شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

HANAA ALY

ASSOCIATION OF METABOLIC SYNDROME WITH DEVELOPMENT OF PRE-ECLAMPSIA AMONG PREGNANT WOMEN

Submitted By

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M.B.B.Ch., Faculty of Medicine, Cairo University, 1985
Master in in Environmental Sciences faculty of Graduate Studies and Environmental Research, Ain Shams University, 2015

A Thesis Submitted in Partial Fulfillment
Of
The Requirement for the Doctor of Philosophy Degree
In
Environmental Sciences

Department of Environmental Medical Sciences
faculty of Graduate Studies and Environmental Research
Ain Shams University

2021

APPROVAL SHEET

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Wafaa Hamed Abd El- Salam Zahran

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List of Abbreviations

Abb.	Full term
ACOG	*American College of Obstetricians and Gynecologists*
AHA	*American Heart Association*
BMI	*Body Mass Index*
CHO	*Carbohydrates*
CI	*Confidence Interval*
CRP	*C-Reactive Protein*
CVD	*Cardiovascular Disease*
EGIR	*European Group for the Study of Insulin Resistance*
EVs	*Extracellular Vesicles*
FBS	*Fasting Blood Sugar*
GDM	*Gestational Diabetes Mellitus*
HDL	*High Density Lipoprotein*
IDF	*International Diabetes Federation*
IGFBP-1	*Insulin-Like Growth Factor-Binding Protein-1*
IUGR	*Intrauterine Growth Retardation*
LDL	*Low Density Lipoprotein*
MCH	*Maternal and Child Health Center*
MS	*Metabolic Syndrome*
NCEP-ATP III	*National Cholesterol Education Program's Adult Treatment Panel III*
NHLBI	*National Heart, Lung and Blood Institute*
OR	*Odds Ratio*
PE	*Preeclampsia*
RR	*Relative Risk*
SHBG	*Sex-Hormone-Binding Globulin*
T2DM	*Type 2 Diabetes Mellitus*
TG	*Triglycerides*
t-PA	*Tissue Plasminogen Activator*
WHO	*World Health Organization*

ABSTRACT

Background: Preeclampsia is a complicated disorder in pregnancy which occurs after 20 weeks of gestation. It affects 3-5% of all pregnancies in the world. It has been reported that the prevalence of preeclampsia has been altered between 1.8% and 16.7% in developing countries Women with preeclampsia seem to be at elevated risk for cardiovascular disease.

Objective: This study was done to determine the relation between metabolic syndrome and occurance of pre-eclampsia and to evaluate the use of metabolic score in determining the development and severity of pre-eclampsia.

Methods: This is a case-control study includes women attending to obstetric emergency unit in labour to Bolack El Dakror General Hospital, Giza, Egypt. The period of study was about 24 month from January 2017 to December 2018. The cases were divided into two groups: The first group consists of 300 cases with pre-eclampsia which characterized by: Mild pre-eclampsia as blood pressure higher than 140/90 and protein 1+ or greater by drip stik, moderate pre-eclsampsia blood pressure is more than 140/90 and less than 160/100 and protein 1+ or greater by drip stik. Severe pre-eclampsia (imminant-eclampsia) or blood pressure is higher than 160/100 and protein greater than 3+ by drip stik. The second group consists of 300 control patients with normal pregnancy.

Results: Preeclampsia was a dependent risk factors for metabolic syndrome (adjusted odds ratio = 6.888, 95% CI = 4.656 to 10.189, P-value <0.0001). While age category 40-49 years was associated with significantly lower risk for metabolic syndrome as referenced to age category 18-29 years adjusted odds ratio = 0.337, 95% CI = 0.168 to 0.677, P-value = 0.002).

Conclusion: There is a significant relation between the incidence of PE and presence of metabolic syndrome and the more number of items of metabolic syndrome the higher the risk of occurrence of PE.

Keywords: Metabolic syndrome; pre-eclampsia

INTRODUCTION

Preeclampsia is a complicated disorder in pregnancy which occurs after 20 weeks of gestation. It affects 3%-5% of all pregnancies in the world. It has been reported that the prevalence of preeclampsia has been altered between 1.8% and 16.7% in developing countries Women with preeclampsia seem to be at elevated risk for cardiovascular disease ***(Osungbade and Ige, 2011).***

Studies have shown that women with preeclampsia disease show two times risk of cardiac disease, cardiovascular mortality, cerebrovascular and peripheral arterial disease. It has been indicated that many risk factors such as diabetes mellitus obesity hypertension and heart disease is often common in preeclampsia and cardiovascular disease patients. There are also another risk factors for preeclampsia include elevated body mass index (BMI) before or during pregnancy, pre-existing diabetes, multiple pregnancies, nullparity, autoimmune disease, renal disease and maternal age greater than 40 years old ***(Duckitt and Harrington, 2005; Miranda et al., 2005).***

The metabolic syndrome is defined as a cluster of metabolic abnormalities such as hypertension, dyslipidaemia, obesity (particularly central obesity), insulin resistance and high fasting plasma glucose. Differences in genetic, diet, physical activity, age and sex influence the prevalence of

metabolic syndrome and its components pregnancy induced hypertension, respectively. Assessment of the metabolic syndrome may prevent some pregnancy complications ***(Praramsothy and Knopp, 2008).***

It has been reported that dyslipidaemia and insulin resistance are more considerable in preeclampsia women when compared to normal pregnancy Many studies have been shown that there are associations between pre pregnancy obesity chronic hypertension dyslipidemia, and inflammation in early pregnancy and high risk of preterm birth and intrauterine growth restriction. Studies have indicated that people with metabolic syndrome reveal higher frequency of cardiovascular disease and more rate of death from cardiovascular disease ***(Catov et al., 2008).*** Patients with high triglyceride show a higher incidence of preeclampsia many studies have indicated high triglycerides, cholesterol, low density lipoprotein (LDL) and reduced high density lipoprotein (HDL) levels in preeclampsia. Another study also revealed that obesity is a risk factor for the progression of preeclampsia ***(Galassi and Reynoids, 2005)***.