Correlation between Epicardial Fat Thickness and Severity of Coronary Artery Disease

Submitted for partial fulfillment of Master Degree in Cardiology

By

Mohammad Saeed Ahmad Mohammad

M.B.B.Ch., Ain Shams University

Under Supervision of

Dr. Rania Samir Ahmed

Assistant Professor of Cardiology

Faculty of Medicine, Ain Shams University

Dr. Ayman Morttada Abdel Moteleb

Assistant Professor of Cardiology

Faculty of Medicine, Ain Shams University

Dr. Diaa El Din Ahmed Kamal

Lecturer of Cardiology

Faculty of Medicine, Ain Shams University

Faculty of Medicine, Ain Shams University

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Dedication

Dedicated to who inspires me throughout my life; to my parents, to my wife and my daughter.

ACKNOWLEDGMENT

*First, I thank **God** for granting me the power to proceed and to accomplish this work.*

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List of Abbreviations

2D	Two Dimension
ACS	Acute Coronary Syndrome
BMI	Body Mass Index
CABG	Coronary Bypass Graft
CAD	Coronary Artery Disease
CT	Computed Tomography
cTn	Cardiac Troponin
CVD	Cardio-vascular disease
DM	Diabetes Mellitus
EAT	Epicardial Adipose Tissue
ECG	Electrocardiography
EFT	Epicardial Fat Thickness
HDL	High Density Lipoprotein
HIV	Human Immunosuppression Virus
HTN	Hypertension
IL-6	Interleukin 6
IVSD	Inter Ventricular Septal Thickness At End-Diastole
LAD	Left Anterior Descending
LBBB	Left Bundle Branch Block
LCX	Left Circumference
LDL	Low Density Lipoprotein
LM	Left Main
LV	Left Ventricle
LVEDD	Left Ventricular End-Diastolic Dimension
LVEF	Left Ventricular Ejection Fraction
MI	Myocardial infarction

MRI	Magnetic Resonance Imaging
NSTE-ACS	Non ST Elevation Myocardial Infarction
NSTEMI	Non ST Elevation Myocardial Infarction
OR	Odds Ratio
PAI-1	Plasminogen Activator Inhibitor
PCI	Primary Coronary Intervention
PLX	Parasternal long axis
PW	Pulsed Wave
PWD	Posterior Wall Thickness At End-Diastole
RCA	Right Coronary Artery
ROC	RECEIVING OPERATING CURVE
RV	Right Ventricle
SD	Standard Deviation
STEMI	ST Elevation Myocardial Infarction
TDI	Tissue Doppler Imaging
t-PA	Tissue Plasminogen Activator
URL	Upper Reference Limit
VAT	Visceral Adipose Tissue
WC	Waist Circumference

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Introduction

Over the past decade, cardiovascular disease (CVD) has emerged as the single most important cause of death worldwide. CVD worldwide is largely driven by modifiable risk factors, as The INTERHEART study showed that smoking, hypertension, abdominal obesity, physical inactivity, and a high risk diet were responsible for a significant component of myocardial infarction (MI) risk. Primary prevention is paramount for the large number of people who are at high risk for acquiring CVD. In view of limited resources, finding low-cost prevention strategies is a top priority ***(Gaziano et al., 2015)***.

The association between visceral obesity and cardiovascular risk has been well described. Visceral adipose tissue (VAT) which distributed around the viscus or hollow muscular organs of the body is now well established as being associated with the development of metabolic syndrome and coronary artery disease ***(Freedland, 2004)***.

The mechanism of these effects of VAT are not entirely understood, but could be mediated by release of free fatty acids causing direct 'lipotoxicity' ***(Ravussin& Smith, 2002; Schaffer, 2003)***. Adipose tissue, especially the VAT, also acts as an endocrine organ, releasing numerous proinflammatory and proatherogenic cytokines