### AIN-Shams University Faculty of Medicine

ESTIMATION OF RVI AND ITS CORRELATION TO

INCIPIENT DIABETIC NEPHROPATHY AND DIABETIC

MICROALBUMINURIA

#### **Thesis**

Submitted For Partial Fullfilment Of

The Master Degree of Internal Medicine

Ву

AHMED NABIL IBRAHIM SANAD

60/59

A . IV

#### Supervisors

#### Prof. DR. SAYED MOHAMMED SHALBY

Professor of Internal Medicine
Faculty of Medicine, Ain Shams University
Ass. Prof. Dr. NEHAD AHMED AMER
Assistant Professor of Internal Medicine
Faculty of Medicine, Ain Shams University

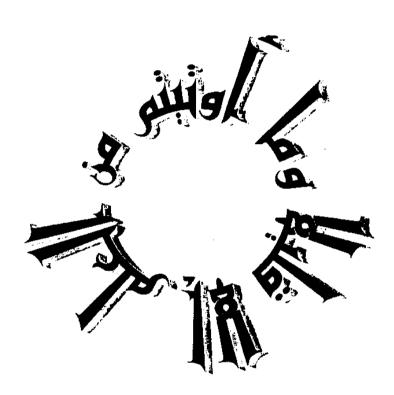
Dr. RAWIA EL FEKEY

Lecturer of Internal Medicine

Faculty of Medicine, Ain Shams University







والمعلاق

#### ACKNOWLEDGEMENT

" FIRST AND FOREMOST, THANKS ARE DUE TO ALLAH, THE MOST BENEFICIENT AND MERCIFUL"

I wish to express my deep gratitude and respect to prof.Dr. **SAYED MOHAMMED SHALBY**, professor of internal medicine, Ain Shams University for whom no words of Praise or gratitude are sufficient. I'd like to thank him for his great help, incessent valuable instructions and guidance. Without his help this work would have never been accomplished.

Also I'd like to thank Ass. prof. Dr. NEHAD AHMED AMER, Ass. professor of internal medicine, Ain Shams University and Dr. RAWIA EL FEKEY, Lecturer of Medicine, Ain Shams University, many thanks and great respect.

Also, I'd like to thank Dr. **SAMI EI IBRASHI** for his great valuable instructions in renal ultrasound and also many thanks to all my collegues for their help.

I would like to express my respect and thanks to Mr.

NASSER FRAG and MISS SOUZAN KHAIRY for thier faithfull effort in typing this work.

## THIS THESIS IS DEDICATED TO

My Mother, my first teacher who gives me the past, present and future.

My uncle Dr. Zakaria Nofal, my understanding leader and to the name of my father.

My wife, for her support, patience and care mostly.

#### LIST OF ABBREVIATIONS

A C E Angiotensin Converting Enzyme

A G E Advanced Glycosylation End-Products

B M Basement Membrane C A D Coronary Artery Disease

C A P D Contineous Ambulatory Peritoneal Dialysis

D M Diabetes Mellitus

E S R D End Stage Renal Disease
E S R E End Stage Renal Failure
F B S Fasting Blood Sugar
G A G Glucose Amino Glycan
G F R Glomerular Filteration Rate

H<sup>+</sup> Hydrogen

H D L High Density Lipoprotein

I D D M linsulin Dependant Diabetes Mellitus

I G F -1 Insulin Like Growth Factor-1

K<sup>+</sup> Potassium

K<sub>f</sub> Ultrafilteration coefficientL D L Low Density Lipoprotein

Li<sup>+</sup> Lithium

M I Myocardial Infarction

Na+ Sodium

N I D D M Non Insulin Dependant Diabetes Mellitus

P P B S Post Prandial Blood Sugar

U S Ultrasound

V L D L Very Low Density Lipoprtein W H O World Health Organisation

## CONTENTS

		Page
PART1	Introduction & Aim Of The Work	1
PART 2	Review Of Literature	
	* Diabetes Mellitus	3
	* Diabetic Nephropathy	12
	* Renal Ultrasound	75
PART 3	Materials and Methods	85
PART 4	Analysis of Results	89
PART 5	Discussion	107
PART 6	Summary and Conclusion	111
PART 7	References	114
PART 8	Arabic Summary	

# INTRODUCTION AND AIM OF THE WORK