kajian, ibu-ibu ini akan menjalani pemeriksaan dan rawatan antenatal yang "standard". Segala perkembangan yang berlaku kepada ibu dan bayi dikumpulkan dengan bantuan borang soal selidik. Segala hasil kajian dikumpulkan dan diproses dengan menggunakan pakej statistik dan sains sosial versi 12 (SPSS version 12). Nilai p yang kurang daripada 0.05 diambil kira sebagai signifikans secara statistik.

KEPUTUSAN

Seramai 1200 orang ibu mengandung menyertai kajian ini. Ibu yang gemuk (BMI = 27.5) mewakili 50% daripada sampel kajian dan baki 50% di sertai oleh ibu-ibu dengan berat badan yang normal (BMI: 18.5 – 22.9). Tidak ada perbezaan yang ketara ($p > 0.05$) dalam purata umur di antara dua kumpulan yang terlibat. Sebahagian besar populasi kajian terdiri daripada orang Melayu (59.3%) tetapi apabila dianalisis secara kumpulan etnik kadar kegemukan yang tertinggi (59.9%) dicatatkan dalam kalangan ibu dari kaum India. Majoriti daripada ibu-ibu di kategori kegemukan terdiri daripada kumpulan multipara (66.7%). Sementara itu, kategori berat badan normal terdiri daripada primigravida (49.5%) dan multigravida (46.3%) dalam bilangan yang hampir sama. Perbezaan yang ditemui ini didapati signifikans secara statistik ($p < 0.001$). Kadar diabetes melitus tertinggi (30.8%) dalam kalangan ahli keluarga ibu yang kegemukan jika dibandingkan dengan ibu yang kategori berat badan normal (17.2%) dan perbezaan ini adalah signifikan ($p < 0.001$). Walaupun isu-isu tertentu yang boleh mempengaruhi keputusan kajian telah disingkirkan dengan bantuan "multivariate analysis" kami masih mendapati faktor-faktor berikut berkaitan secara langsung dengan kegemukan ibu [dipetik sebagai "adjusted odd ratio (OR)" dan "95% confidence interval (CI)"] : kadar kekerapan keguguran (OR : 1.09; 95% CI : 0.81-1.48), kadar kekerapan hipertensi dalam masa kehamilan atau praeklampsia (OR : 6.93; 95% CI : 4.60-10.44), kadar kekerapan diabetes semasa hamil (OR : 3.48; 95% CI : 2.43-4.95), kadar kekerapan kelahiran secara caesarean (OR : 2.65; 95% CI : 1.91-3.69), kadar cetusan kelahiran secara rangsangan (augmentation) (OR : 2.20; 95% CI : 1.56-3.12) dan kadar kelahiran

bayi dengan berat = 4 kg (OR : 3.52; 95% CI : 2.15-5.76). Analisa terhadap faktor-faktor seperti pemecahan kantung amnion secara tidak seponatan, kandungan lebih hari, kadar induksi kelahiran, kelahiran secara instrumentasi, kekoyakan perineum peringkat 3 atau 4, pendarahan postpartum, thromboembolism dan komplikasi perinatal seperti kepramatangan, "shoulder dystocia", nilai Apgar yang rendah, kemasukan ke unit rawatan rapi neonatal, aspirasi mekonium dan kematian perinatal tidak menunjukkan perbezaan yang signifikan.

KESIMPULAN

Kegemukan ibu pada peringkat awal kandungan secara langsung bertanggungjawab kepada faktor-faktor tertentu yang boleh menjejaskan kesihatan ibu dan bayi di dalam kandungannya.

ABSTRACT

INTRODUCTION

Overweight and obesity are associated with serious social and psychological consequences in addition to the physical health implications. Across the globe obesity has reached an epidemic proportions with almost 1 billion people are either overweight or obese. The incidence of obesity among women in the reproductive age group has increased in concordance with the prevalence in the general population with the reported incidence of obesity during pregnancy varying between 6% and 28%. This has critical consequences for fetal and maternal health in the antepartum, intrapartum and postpartum periods.

OBJECTIVES

The aim of the study is to determine the fetal/maternal outcomes in obese pregnant women (antenatally, intrapartum and postpartum) and to compare the adverse outcome between obese and normal weight pregnant women.

