THE PREVALENCE OF HYPERTENSION AMONG OBESE PREGNANT WOMEN AT MATERNITY UNIT HUSM AND ITS ASSOCIATED FACTORS

BY

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LIST OF ABBREVIATIONS

BMI – Body mass index

DM – Diabetes Mellitus

EDD – Expected date of delivery

FSB – Fresh Still Birth

GDM – Gestational diabetes mellitus

HDP – Hypertensive disorder in pregnancy

HUSM – Hospital Universiti Sains Malaysia

Hpt – Hypertension

IOL – Induction of labour

IUD – Intrauterine death

IUGR – Intrauterine growth restriction

IUCD – Intrauterine contraceptive device

LGA – Large for gestational age

LFT – Liver Function Test

LMP – Last Menstrual Period

LSCS – Lower segment caesarean section

MSB – Macerated Still Birth

NICU – Neonatal Intensive Care Unit

OCP – Oral contraceptive pill

OD – Odds ratio

POA – Period of amenorrhoea

POG – Period of gestation

RFT – Renal Function Test

RR – Relative Risk

SGA – Small for gestational age

SPSS – Statistical Package for Social Sciences

SVD – Spontaneous vertex delivery

USMCK – Universiti Sains Malaysia Cawangan Kelantan.

WHO – World Health Organisation

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DEFINITION OF TERMS

Age – age recorded to nearest year

Induction of labour (IOL) – is an intervention (ARM or intravenous oxytocin administration) designed to artificially initiate uterine contractions resulting in progressive effacement and dilatation of the cervix and birth of the baby

Obesity – Body Mass Index, BMI ≥ 30 kg/m² (World Health Organization)

Period of amenorrhea (POA) – gestational age of pregnancy based on the last menstrual period (LMP) in completed weeks

Period of gestation (POG) – corrected gestational age of pregnancy based on either early ultrasound in completed weeks

Parity – the number of delivery that exceed viability regardless of outcome

Spontaneous vaginal delivery – when a pregnant woman goes into labor without use of drugs or techniques to induce labor, and delivers her baby in the normal manner, without a cesarean section

Apgar score – neonatal assessment of newborn baby based on respiratory effort, muscle tone, color, heart rate and response to stimulation

Gestational hypertension – blood pressure systolic 140mmHg or above, diastolic 90mmHg or above after 20 weeks gestation without proteinuria

Preeclampsia – blood pressure systolic 140mmHg, diastolic 90mmHg with proteinuria noted after 20 weeks of pregnancy

Chronic Hypertension – Preexisting hypertension prior to pregnancy or identified before 20 weeks of gestation without proteinuria

Chronic hypertension with superimposed preeclampsia – preexisting hypertension or identified before 20 weeks of gestation with proteinuria.

Eclampsia – Occurrence of convulsion besides Central Nervous System, CNS manifestation

Proteinuria – 300mg proteinuria or 0.3 gm urine protein in 24 hours or 2+ with urine dipstick

Healthy Life style – emphasizing on the 4 pillars of health, which are healthy eating, exercise and physical activity, not smoking and handling stress wisely

Income – amount of money earned monthly through employment / business

Educations – formal / informal education classes attended by patient and spouse

Abstrak

ABSTRAK (Versi Bahasa Malaysia)

Objektif : Untuk mengetahui mengenai prevalens penyakit darah tinggi di kalangan wanita – wanita obes yang mengandung serta faktor – faktor risiko yang mempengaruhinya.

Kaedah : Kajian prospektif secara rawak, 'cross sectional' dan kajian cohort selama 13 bulan bermula dari Julai 2006 hingga Julai 2007.

Tempat : Wad Antenatal dan Bilik Bersalin Jabatan Obstetrik dan Ginekologi ,Hospital Universiti Sains Malaysia

Penglibatan : Seramai 388 orang pesakit menyertai kajian ini.

Methodologi : Wanita mengandung yang mempunyai jisim badan ≥ 30 kg/m² yang dimasukkan ke wad untuk proses kelahiran, serta memenuhi syarat-syarat inklusi atau ekslusi, telah dipilih secara rawak untuk ditemubual dan hasil kandungan kepada ibu dan anak dinilai.

Ukuran Penilaian : Penyataan dari buku Antenatal, catatan pemeriksaan sewaktu kemasukan ke hospital. Soalan – soalan yang ditemubual dan hasil kandungan kepada ibu dan anak sejurus selepas kelahiran dianalisis. Nilai $p < 0.05$ diambil kira sebagai signifikan.

Keputusan:

Seramai 388 pesakit yang memenuhi kriteria kajian telah dipilih. Prevalen penyakit darah tinggi di kalangan ibu obes yang mengandung adalah 35%. Faktor – faktor yang mempengaruhi darah tinggi di kalangan wanita di dalam kajian adalah sejarah keluarga yang mengidap darah tinggi ($p = 0.026$), tidak mengamalkan cara hidup sihat ($p < 0.001$), sejarah darah tinggi dalam kehamilan yang lalu ($p < 0.001$) dan peningkatan kes kencing manis semasa mengandung ($p = 0.002$).

