PREVALENCE OF ASYMPTOMATIC PERIPHERAL ARTERIAL DISEASE IN TYPE 2 DIABETIC PATIENTS

Thesis
Submitted for partial fulfillment of master degree in Endocrinology & metabolism

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2014

سورة البقرة الآية: ٣٢

First of all, I am deeply grateful to **ALLAH**.

I would like to express my deepest gratitude and appreciation to **Prof. Dr. Mohamed Reda Halawa**, *Professor of Internal Medicine and endocrinology Faculty of Medicine Ain Shams University.*

I am very grateful to **Prof. Dr. Mona Mohamed Abdelsalam** *Assistant Professor of Internal Meidcine Faculty of Medicine Ain Shams University for her positive supervision during the preparation of this research and for the extensive time and effort to offer every possible help to complete this work.*

Special appreciation to **Dr. Yara Mohamed Eid** *Assistant Professor of Internal Medicine Faculty of Medicine Ain Shams University for her kind advice, valuable instructions and continuous support which was the corner stone in the completion of this work.*

Last but not least, I would like to present a lot of thanks to my family, friends, and to my colleagues, whose without their help and support, this work could not come to birth.

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LIST OF ABBREVIATION

Abb.	Full term
ABI	Ankle-brachial index
ACS	Acute oronary syndrome
ADA	American diabetes association
AGEs	Advanced glycation end products
AMP	Adenosine monophosphate
AMPK	Adenosine monophosphate kinase
BH4	Tetrahydrobiopterin
BMI	Body mass index
BP	Blood pressure
CAD	Coronary artery disease
CLI	Critical limb ischemia
CRP	C-reactive protein
CVD	Cardiovascular disease
CVS	Cerebrovascular disease
DCCT	Diabetes Control and Complications Trial
DPN	Distal polyneuropathy
EASD	European Association for the Study of Diabetes
ECD	Endothelial cell dysfunction
ET-1	Endothelin -1
FPG	Fasting plasma glucose
GWAS	Genome-wide association studies
GBM	Glomerular basement membrane
GDM	Gestational diabetes mellitus
GEnC	Glomerular endothelial cell
HDL	High density lipoprotein cholesterol
HNF	Hepatocyte nuclear factor
ICAM	Intercellular adhesion molecule
IDDM	Insulin dependent diabetes mellitus

LIST OF ABBREVIATION cont.

Abb.	Full term
IDF	International Diabetes Federation
IFG	Impaired fasting glucose
IGF-1	Insulin-like growth factor -1
IGT	Impaired glucose tolerance
IHD	Ischemic heart disease
IL-6	Interleukin-6
IRS	Insulin receptor substrate
LDL	Low density lipoprotein cholesterol
MI	Myocardial infarction
MMP	Matrix metalloproteinase.
NADP	Nicotinamide adenine dinucleotide phosphate
NGT	Normal glucose tolerance
NIDDM	Non insulin dependent diabetes mellitus
NO	Nitric Oxide
NGSP	National Glycohemoglobin Standardization Program
OGTT	Oral glucose tolerance test
PAD	Peripheral arterial disease
PAI-1	Plasminogen activator inhibitor-1
PCOD	Polycystic ovary disease
PDGF	Platelet-derived growth factor
PKC	Protein kinase C
PPAR	Peroxisome proliferator-activated receptor
PPG	Prandial plasma glucose
PVD	Peripheral vascular disease
ROS	Reactive oxygen species
TGF-β	Transforming growth factor-beta
SOCS	Suppresor of cytokine signaling

LIST OF ABBREVIATION cont.

Abb.	Full term
TCF 7L2	Transcription factor 7
TGs	Triglycerides
TNF	Tumour necrosis factor
TZDs	Thiazolidinediones
USDA	U.S. Department of Agriculture.
VCAM	Vascular cell adhesion molecule
VSMC	Vascular smooth muscle cell
VWF	von Willebrand factor
WC	Waist circumference
WHR	Waist hip ratio
WHO	World health organization

INTRODUCTION

Diabetes mellitus (DM) prevalence is increasing worldwide. The number of people with DM is expected to double from 175 million in 2000 to 353 million in 2030. The largest increase is expected to occur in developing countries ***(Yach D, et al 2006).***

Atherosclerosis is a progressive process affecting multiple vascular beds; its clinical consequences, which include coronary artery disease (CAD), cerebrovascular disease, and peripheral arterial disease (PAD) - occlusive arterial disease of the lower extremities-, are potentially life threatening *Munger MA, et al 2004*. Atherosclerotic disease in one vascular bed indicates possible disease in others ***(Ness J, et al 1999).***

Epidemiological studies have confirmed an association between diabetes and an increased prevalence of PAD ***(Donahue RP, et al 1992).***

Peripheral arterial disease in patients with diabetes adversely affects quality of life and is associated with substantial functional impairment (***Vogt MT, et al 1994).*** Reaching up to ischemic ulceration of the foot and risk of limb loss ***(Hiatt WR.2002).*** However, many patients with PAD are

asymptomatic, or have atypical exertional symptoms. ***(Schainfeld RM. 2001).***

The true prevalence of PAD in people with diabetes has been difficult to determine, as most patients are asymptomatic, many do not report their symptoms, screening modalities have not been uniformly agreed upon, and pain perception may be blunted by the presence of peripheral neuropathy. The reported prevalence of PAD is also affected by the methods by which the diagnosis is sought. A more accurate estimation of the prevalence of PAD in diabetes should rely upon a validated and reproducible test. Such a test is the ankle-brachial index (ABI). ***(American Diabetes Association 2003)***

In studies using the ankle-brachial index (ABI), which is the preferred screening technique, the prevalence of PAD (defined as an ABI $\leq$ 0.90) in diabetic individuals ranges from 20% to 30% (***Elhadd TA, et al 1999).***

AIM OF THE WORK

Study the prevalence of asymptomatic peripheral arterial disease in a cohort of Egyptian patients with type 2 diabetes using ABI

Chapter1

DIABETES MELLITUS

Definition:

Diabetes mellitus is a group of metabolic diseases of multiple aetiologies characterized by hyperglycaemia together with disturbances of carbohydrate, fat, and protein metabolism resulting from defects in insulin secretion, insulin action, or both. The chronic hyperglycaemia of diabetes is associated with microvascular damage affecting, particularly, eyes, kidneys, nerves, and heart, together with an increased risk of macrovascular disease ***(WHO 2011).***

Classification: *(WHO 2011)*

The classification of diabetes includes four clinical classes:

1-Type 1 diabetes (results from β-cell destruction, usually leading to absolute insulin deficiency)

2-Type 2 diabetes (results from a progressive insulin secretory defect on the background of insulin resistance)

3-Other specific types of diabetes due to other causes, e.g., genetic defects in b-cell function, genetic defects in insulin action, diseases of the exocrine pancreas (such as cystic fibrosis), and drug- or chemical-induced (such as in the treatment of HIV/AIDS or after organ transplantation)