

CLINICAL UTILITY OF SERUM CHEMERIN IN PREGNANT WOMEN WITH PRE-ECLAMPSIA

Thesis

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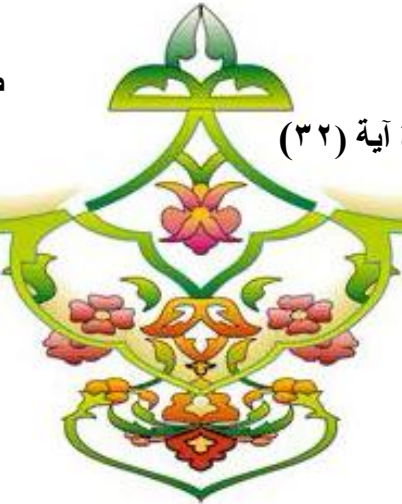
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List of Abbreviations

AAP	: Aminoantipyrine
ACE	: Angiotensin-converting enzyme
ACOG	: American College of Obstetrics and Gynecology
ALT	: Alanine aminotransferase
AM	: Adrenomedullin
ANG II	: Angiotensin-converting enzyme II
AST	: Aspartate transaminase
AT1	: Angiotensin II receptor-1
ATP	: Adenosine triphosphate
C 15	: Chemerin 15
CBC	: Complete blood picture
CCRL2	: Chemokine (C-C motif) receptor-like 2
CD4	: Cluster of differentiation 4
CD8	: Cluster of differentiation 8
cDNA	: Complementary deoxyribonucleic acid
CE	: Cholesterol esterase
CHOD	: Cholesterol oxidase
CMKLR1	: Chemokine-like receptor 1
CRP	: C-reactive protein
CSF	: Cerebrospinal fluids
CTBs	: Cytotrophoblasts
CV	: Coefficient of variation
DBP	: Diastolic blood pressure
DCs	: Dendritic cells
DGAT2	: Diacylglycerol acetyltransferase
DIC	: Disseminated intravascular coagulation
DM	: Diabetes mellitus
DNA	: Deoxyribonucleic acid
EC	: Endothelial cells
EDTA	: Ethylene diaminetetraacetic acid
ELISA	: Enzyme linked immunosorbent assay
eNOS	: Endothelial nitric oxide synthase
ET-1	: Endothelin-1
FFA	: Free fatty acid
FITC	: Fluorescein isothiocyanate
FP	: False positive
FSH	: Follicle-stimulating hormone
GA	: Gestational age

List of Abbreviations (Cont...)

GGT	: Gamma-glutamyl transferase
GK	: Glycerol kinase
GLUT4	: Glucose transporter 4
GnRH	: Gonadotropin-releasing hormone
GPO	: Glycerol Phosphate oxidase
GPR1	: G-protein coupled receptor 1
HDL-C	: High-density lipoprotein-cholesterol
HELLP	: Hemolysis, elevated liver enzymes and low platelets
HEVs	: High endothelial venules
IFN-γ	: Interferon-gamma
IGF	: Insulin-like growth factor
IL-15	: Interleukin-15
IL-1β	: Interleukin- 1 beta
IL-2	: Interleukin-2
IL-6	: Interleukin-6
IL-8	: Interleukin-8
IRS-1	: Insulin receptor substrate-1
KDa	: Kilo Dalton
LDH	: Lactate dehydrogenase
LDL-C	: Low-density lipoprotein-cholesterol
LE	: Lupus erythematosus
LH	: Luteinizing hormone
LPL	: Lipoprotein lipase
LPS	: Lipopolysaccharide
MAHA	: Microangiopathic hemolytic anemia
MMP 2/9	: Matrix metalloproteinase- 2/9
MMP-13	: Matrix metalloproteinase-13
MMPs	: Matrix metalloproteinases
mRNA	: Messenger ribonucleic acid
NAD	: Nicotinamide adenine dinucleotide
NADP	: Nicotinamide adenine dinucleotide phosphate
NCP	: Nitrocellulose paper
NK	: Natural killer cells
NO	: Nitric oxide
NOS	: Nitric oxide synthase
PAI-1	: Plasminogen activator inhibitor-1
PAPP-A	: Pregnancy associated plasma protein-A
PCR	: Polymerase chain reaction

List of Abbreviations *(Cont...)*

PDGF	: Platelet derived growth factor
PIGF	: Placental growth factor
POD	: Peroxidase
PP-13	: Placental protein-13
PPAR γ	: Peroxisome proliferator-activated receptor gamma
RARRE2	: Retinoic acid receptor responder protein 2
RAS	: Rennin angiotensin system
RT-PCR	: Reverse transcriptase PCR
SBP	: Systolic blood pressure
SD	: Standard deviation
SDS-PAGE	: Separated by polyacrylamide gel electrophoresis.
SDS-PAGE	: Sodium dodecyl sulfate- polyacrylamide gel electrophoresis
sEng	: Soluble endoglin
sFlt1	: Soluble Fms-like tyrosine kinase-1
TG	: Triglycerides
TIG2	: Tazarotene-induced gene 2 protein
TN	: True negative
TNF-α	: Tumor necrosis factor -alpha
tPA	: Tissue plasminogen activator
TTP	: Thrombotic thrombocytopenic purpura
uPA	: Urokinase plasminogen activator
VEGF	: Vascular endothelial growth factor
VEGFR-1	: Vascular endothelial growth factor receptor-1
VLDL	: Very low density lipoprotein

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INTRODUCTION

Pre-eclampsia, is a multisystem disorder specific to pregnant women. It is characterised primarily by new-onset hypertension and proteinuria. It remains one of the most important causes of maternal and fetal mortality and morbidity worldwide (*Stepan et al., 2011*).

The complete pathogenesis of this disease still remains unclear, underlining a multifactorial etiology. Deficient remodeling of the spiral arteries during the interaction between maternal and fetal sides at the time of trophoblast invasion has been postulated as a cause of placental insufficiency. This would lead to the release of inflammatory factors in the systemic maternal circulation (*Young et al., 2010*). In addition, *Arikan et al., (2010)* reported that adipokines may play an important role in the pathogenesis of pre-eclampsia through their role in low-grade systemic inflammation, atherosclerosis, and insulin resistance. Therefore, it is reasonable to suppose that adipokines may directly or indirectly influence the function of placental endothelial cells.

Chemerin, is a novel adipokine, also known as tazarotene-induced gene 2 protein (TIG2) and retinoic acid receptor responder protein 2 (RARRES2) (*Duan et al., 2011*). It is a 14 KDa secretory adipokine, expressed mainly in adipose tissues, macrophages, liver and lungs (*Bozaoglu et al., 2010*).

Many studies demonstrated that chemerin is a potent angiogenic factor and induce gelatinolytic activity of endothelial cell (*Kaur et al., 2010*). Moreover, it has recently been reported that circulating chemerin levels have a close association with insulin resistance, lipid metabolism and hypertension (*Ress et al., 2010*).



AIM OF THE WORK

The aim of the present study is to assess serum chemerin in a group of pregnant females with pre-eclampsia to evaluate its clinical utility in diagnosis and assessment of severity of the disease. This will facilitate the development of a predictor test that may help in developing novel strategies for the treatment of pre-eclampsia.