EVALUATION OF VON WILLEBRAND FACTOR IN NON-INSULIN DEPENDENT DIABETIC PATIENTS WITH AND WITHOUT MICROVASCULAR AND MACROVASCULAR COMPLICATIONS

THESIS
Submitted For The Partial Fulfillment Of
THE MASTER DEGREE IN INTERNAL MEDICINE

By

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M.B.,B.Ch.

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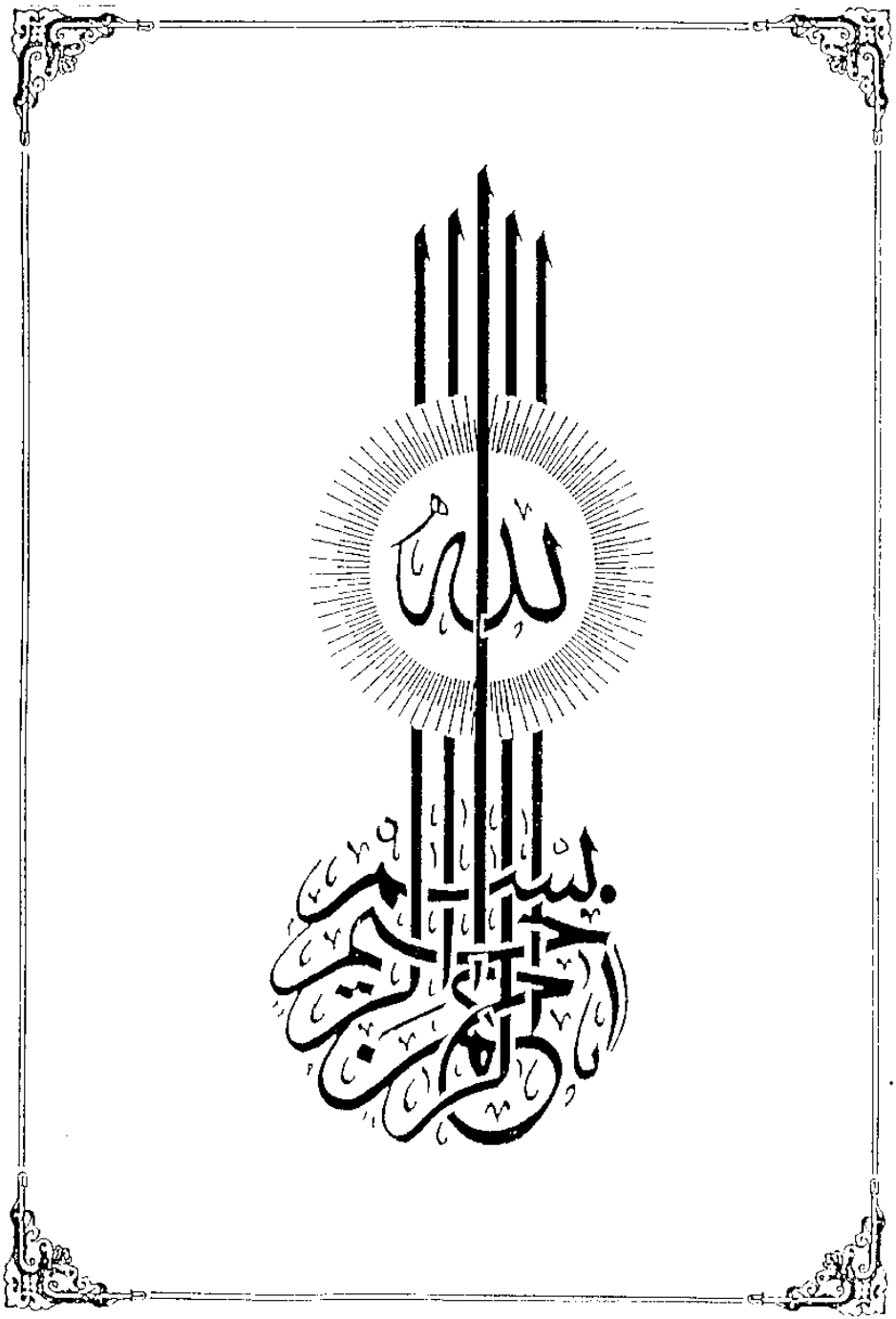

