



شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم



شبكة المعلومات الجامعية
@ ASUNET



شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكرو فيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأفلام بعيدا عن الغبار

في درجة حرارة من ١٥-٢٥ مئوية ورطوبة نسبية من ٢٠-٤٠%

To be Kept away from Dust in Dry Cool place of
15-25- c and relative humidity 20-40%

بعض الوثائق الأصلية تالفة

بالرسالة صفحات لم ترد بالاصل

616, 462

Non-invasive quantification of subclinical atherosclerosis in newly diagnosed type 2 diabetic patients

Thesis

Submitted for partial fulfillment of the MD degree in Internal Medicine

By

3081

Ashraf Gharieb Amer Dala

M.B., B.Ch., M.Sc., Assistant lecturer of Internal Medicine

Supervisors

Prof. Dr. / Sanaa Sayed Gazareen

Prof. And head of department of Internal Medicine,
Faculty of Medicine, Menoufiya University

Prof. Dr. / Gihan Kamal El-Saeed

Prof. Of clinical and chemical pathology,
Faculty of Medicine, Menoufiya University

Prof. Dr. Mohammad Ramadan El-Kholy

Prof. And head of department Of Radiodiagnosis
Faculty of Medicine, Menoufiya University

Prof. Dr. Ibrahim Mohammad Boghdady

Prof. Internal Medicine
Faculty of Medicine Menoufiya University

Dr. Ali Zaky Galal

Assistant Prof. Internal Medicine
Faculty of Medicine Menoufiya University

**Faculty of Medicine
Menoufiya University
2004**

Acknowledgement

First of all, my prayerful gratitude should be submitted to the merciful *Allah*, whose help I always seek and without his willing I will achieve nothing.

My sincere gratitude and great appreciation to *Prof. Dr./ Sanaa Sayed Gazareen*, Prof. and Head of Internal Medicine Department for her kind supervision, continuous encouragement, valuable advice and assistance. She was devoted to the supervision of this work.

A special debt of gratitude and appreciation is acknowledged to *Prof. Dr./ Ibrahim Mohammad Boghdady*, Prof. of Internal Medicine for his kind supervision, continuous encouragement, wise advice and guidance in the fulfillment of this work.

My warmest appreciation to *Prof. Dr. / Gihan Kamal El-saeed*, Prof. Of Clinical and Chemical pathology for her supervision, sincere guidance and continuous encouragement she gave me through the work.

I would like to express my deepest gratitude and appreciation to *Prof. Dr./ Mohammad Ramadan El-Kholy*, Prof. and Head of Radiodiagnosis Department for his kind supervision, continuous encouragement, wise advice and guidance.

A special word of thanks is due to *Dr / Ali Zaky Galal*, Assistant Prof. Internal Medicine for his guidance, valuable cooperation, unlimited helpful and advise through the work.

Furthermore, I would like to express my best feelings to all members, nurses and workers of Internal Medicine Department who extended to me a helping hand and to every one who friendly helped me and all patients or volunteers who participated in carrying out this work

Ashraf Gharieb Amer Dala
2004

Contents

<i>Subjects</i>	<i>Page</i>
List of abbreviations -----	I
List of tables -----	II
List of figures -----	III
Introduction -----	1
Aim of the work -----	3
Review of literature	
<i>Diabetes Mellitus</i>	4
<i>Atherosclerosis</i>	34
<i>Diabetes and Atherosclerosis</i>	63
<i>Duplex Ultrasonography</i>	77
Subjects and methods -----	84
Results	
<i>Analysis of results</i>	89
<i>Tables of results</i>	95
<i>Figures of results</i>	106
Discussion -----	115
Summary and conclusion -----	128
Recommendations -----	131
References -----	132
Appendix -----	167
Arabic summary	