Keputusan bagi 'Multiple logistic regression' bagi perkara yang mempengaruhi darah tinggi adalah tidak mengamalkan cara hidup sihat ($p < 0.001$), sejarah lampau mengidap darah tinggi ($p < 0.001$) dan mengidap kencing manis semasa mengandung ($p < 0.003$).

Keputusan di dalam kajian ini menunjukkan di dalam kategori 'maternal outcome' terdapat keputusan yang tinggi didalam kes *Induction Of Labour* (IOL) iaitu kelahiran yang dipaksa melalui kaedah tertentu disebabkan pesakit mempunyai penyakit seperti darah tinggi, Diabetes Mellitus dan perkara-perkara lain yang memerlukan induksi kelahiran. Sejumlah peratusan yang besar induksi kelahiran di dalam kes Diabetes Mellitus dengan rawatan iaitu sebanyak 31.25% dan preeclampsia iaitu 21.43%.

Kajian ini juga mendapati jumlah yang tinggi dalam kelahiran pramatang dan induksi kelahiran pada pesakit yang mempunyai penyakit darah tinggi ($p < 0.001$)

Keputusan menunjukkan cara kelahiran anak di kalangan 2 kumpulan pesakit ini tidak berbeza, iaitu nilai p adalah 0.398.

Di dalam kategori perinatal, keputusan menunjukkan kelahiran bayi dengan berat badan yang lebih rendah dan kemasukan ke unit rawatan rapi bayi yang lebih tinggi di kalangan pesakit yang mengidap darah tinggi. Nilai p adalah 0.001 pada kedua – duanya. Keputusan Apgar score juga yang lebih rendah di kalangan pesakit darah tinggi dan nilai p adalah 0.008.

Di dalam kajian ini didapati tahap asid urik, menunjukkan ada kaitan yang signifikan secara statistik diantara nilai asid urik dan jangkamasa kelahiran bayi, iaitu nilai p adalah 0.001.

Kesimpulan

Sebanyak 35% di kalangan wanita obes mengalami hipertensi. Kajian ini telah menunjukkan bahawa wujudnya beberapa faktor yang mempengaruhi wanita obese yang mengidap penyakit darah tinggi seperti sejarah keluarga yang mengalami darah tinggi, sejarah kandungan lampau yang mengidap darah tinggi dan aktiviti fizikal yang di jalankan. Amalan cara hidup sihat seperti amalan riadah dan bersenam boleh mengurangkan risiko untuk mendapat penyakit darah tinggi.

Pesakit yang mempunyai penyakit kencing manis semasa mengandung juga mempengaruhi dan mempunyai risiko untuk mendapat penyakit darah tinggi . Keputusan menunjukkan terdapat peratusan yang tinggi di dalam kelahiran pramatang, induksi kelahiran, bayi kurang berat badan dan kemasukan bayi ke unit rawatan rapi bagi kes – kes pesakit yang mengidap darah tinggi.

Di dalam kajian ini didapati tahap asid urik mempengaruhi jangkamasa kelahiran bayi . Nilai urik asid yang tinggi menyebabkan meningkat kelahiran pramatang bayi.

Abstract

ABSTRACT (English version)

Objective: To determine the prevalence of hypertension among obese pregnant women and its associated factors at HUSM.

Design : Cross sectional and Cohort study for 13 months from July 2006 until July 2007.

Setting : Antenatal Ward and Labour Room, Department Of Obstetrics and Gynecology, Hospital Universiti Sains Malaysia

Participants : 388 participants involved in the study

Methodology : Pregnant women with body mass index of ≥ 30 kg/m² who were admitted for delivery were chosen, based on inclusion and exclusion criteria. They were being interviewed through questionnaires and the outcome of pregnancy to mothers and babies were analyzed.

Main Outcome measure : Information from antenatal cards, observations on physical examinations in wards , responses from questionnaires and outcomes of pregnancy to mothers and babies.

Results

The prevalence of hypertension among obese pregnant women was 35%. Factors that contributed to the hypertension on the study groups were family history of hypertension (p= 0.026), unhealthy lifestyle practice (p <0.001), previous history of hypertension in pregnancy (p <0.001) and having gestational diabetes mellitus (p = 0.002). Results of the associated factors for obese hypertension by multiple logistic regression for healthy lifestyle (p < 0.001) , previous hypertension (p < 0.001) and gestational diabetes mellitus (p = , 0.003).

Results showed that there was an increase in maternal outcome of Induction of Labour, IOL and premature delivery among obese hypertension women (p < 0.001). About 21.43% of the subjects who had IOL were due to preeclampsia and 31.25% were due to diabetes mellitus on treatment. There was no significant difference in the mode of delivery among these two groups with the p value of 0.398. However perinatal outcome had shown a significant result of low birth weight and admission to Neonatal Intensive Care Unit, NICU amongst obese hypertension, having the same p value of 0.001. Low Apgar score result was noted in hypertensive mothers with (p = 0.008).

