سامية محمد مصطفى



شبكة المعلومات الحامعية

# بسم الله الرحمن الرحيم



-Caro-

سامية محمد مصطفي



شبكة العلومات الحامعية



شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم





سامية محمد مصطفى

شبكة المعلومات الجامعية

## جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

### قسو

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بالرسالة صفحات لم ترد بالأصل





# Assiut University Faculty of Medicine Clinical Pathology Department

# RELATION BETWEEN LIPIDS AND LIPOPROTEIN (a) TO THE DEGREE OF URINARY ALBUMIN EXCRETION IN RENAL DISEASES

#### **Thesis**

Submitted for partial fulfillment of The Requirements for the Master degree in Clinical pathology

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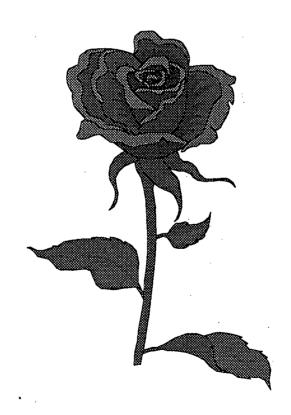
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# To the spirit of my Father



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### List of Abbreviation

ACE : Angiotensin Converting Enzyme

Alb : Albumin

ALT : Alanine Transaminase

Apo : Apolipoprotein

ASCVD : Arterosclerotic Cardiovascular disease

AST : Aspartate Transaminase

CAPD : Continous Ambulatory peritoneal dialysis cDNA : Complementary Deoxyribonucleic Acid

CM : Chylomicrons

CRF : Chronic Renal Failure

**ELISA** : Enzyme Labelled Immuno-Sorbent Assay

HD : Hemodialysis

HDL : High Density Lipoprotein

IDDM : Insuline Dependent Diabetes MellitusIDL : Intermediate Density Lipoprotein

IL : Interleukin KDa : Kilo-Dalton

LCAT : Lecithin Cholesterol Acyl Transferase

LDL : Low Density Lipoprotein

Lp (a) : Lipoprotein (a) LPL : Lipoprotein Lipase

MCP-1 : Macrophage Specific Chemoattractant Protein-1

mRNA : Messenger Ribonucleic Acid

MTP : Micro Titer Plate

NANA : N-Acetyl Neuraminic Acid

PAGE
 PAGE
 PAI-1
 Plasminogen Activator Inhibitor-1
 PDGF-β
 Platelet Derived Growth Factore-β

SDS :Sodium Dodecyl Sulphate

SLE : Systemic Lupus erythromatosus

TC : Total Cholesterol
TG : Triglycerides
TP : Total Protein

t-PA : tissue Plasminogen Activator
Uri. Alb : Urinary 24 hours albumin
VLDL : Very Low Density Lipoprotein

# INTRODUCTION AND AIM OF THE WORK

### Introduction and Aim of the work

Lipoproteins are macromolecular complexes of lipids and proteins, their major function is to transport lipids, which are insoluble in aqueous media, through vascular and extravascular body fluids. Great diversity of composition and physical properties are possible, particularly is disease but also in health (Durrington, 1989).

Lipoprotein (a) is a unique lipoprotein, firstly discovered by Berg (1963), formed of two very different components, a unique hydrophilic apoprotein (a) and a LDL like particle with apo B100 which is bound to apo(a) by disulfide bridge(s) (Jurgens and Kostner, 1975).

Lipoprotein (a) being increasingly recognized as an independent risk factor for vascular disease in general population (Dahlen et al., 1986) and several studies have demonstrated that Lp(a) increased in end stage renal disease (ESRD) on renal replacement therapy (Weeb et al., 1992 and Weeb et al., 1993).

Also studies on the Nephrotic syndrome which is characterized by heavy proteinuria and hyperlipideemia revealed that lipoprotein(a) is highly increased. (Kronenbeng et al., 1996).

It is still vague if lipoprotein (a) varies in a nephrotic syndrome and in the end stage renal disease due to the underlying aeitology. And if it has any relation to serum Albumin level and the degree of increased urinary Albumin excretion, which is frequently a sign of kidney diseases, especially nephrotic syndrome. And also if it has any relation to the degree of progression in the renal disease.

### Aim of the work:

The aim of our work was to elucidate the serum lipids lipoproteins especially lipoprotein (a) in the end stage renal disease on Hemodialysis and Nephrotic syndrome, in trial to find a relationship between Lpa and other lipoproteins in one side, 24 hours urinary Albumin excretion, serum albumin level and creatinine clearance as an indicator of the progression in renal disease in the other side.

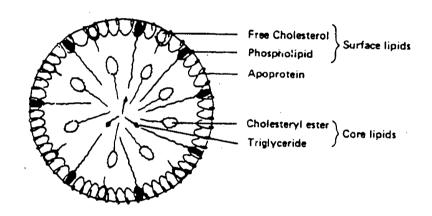
## Serum Lipoproteins

### **Serum Lipoproteins**

Lipids are insoluble in aqueous media, including that of plasma. It is only when the hydrophobic lipids are bound to protein (lipid-protein complexes called "lipoproteins") that they become soluble in the blood stream (Osborne and Brewer, 1977).

The lipoproteins are macromolecular complexes of lipid and proteins, a major function of which is to transport lipid through the vascular and extravascular body fluids. Great diversity of composition and physical properties are possible, particularly in disease but also in health (Durrington, 1989).

A lipoprotein can be visualized most simplistically as a globular structure with an outer solubilizing coat of protein, phospholipid, and free cholesterol and an inner hydrophobic, neutral and core of triglycerides and cholesterol esters (Diagram 1), (Scanu and Landsberger, 1980).



Diag. (1): Scheme of a lipoprotein complex showing outer surface and inner core (Scanu and Landsberger, 1980).

In clinical medicine, lipoproteins in plasma are typically classified on the basis of their electrophoretic mobility and hydrated density (Tatami et al., 1981) into CM (chylomicrons), VLDL (very low density lipoproteins), IDL (Intermediate density lipoproteins), LDL (low density lipoproteins), HDL (high density lipoproteins) and Lp(a) [Lipoprotein (a)] (Diagram 2), (Kaplan and Pesce, 1989).