List of abbreviations

ADA: American Diabetes Association
AGE: Advanced glycation endproducts
ARIC: Atherosclerosis risk in community
CCA: Common carotid artery
CFA: Common femoral artery
CHD: Coronary heart disease
CRP: C-reactive protein
DCCT: Diabetes control and complication Trial
EDIC: Epidemiology of Diabetes Interventions and Complications
FBG: Fasting blood glucose
GDM: Gestational Diabetes Mellitus
HbA1c: Glycosylated hemoglobin
HDL: High-Density lipoproteins
HLA: Human leucocytic antigen
HMG-coA: 3-hydroxy-3-methylglutaryl coenzyme A
HOPE: Heart Outcome Prevention Evaluation
IAs: Insulin Autoantibodies
ICAs: islet cell autoantibodies
IGT: Impaired glucose tolerance
IMT: Intima media thickness
IRAS: Insulin resistance atherosclerosis study
IRS: Insulin receptor substrate
MODY: maturity onset diabetes of the young
NDDG: National diabetes data group
NHANES III: Third National Health And Nutrition Examination Study
NOS: Nitric Oxide Synthase
OGTT: Oral glucose tolerance test
PAI: Plasminogen activator inhibitor
PVD: Peripheral vascular disease
PWV: Pulse wave velocity
ROS: Reactive Oxygen Species
SBP: systolic blood pressure
SLE: Systemic lupus erythematosus
SR-B1: Scavenger receptor B1
SR-C1: Scavenger receptor C1
TNF: Tumour necrosis factor
UKPDS: United Kingdom Prospective Diabetes Study
VEGF: Vascular Endothelial cell Growth Factor
VSMCs: Vascular smooth muscle cells
WBC: White blood cell
WOSCOPS: West Of Scotland Prevention Study

List of Tables

n	Table	Page
I	Aetiological classification of diabetes mellitus	5
II	Criteria for the diagnosis of diabetes mellitus	6
III	Cut level parameters for the diagnosis of diabetes mellitus	6
IV	Criteria for testing for diabetes in asymptomatic undiagnosed individuals	7
V	Diagnosis of gestational diabetes mellitus with 100 g or 75 g glucose load	7
1	Comparison between newly diagnosed type 2 diabetics and controls as regards demographic criteria (age and gender).	95
2	Comparison between newly diagnosed type 2 diabetics and controls as regards <i>SBP & DBP</i> .	95
3	Comparison between newly diagnosed type 2 diabetics and control subjects as regards <i>FBG, 2hppBG & HbA1c</i> .	96
4	Comparison between newly diagnosed type 2 diabetics and control subjects as regards lipid profile.	97
5	Percentage and number of newly diagnosed type 2 diabetic patients with subclinical atherosclerosis, dyslipidemia and microalbuminuria.	98
6	Percentage and number of patients with subclinical atherosclerosis in newly diagnosed type 2 diabetic patients with dyslipidemia and microalbuminuria.	98
7	Comparison between newly diagnosed type 2 diabetics and control subjects as regards <i>CCA IMT, CFA IMT, CCA PWV & CFA PWV</i> .	99
8	Comparison between newly diagnosed type 2 diabetics with microalbuminuria and newly diagnosed type 2 diabetics without microalbuminuria as regards <i>CCA IMT, CFA IMT, CCA PWV & CFA PWV</i> .	100
9	Correlation between <i>CCA IMT</i> and each of <i>CFA IMT, CCA PWV and CFA PWV</i> .	101
10	Correlation between <i>CFA IMT</i> and both of <i>CCA PWV and CFA PWV</i> .	102
11	Correlation between <i>CCA PWV and CFA PWV</i> .	103
12	Correlation of blood glucose levels with each of <i>CCA IMT, CFA IMT, CCA PWV and CFA PWV</i> .	104
13	Correlation between lipid profile with each of <i>CCA IMT, CFA IMT, CCA PWV and CFA PWV</i> .	105

List of Figures

n	Figure	Page
I	Early changes of arterial atherosclerosis. There is intimal proliferation (between the yellow arrows). The media and adventitia remain normal.....	39
II	Advanced arterial atherosclerosis. There is fibrotic intimal thickening marked by the yellow arrows with small areas of intimal calcification (<i>white arrows</i>).....	39
III	Severe calcific atherosclerosis of artery	40
IV	<u>Severe atherosclerosis of graft</u>	40
1	Comparison between newly diagnosed type 2 diabetics and controls as regard s <i>age</i> .	106
2	Comparison between newly diagnosed type 2 diabetics and controls as regards <i>SBP and DBP</i> .	107
3	Comparison between newly diagnosed type 2 diabetics and controls as regards <i>FPG, 2 hppBG</i> .	108
4	Comparison between newly diagnosed type 2 diabetics and controls as regards <i>HA1c</i>	109
5	Comparison between newly diagnosed type 2 diabetics and controls as regards lipid <i>profile</i> .	110
6	Comparison between newly diagnosed type 2 diabetics and controls as regards <i>CCA IMT & CFA IMT</i> .	111
7	Comparison between newly diagnosed type 2 diabetics and controls as regards <i>CCA PWV & CFA PWV</i> .	112
8	Comparison between newly diagnosed type 2 diabetics with microalbuminuria and diabetics without microalbuminuria as regard to <i>CCA IMT & CFA IMT</i> .	113
9	Comparison between newly diagnosed type 2 diabetics with microalbuminuria and diabetics without microalbuminuria as regards <i>CCA PWV & CFA PWV</i> .	114

