First Trimestric Maternal Serum Omentin-1 as an Early Predictor of Preeclampsia

Thesis

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Diaa Ghorab

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List of Abbreviations

Abb.	Full term
Ab	Antibody
ACOG	American College of Obstetricians andGynecologist
ACS	Acute coronary syndrome
AFP	Alpha feto protein
Ag	Antigen
Akt	Protein kinase B
ALB	Albumin
ALT	Alanine aminotranferase
AMI	Acute myocardial infarction
AMPK	AMP-activated protein kinase
ANP	Aterialnaturetic peptide
AST	Aspartate aminotransferase
AUC	Area under the curve
B.HCG	Beta Human Chorionic Gonadotropin
BMI	Body mass index
BP	Blood pressure
BPP	Biophysical profile
BUN	Blood urea nitrogen
CAD	Coronary artery disease
CBC	Complete blood count
CD40L	CD40 ligand
cGMP	Cyclic guanosine monophosphate
CIMT	Carotid intima media thickness
CK	Creatine kinase

Abb.	Full term
CK-MB	Creatine kinase-MB fraction
CMRI	Cardiac magnetic resonance imaging
CO	Carbon monoxide
COX2	Cyclooxygenase-2
CRP	C- reactive protein
CT	Computed tomography
CTn	Cardioc troponin
cTn I	Cardiac troponin I
cTn T	Cardiac troponin T
CVD	Cardiac vascular disease
DBP	Diastolic blood pressure
DES	Diethyl stilbosterol
DIC	Disseminated intravascular coagulation
DsDNA	Double stranded DNA
EAT	Epicardial adipose tissue
ECG	Electrocardiogram
ECM	Extracellular matrix
EDHF	Endothelial–derived hyperpolarizing factor
EIA	Enzyme immunoassay
ELISA	Enzyme linked immunosorbent assay
eNOs	Endothelial nitric oxide synthase
ESC/ACC	European Society of Cardiology and the American College of Cardiology
ET_1	Endothelin1
EtBr	Ethidium bromide
FFA	Free fatty acid
FGR	Fetal growth restriction

Abb.	Full term
GA	Gestational age
GLUT4	Glucose transporter 4
H_2O_2	Hydrogen peroxide
H_2S	Hydrogen sulfide
HDCP	Hypertensive disorder complication of pregnancy
HDL-C	High density lipoprotein cholesterol
HELLP	Hemolysis, elevated Liver function tests, and low platelets
H-FABP	Heart –type fatty acid binding protein
HO	Hemeoxygenase
HOMA.IR	Homostasis model assessment of insulinresistance
HPLC	High performance liquid chromatography
HR	Heavy rough
Hs CRP	High sensitivity C reactive protein
hsCRP	High sensitive c- reactive protein
IFN	Interferone
IL-6	Interleukin 6
IR	Insulin resistance
IUGR	Intrauterine growth restriction
JNK	Mitochondrial C-Jun-N terminal kinase
KIRs	Killer immunoglobulin receptors
LDA	LOW dose aspirin
LDH	Lactate dehydrogenase
MAP	Mean arterial pressure
mmHg	Millimeter mercury
MRI	Magnetic Resonant Image
mRNA	Messenger ribonucleic acid

Abb.	Full term
NHBPEPWG	National High Blood Pressure Education Program Working Group
NICE	National Institute for Health and Clinical Excellence
NO	Nitric oxide
NPV	Negative predictive value
NST	Non stress test
NSTEMI	Non-STsegment elevation myocardial infarction
OX-LDL	Oxidized-LDL
P.C	Post conception
P.M	Post menstruation
P38	Mitogen-activated protein kinase
PAI-I	Plasminogen activator inhibitor-I
PAPP-A	Pregnancy associated plasma protein A
PCOD	Polycystic ovarian disease
PCR	Polymerase chain reaction
PCyC	Plasma cystatin C
PE	Pre-eclampsia
PGI-2	Prostacyclin
PI3K	Phosphoinositide3 kinase
PIGF	Placental like growth factor
PIH	Pregnancy induced hypertension
Plt	Platelet count
PP 13	Placental protein 13
PPV	Positive predictive value
PTX 3	Pentraxin 3
ROC	Receiver Operating Characteristic

Abb.	Full term
ROT	Roll over test
RT-PCR	Real time-PCR
SAA	Serum amyloid A
SBP	Systolic blood pressure
sCD40	L Soluble CD40 ligand
sEng	Soluble Endoglin
sFlt1	Soluble Fms-Like tyrosine kinase -1
SGA	Small for gestational age
SGOT	Serum glutamate oxaloacetic transaminase
SGPT	Serum glutamate pyruvate transaminase
SHBG	Sex hormone binding globulin
SLE	Systemic Lupus Erythematosis
SMCs	Stromal muscle cells
SPSS	Statistical package for social sciences
SR	Scavenger receptors
STE	ST segment elevation
SVCs	Stromal vascular cells
T2DM	Type 2diabetes mellitus
TAT	Thrombin anti thrombin ΙΙΙ
TBXA2	Thromboxane A2
TC	Total cholesterol
TG	Triglycerides
TGF	Transforming growth factor
Th	Helper-T-cells
Th1	Helper T cells type 1
Th1	T-helper1
Th2	Helper T cells type 2

Abb.	Full term
Th2	T-helper2
TNF	Tumour necrotic factor
TNF-α	Tumor necrotic factor –alpha
TTP	Thrombotic Thrombocytopenic Purpura
TxA2	Tromboxane A2
U/S	Ultrasound
UA	Unstable angina
UK	United Kingdom
VCAM	Vascular cell adhesion molecule
VEGF	Vascular endothelial growth factor
VEGFR-I	Vascular endothelial growth factor receptors-I
VEGFR-II	Vascular endothelial growth factor receptors-II
VPF	Vascular permeability factor
WHO	World health organization
Wks	Week

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First Trimestric Maternal Serum Omentin-1 as an Early Predictor of Preeclampsia

Abstract

Background: Pre-eclampsia is a multisystem complication that occurs after 20 weeks of pregnancy and can cause considerable maternal and fetal morbidity and mortality. This complex condition is characterized by suboptimal uteroplacental perfusion associated with a maternal inflammatory response and maternal vascular endothelial dysfunction. One of the main reasons for serial clinical assessment in antenatal care is the early detection of signs indicative of evolving preeclampsia. **Aim:** This study aim to assess the accuracy of maternal serum omentin-1 level during the first trimester as predictor for development or occurrence of preeclampsia. Omentin has been shown to act as an anti-inflammatory mediator and in one study has been shown to inhibit TNF-induced vascular inflammation in human endothelial cells. In another report, omentin also inhibited TNF-a-induced vascular cell adhesion molecule-1 expression by preventing the activation of p38 and JNK at least in part through the inhibition of superoxide production. In our study, there were no statistically significant differences between early &late onset PE as regard maternal age, BMI & women with early onset PE delivered at earlier GA and had higher SBP, DBP and meanarterial blood pressure and had low birth weight, SGA and a higher 24-h urinary protein compared with late onset PE. There was significant negative correlation in preeclamptic women between omentin level and both mean arterial blood pressure & 24-h urinary protein. **Conclusion:** From this study it was concluded that women who developed PE had lower serum omentin levels than women who did not develop PE with a sensitivity of 80.5% and specificity 80.5% and that the degree of decline is highly associated with severity of the PE with sensitivity 88.2% and specificity 100%.

Keywords: PE: Pre-eclampsia, Omentin, systolic blood pressure, diastolic blood pressure, SGA: Small for gestational age.

Protocol