شبكة المعلومات الجامعية

بسم اللّه الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

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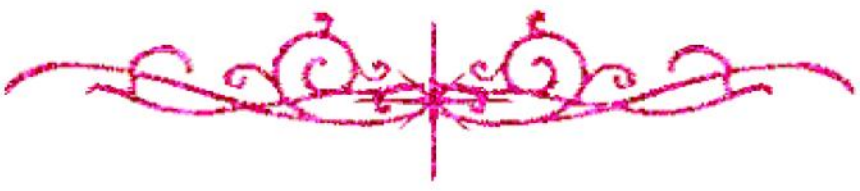

بالرسالة صفحات
لم ترد بالأصل

The Accuracy of Neutrophil/Lymphocyte Ratio in Prediction of Preeclampsia in Low Risk Population

Thesis

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List of Abbreviations

Abb.	Full term
ACOG	American College of Obstetricians and Gynecologists
ALT	Alanine transaminase
AST	Aspartate aminotransferase
BMI	Body mass index
CBC	Complete blood counts
CEMACH	Confidential Enquiry into Maternal and Child Health in UK
CRP	C-reactive protein
DBP	Diastolic blood pressure
EDTA	ethylenediaminetetraacetate
eNOS	Endothelial nitric oxide synthase
HELLP	Hemolysis, Elevated Liver enzymes and Low Platelets
IL-8	Interleukin-8
ILT	Immunoglobulin-like transcript receptor
IUGR	Intrauterine growth restriction
mg	Milligram
mg/dL	Milligram per deciliter
mm Hg	Millimeter of mercury
mm^3	Millimeter of mercury
NK	Natural killer

Abb.	Full term
NLR	Neutrophil lymphocyte ratio
N/Th1	Neutrophil helper T1 lymphocyte ratio
N/Th2	Neutrophil helper T2 lymphocyte ratio
PE	Preeclampsia
PET	Preeclampsia toxemia
PGF	Placental growth factor
PLR	Platelet lymphocyte ratio
Pr/Cr	Protein creatinine ratio
P/Th1	Platelet helper T1 lymphocyte ratio
P/Th2	Platelet helper T2 lymphocyte ratio
ROC	Receiver Operating Characteristic
SBP	Systolic blood pressure
sEng	Soluble endoglin
sFlt-1	Soluble fms-like tyrosine kinase 1
SLE	Systemic lupus erythematous
SNPs	Single-nucleotide polymorphisms
TNF-α	Tumor necrosis factor-α

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Introduction

Hypertensive disorders are the most common medical problem encountered in pregnancy, affecting up to 15% of pregnancies and accounting for approximately 25% of antenatal admissions. They are classified into four categories: Preeclampsia-Eclampsia, chronic hypertension, chronic hypertension with superimposed preeclampsia and gestational hypertension **(Butalia et al., 2018; ACOG, 2013).**

preeclampsia (PET) is a major cause of maternal and fetal or neonatal mortality and morbidity **(Sibai et al., 2005).** This disorder complicates 5%-7% of all pregnancies **(Wagner, 2004).**

Preeclampsia is defined as a new onset of hypertension associated with proteinuria and fluid retention detected for the first time after the 20^{th} week of gestation **(Salam et al., 2015).**

Clinical symptoms are hypertension ≥140/90 mm Hg and proteinuria ≥ 0.30 g/d. Severe conditions are often associated with intrauterine growth restriction (IUGR), acute renal failure, HELLP syndrome (Hemolysis, Elevated Liver enzymes and Low Platelets) or other systemic manifestatios **(Cornelius and Wallace, 2019).** It is

associated with high risks of preterm delivery, intrauterine growth restriction, placental abruption, renal failure, sub-capsular hepatic hematoma and perinatal mortality, along with maternal morbidity and mortality **(ACOG, 2013; McClure et al., 2011).** The pathophysiology of PET is not clear, there are many theories highlighting its multifactorial basis. It may be related to both placental and maternal factors including abnormal placentation, systemic endothelial dysfunction or cell activation, and an angiogenic imbalance favoring anti-angiogenic factors **(Fisher, 2015).**

Preeclampsia is associated with a more maternal systemic inflammation than occurs in normal gestation. The features of PET arise from the sum of the circulatory disturbances caused by systemic maternal endothelial cell dysfunction or activation. so leukocytes activates endothelium and vice versa **(Mihu et al., 2015; Tannetta et al., 2017).**

Hence, all the markers of inflammation that already are changed in normal pregnancy are affected more severely in PET. The inflammatory changes may progress to the point of decompensation, which can account for the different crisis of the condition such as eclampsia, HELLP syndrome and so on **(Cintesun et al., 2018).**

Although the exact etiology has not been clearly defined, studies have shown that leukocyte activation plays a significant role during the disease process in PET. Significant findings of leukocyte activation have been made, including increased superoxide generation and enhanced integrin CD11b and CD64 expressions in monocytes and in neutrophils in women with PET **(Cintesun et al., 2018).**

Activated leukocytes also release a variety of substances such as cytokine interleukin-8 (IL-8) and tumor necrosis factor-α (TNF-α), which are capable of mediating endothelial function. Interactions between activated leukocytes, platelets, and vascular endothelium are believed to contribute to the vascular injury in this pregnancy disorder. Furthermore; neutrophil activation is believed to be a major component of exaggerated inflammatory responses in the maternal vascular system during PET **(Kurtoglu et al., 2015; Yıldız et al., 2016).**

Clearly, cytokines such as interleukin-6 (IL-6) and tumor necrosis factor-α (TNF-α) are elevated in PET **(LaMarca et al., 2016).** These cytokines support the expression of the acute-phase protein C-reactive protein (CRP). CRP is produced in the liver and has been found in amniotic fluid **(Parchim et al., 2015).**