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LIST OF ABBREVIATIONS

vWF	von-Willebrand factor
DBP	diastolic blood pressure
Hb	hemoglobin
FBG	fasting blood glucose
STG	serum triglycerides
HDL	high density lipoproteins
IDDM	insulin dependent diabetes mellitus
NIDDM	non-insulin dependent diabetes mellitus

ACKNOWLEDGMENT

I have been honored to have professor Dr. Omar Fathey, professor of Internal Medicine, and head of Hematology Oncology unit, at Ain-Shams University, to be my supervisor, he has been of utmost supreme guidance to me, starting from the choice of the work I was to carry out, throughout the period of the practical work providing me with priceless information, reflecting his huge magnitude of knowledge, which he offered so humbly.

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At last, but by far least, I would like to thank all my colleagues and friends who have withstanded my enthusiasm in order to complete my work.

Maryse Soliman Ayoub

TO GOD

the one before all and after all

TO MY FAMILY

which has tolerated me much, with love and kindness

INTRODUCTION

AND AIM OF WORK

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In diabetic patients, microalbuminuria predicts not only development of diabetic nephropathy, but also of retinopathy, neuropathy, hypertension, and macrovascular disease [Jensen, 1991].

Microalbuminuria is purposed to be a marker of wide-spread vascular damage, which may underlie the propensity of microalbuminuric patients to develop extrarenal vascular disease [Decket et al., 1989].

The endothelium is an important locus for control of vascular functions. It actively regulates vascular tone and permeability, the balance between coagulation and fibrinolysis, the composition of subendothelial matrix, and mitogenesis of vascular smooth muscles and mesangeal cells [Van et al., 1990].

In patients with microalbuminuria, the vascular endothelium tends to increase vascular resistance, and fails to restrict passage of macromolecules, thus microalbuminuria reflects an increase in trans-capillary passage of these macromolecules [Collier et al., 1992].

Von-Willebrand factor is a glycoprotein involved in primary hemostasis, and is secreted mainly by endothelial cells. It was first described in a bleeding disorder, and later was viewed to have a role in the pathogenesis of atherosclerosis and in thrombus formation. Just as low levels predispose to disease,

high levels may lead to adverse cardiovascular events, such as myocardial infarction, and femoral artery occlusion, which may both be precipitated by thrombus formation [Blann, 1993].

AIM OF THE WORK:

The aim of the current study is to asses levels of von-Willebrand factor in non-insulin dependent diabetic patients, with and without microalbuminuria (as a marker of microvascular disease), and cardiovascular complications (as a marker of macroangiopathy), which may allow recognition of high risk patients.

REVIEW OF LITERATURE

SECTION I
REVIEW OF LITERATURE

CHAPTER I
DIABETES MELLITUS

1.A. Definition of Diabetes Mellitus

Diabetes Mellitus [DM] is a heterogenous primary disorder of carbohydrate metabolism, with multiple etiologic factors that generally involve absolute or relative insulin deficiency, or insulin resistance, or both. All causes of DM ultimately lead to hyperglycemia, which is the hallmark of this disease syndrome *[Olfsky et al., 1993].*

Diabetes constitutes a major public health issue, due to the sheer number of patients number of patients affected and to the risk of associated diseases specially affecting cardiovascular, renal, and nervous systems *[Assal and Golay, 1994].*

1.B. Epidemiology of Diabetes Mellitus

The definition and general acceptance of precise diagnostic criteria for diabetes mellitus by the WHO in 1995 permitted standardized estimates of the worldwide prevalence of the disease.

Non-insulin dependent diabetes mellitus (NIDDM), is the commonest form of diabetes with prevalence of 3-4% of the entire population, varying widely from country to country, reaching approximately 1% in Japan and China, versus 35% in Pima Indians of Arizona and Nauru of Micronesia *[Papoz and Eschwege, 1990].*

The prevalence of insulin dependent diabetes mellitus (IDDM) is more accurate because of the abrupt symptoms, while in fact many patients with NIDDM are asymptomatic, and remain undiagnosed *[Zimmet, 1992].*

I.C. Classification of DM

The widely accepted classification of DM recommended by the 1985 WHO study group, was based primarily on clinical descriptive criteria, and its retention is recommended for the present. The classification includes a number of clinical classes and designated statistical risk classes. This is demonstrated in the following table.