There was statistical significance in association between the level of uric acid and time of delivery (p = 0.001).

Conclusion

The percentage of prevalent hypertension among obese pregnant women was 35%. There were associated factors that contributed to hypertension such as family history of hypertension, unhealthy lifestyle practice, previous history of hypertension and having gestational diabetes mellitus. In perinatal outcome, there was also an increased incidence in low birth weight, low Apgar score and admission to NICU in hypertensive cases.

This study showed statistical significance in association between the level of uric acid and time of delivery.

Introduction

INTRODUCTION TO KELANTAN POPULATION AND HEALTH SERVICES

The birth rate was 42.55 births per 1000 population in 1992 with the population growth rate of 2.6% per year. Over the past 10 years, the state medical and health services had been improved tremendously with the openings of district hospitals and health centers along with substantial social, educational and economic developments.

In addition to an increased health services requirement, there are two tertiary referral centers, the Hospital Raja Perempuan Zainab II and Hospital Universiti Sains Malaysia (HUSM). The Raja Perempuan Zainab II Hospital, previously known as Hospital Kota Bharu (HKB) is located in the state capital and is one of the oldest hospital in Malaysia. It was built in the year of 1930 and became the only referral center for Kelantan state until 1984 when Hospital Universiti Sains Malaysia started to function.

The percentage of hospital delivery was sixty percent in 1992 as compared to only thirty percent in 1982. Maternal mortality rate was 5.81 per 100,000 births. Perinatal mortality rate and infant mortality rate dropped markedly from 22.3 over 1000 live births and 20.3 over 1000 live births in 1984 to 14.6/1000 and 12.9/1000 live births in 1992. The medical and health services are provided by eight hospitals, one in each district except Bachok. In addition , there are 48 health community clinics and midwife centers.

INTRODUCTION TO THE SCHOOL OF MEDICAL SCIENCES AND HOSPITAL UNIVERSITI SAINS MALAYSIA

The school of Medical Sciences, USM was established in 1979 as the third medical school for the country and offered its first Doctor in Medicine course in June 1981. The University leads in setting up the first Malaysian Medical school based on an innovative curriculum which features integration, a problem based learning approach and community orientated medical practitioners. The School of Medical Sciences thus uniquely offers a medical curriculum that looks at health problems holistically and applies solutions at both the level of the individual as well as the community.

The undergraduate medical course, which was initially conducted at USM main campus in Penang, later moved to the Health Campus. It is currently situated on a 72.84 hectare area at Kubang Kerian, Kelantan Campus which houses on up to date teaching, research and patient – care facilities. Situated in the rural north-eastern region of Malaysia, it enables the School of Medical Sciences to practice its philosophy of community – oriented medical education. This is in accordance with the primary aims of Malaysian's vision to upgrade the standards of community-based medical care in the country.

The School of Medical Sciences has many accolades in research, academia and administration. By the year 2004 it is proud to house 26 international and 22 national research awards, 7 national scientist awards, 6 national young technologist awards and many more. In the field of medical education, the school has been members of an international medical education academic body called the NETWORK (Community Partnership for Health through innovative education Service and Research). Our innovative medical curriculum is a fore runner to many medical schools in Malaysia, both public and private.

The School has also pioneered a number of administrative innovations. The Postgraduate Students Administration Systems (PGIS) for example won the coveted MAMPU National Innovation Award (AIPA) in 2001. Other innovative administrative systems designed by the School include Student Information Systems (SIS) and Asset management Systems (AMS) which facilitate the management of school through an electronic systems. For the year 2004, School of Medical Sciences has a total of 648 staffs of whom, 12 are professors, 58 are Associate Professors, 172 lecturers and 89 trainee lecturers, and the rest are non academic members. In addition, 120 honorary lecturers from various hospitals complement the teaching staffs.

It has produced more than 2000 doctors and 500 medical specialists for the country. The highlights of the school among others are establishment of 2 new schools: School of Health Sciences and School of Dental Sciences, and 2 new institutes; Advanced Medical and Dental Institute (AMDI) and institute for Research in Molecular Medicine (INFORMM). The School too has witnessed many 'firsts' such as the pioneer medical school in conducting Master of Pathology (Immunology), Master of Neurosurgery, Master of Emergency Medicine and Master of Plastic Surgery in the country.

USMCKK is situated on a 72.84 hectares of flatland in the suburbs of Kelantan's state capital Kota Bharu, at Kubang Kerian township. The presence of USMCK has activated the small town to expand and develop. Furthermore, commercial and housing developments have also taken place.

In USMCK, the Director is of the highest person, handed over from the Vice Chancellor, who is responsible to coordinate all administrative and academic matters to ensure the smooth running of the campus. Supportive departments from the main campus in Penang have set a branch to assist him in the administration and management.