Omentin-1 Level and Carotid Intimal Thickening in Patients with Fatty Liver Disease and Diabetes Type 2

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By

Ebrahim Eid Basyouny Mohamed
M.B, B.Ch, M.Sc.

Under supervision of

Prof. Dr. Mohamed Ali Marei Makhlouf

Professor of Internal Medicine
Faculty of Medicine, Ain Shams University

Prof. Dr. Esam Farid Mohamed El Mahdy

Professor of Internal Medicine
Faculty of Medicine, Ain Shams University

Prof. Dr. Amir Helmy Samy
Professor of Internal Medicine
Faculty of Medicine, Ain Shams University

Asst. Prof. Dr. Khaled Amr Zaky
Assistant Professor of Internal Medicine
Faculty of medicine, Ain Shams University

Faculty of Medicine
Ain Shams University
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FIRST AND FOREMOST THANKS TO ALLAH,

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ARABIC SUMMARY ..... --

List of Abbreviations

ABI : Ankle/brachial index
ACEI : Angiotensin converting enzyme inhibitor
ADA : American diabetes association
AGE : Advanced glycation end products
AMI : Acute myocardial infarction
ARB : Angiotensin receptor blocker
BMI : Body mass index
CAD : Coronary artery disease
CLD : Chronic liver disease
COX : Cyclo-oxegenase enzyme
CRP : C-reactive protein
CVD : Cardiovascular disease
CVS : Cerebrovascular stroke
DM : Diabetes mellitus
DNA : Deoxyribonucleic acid
ELF : Enhanced liver fibrosis
ESRD : End stage renal disease
FBG : Fasting blood glucose
FXR : Farnesoid X receptor
GAD : Glutamic acid decarboxylase enzyme
GDM : Gestational diabetes mellitus
HbA1C : Hemoglobin A1C
HDL : High density lipoprotein
HLA : Human leukocyte antigen
HPL : Human placental lactogen
HR : Heart rate
HTN : Hypertension
HS : Hepatic steatosis
ICAM-1 : Intercellular cell adhesion molecule -1
IFG : Impaired fasting glucose
IGT : Impaired glucose tolerance
IDF : International Diabetes Federation
IHD : Ischemic heart disease
IL-6 : Interleukin-6

List of Abbreviations (Cont.)

IMT	: Intima media thickness
LADA	: Latent autoimmune diabetes of adults
LDL	: Low Density lipoprotein
MAPK	: Mitogen-activated protein kinase
MI	: Myocardial infarction
MMPs	: Matrix metalloproteinase
MODY	: Maturity-onset diabetes mellitus
MRE	: Magnetic resonance elastography
mRNA	: Messenger ribonucleic acid
NAFLD	: Non-alcoholic fatty liver disease
NFS	: NAFLD fibrosis score
NIDDM	: Non-insulin dependant diabetes mellitus
NO	: Nitric oxide
NPDR	: Non-progressive diabetes retinopathy
OGTT	: Oral glucose tolerance test
OSAS	: Obstructive sleep apnea syndrome
OCA	: Obeticholic acid
PAD	: Peripheral arterial disease
PCOS	: Polycystic ovary syndrome
PDR	: Progressive diabetes retinopathy
PPARS	: Peroxisome proliferator-activated receptors
TNF-α	: Tumor necrosis factor-α
TIA	: Transient ischemic attack
TZDs	: Thiazolidinedione's
UKPDS	: United Kingdom prospective diabetes study
VCAM-1	: Vascular cell adhesion molecule -1
VEGD	: Vascular endothelial growth factor
WAT	: White adipose tissue
WHO	: World health organization

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Abstract

Introduction: Adipokines are the fat-derived hormones released from adipose tissue. Many are associated with insulin resistance, obesity and metabolic syndrome. Adipokines can be both pro-inflammation and anti-inflammation factors

Aim of the Work: The primary aim of this work is to detect the level of Omentin-1 marker and carotid intimal media thickness in patients with fatty liver disease and type 2 diabetes

Subjects: This study included 90 patients recruited from the department of Internal Medicine of Alex Police Hospital and the outpatient clinic

RESULTS: The study was performed on 90 subjects divided into 3 groups, 30 of them were diabetiecs type 2, 30 have NAFLD and 30 were healthy subjects as control group

Discussion: Epidemiological studies have showed a significant rise in the prevalence of diabetes particularly type 2 diabetes worldwide resulting in an increased burden on individuals and health care system. In 2012, an estimated 347 million people have type 2 diabetes

Summary: Non-alcoholic fatty liver disease (NAFLD) is a well-established hepatic manifestation of the metabolic syndrome and is one of the most common causes of chronic liver disease

Conclusion: Omentin-1 level is significantly lower in subjects with diabetes and NAFLD in comparison with control group

Recommendations: Further studies with larger samples are needed to consolidate the relation between omentin-1 and carotid IMT in NAFLD and Diabetic patients

Key Word: Ankle/brachial index, Chronic liver disease, Enhanced liver fibrosis

Introduction

Adipokines are the fat-derived hormones released from adipose tissue. Many are associated with insulin resistance, obesity and metabolic syndrome. Adipokines can be both pro-inflammation and anti-inflammation factors **(Maury and Brichard, 2010)**.

Omentin-1 is adipokine that is primarily secreted by stromal vascular cells in visceral adipose tissue, and is expressed to a lesser extent in the heart, lung, and placenta **(Tan et al., 2010)**.

Omentin-1 is a beneficial adipokine that enhances insulin-stimulated glucose uptake and triggers Akt signaling, which mediates downstream effects such as glucose metabolism **(Auguet et al., 2011)**.

Along these lines, dysregulation of omentin-1 secretion is thought to play a role in the pathophysiology of insulin resistance, inflammation, endothelial dysfunction, and cardiovascular disease **(Pan et al., 2010)**.

In clinical studies, circulating omentin-1 concentrations have been shown to be decreased in patients with obesity, impaired glucose regulation, polycystic ovary syndrome, type 1 diabetes, and type 2 diabetes **(Choi et al., 2011)**.

Given these clinical associations, omentin-1 has garnered attention as a possible contributor to the pathogenesis of the metabolic syndrome **(Yan et al., 2011)**.

Plasma omentin-1 levels inversely correlate with body mass index (BMI), fat mass, and fasting plasma insulin, and positively