METHODOLOGY

This is a prospective cohort study carried out in the Obstetrics and Gynecology Department, Hospital Ipoh from October 2005 to October 2006. All pregnant women

who booked their pregnancy in Hospital Ipoh and surrounding health clinics before or by 16 weeks of pregnancy were included into this study once they fulfill the inclusion criteria. Once enrolled the progress of the pregnancy was followed up until delivery and six weeks into the postpartum period. The Body Mass Index (BMI), calculated with the help of the weight and height taken between 12 to 16 weeks of pregnancy was taken as the measurement of obesity. The study group were divided into two arms, obese (BMI = 27.5 kg/m²) and the control group of normal weight mothers (BMI 18.5 – 22.9 kg/m²). Once the subjects recruited into the study, they undergo routine antenatal care and managed accordingly. The various maternal and fetal outcomes were compiled with the help of a questionnaire. All the data entry and analysis were carried out using the social science and statistical packaged (SPSS) version 12. A p value of less than 0.05 was considered statistically significant.

RESULTS

Number of patients enrolled in this study is 1200 with obese mothers represent 50% of the study sample. There is no significant difference ($p < 0.05$) in the mean age between the two study groups. The bulk of the studied population were Malays (59.3%) but when analysed individually the highest prevalence of obesity (59.9%) was noted among the Indian mothers. Majority of the study population in the obese category were multiparas (66.7%) where else the normal weight category consist of almost equal number of primi (49.5%) and multigravida's (46.3%). This difference was found to be statistically significant ($p < 0.001$). There is an higher incidence of Diabetic Mellitus (30.8%) among

the family members of the obese mothers as compared to mothers in the normal weight category (17.2%) which is significant ($p < 0.001$). Using a multivariate analysis even after adjusted for the possible confounders the following conditions were significantly associated with maternal obesity [quoted as adjusted odds ratio (OR) and 95% confidence interval (CI)] : incidence of abortion (OR : 1.09 ; 95% CI : 0.81-1.48), incidence of Gestational Hypertension and Pre-eclampsia (OR : 6.93 ; 95% CI : 4.60-10.44), incidence of Gestational Diabetic Mellitus (OR : 3.48 ; 95% CI : 2.43-4.97), incidence of Caesarean deliveries (OR : 2.65 ; 95% CI : 1.91-3.69), rate of augmentation of labour (OR : 2.20 ; 95% CI : 1.56-3.12) and incidence of delivering macrosomic baby (OR : 3.52 ; 95% CI : 2.15-5.76). No significant differences were noted between the two groups in terms of non spontaneous rupture of membrane, postdatism, labour induction, instrumental delivery, third or fourth degree perineal tear, postpartum haemorrhage, thromboembolism and perinatal complications such as prematurity, shoulder dystocia, low Apgar scores, neonatal intensive care unit admission, meconium aspiration and perinatal mortality. There was also an increasing trends of adverse fetalmaternal outcomes in relation to the severity of the degree of obesity.

CONCLUSION

Maternal obesity in early pregnancy is an independent risk factor for a number of adverse obstetric outcomes and is significantly associated with an increased incidence of macrosomic baby.

**STATE OF PERAK
&
O & G DEPART HOSP IPOH**

STATE OF PERAK

Perak is one of the 13 states of Malaysia. It is the second largest state in Peninsular Malaysia bordering Kedah and Thailand to the north, Penang to the northwest, Kelantan and Pahang to the east, Selangor southward and to the west by the Straits of Malacca. It encloses an area of 21,006 square kilometers which is 6.4% of the total surface area of Malaysia. While Ipoh is the administrative capital of Perak, Kuala Kangsar serves as the Royal Capital. The state is comprised of ten administrative districts which are further divided to several Mukims or Counties. The state is easily accessible by land and air.

Perak is a multiracial state with a population of 2,256,400 people (year 2005). The majority of the population comprises of Malays (45%) followed by Chinese (41%), Indians (14%) and others (10%).

The health needs of the people are provided by a tertiary hospital with the support of 14 district hospitals and many private medical centers.