سامية محمد مصطفى

شبكة المعلومات الجامعية

# بسم الله الرحمن الرحيم


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# التوثيق الالكتروني والميكروفيلم


شبكة المعلومات الجامعية

سامية محمد مصطفى

# جامعة عين شمس

## التوثيق الإلكتروني والميكروفيلم

# قسم

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


# يجب أن

## تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

سامية محمد مصطفى

شبكة المعلومات الجامعية


# بعض الوثائق الأصلية تالفة

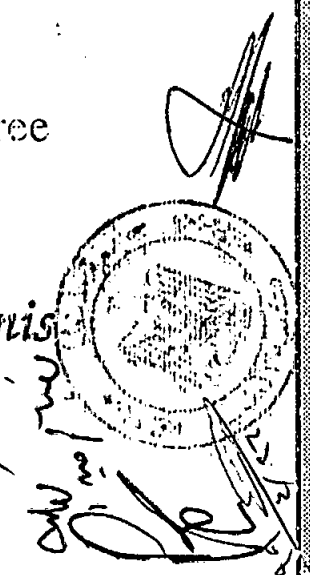
سامية محمد مصطفى

شبكة المعلومات الجامعية


# بالرسالة صفحات لم ترد بالأصل

# APOLIPOPROTEIN E, LIPIDS CHANGES IN CHILDREN WITH MINIMAL CHANGE NEPHROTIC SYNDROME

A Thesis
submitted in partial fulfillment
of the requirements for the Master Degree
of "Pediatrics"

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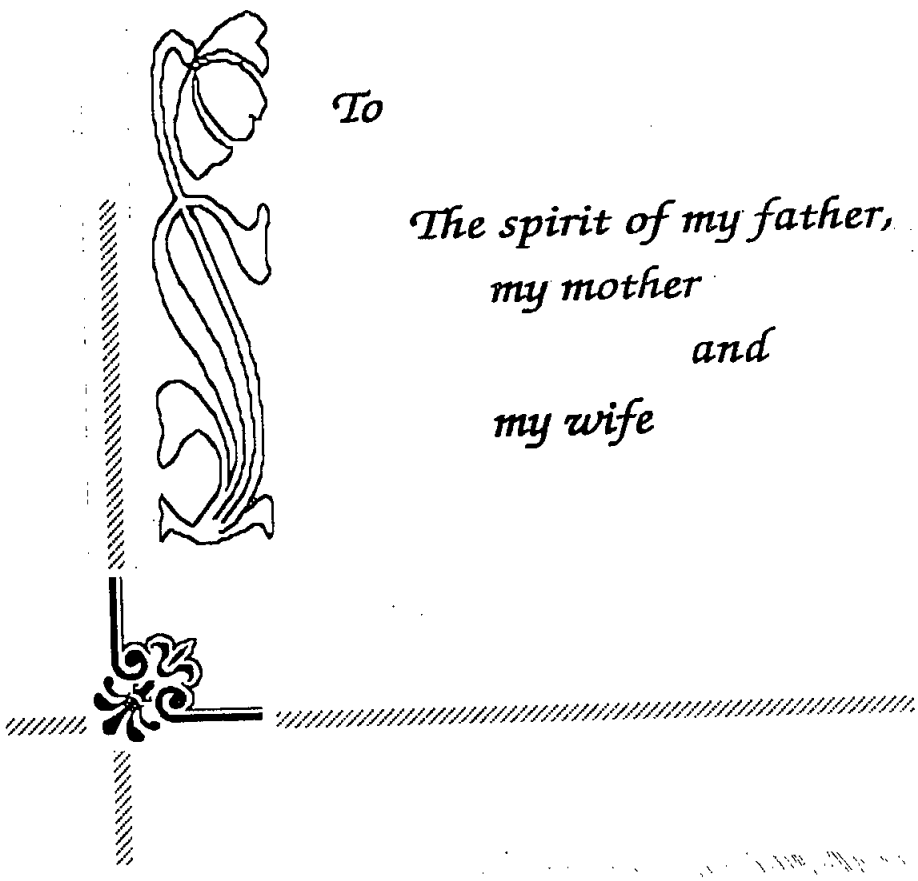

*To*

*The spirit of my father,*
*my mother*
*and*
*my wife*

# ABBREVIATIONS

| | |
|---|---|
| ADT | Alternative day therapy |
| ASO | Antistreptolysin O |
| CMV | Cytomegalovirus |
| DCT | Distal convoluted tubule |
| ESR | Erythrocyte sedimentation rate |
| FFA | Free fatty acid |
| FSGS | Focal segmental glomerulosclerosis |
| GBM | Glomerular basement membrane |
| GFR | Glomerular fiteration rate |
| HMGCOA | Hydroxy methyl glutaryl Co A |
| HDL | High density lipoprotein |
| HLA | Human leucocytic antigen |
| ISKDC | International Study of Kidney Disease in Children |
| LPL | Lipoprotein lipase |
| LP | Lipoprotein |
| LDL | Low density lipoprotein |
| LCAT | Lecithin cholesterol acyl transferase |
| LAT | Lysolecithin acyl transferase |
| MCNS | Minimal change nephrotic syndrome |
| MPGN | Mesangial proliferative glomerulonephritis |
| MGN | Membranous glomerulonephritis |
| NS | Nephrotic syndrome |
| PCT | Proximal convoluted tubule |
| SIRS | Soluble immune response suppressor |
| VPF | Vascular permeability factor |
| VLDL | Very low density lipoprotein |

# *CONTENTS*

# CHAPTER 1

# INTRODUCTION

# ANATOMICAL CONSIDERATIONS

The human kidneys are bean shaped, about 10 - 20 cm in length, 3.5 - 5 cm in thickness and are situated one on each side of the upper lumbar vertebrae retroperitonially. Each kidney is enclosed within a fibroconnective tissue capsule. On the medial aspect, there is a depression, the hilum, from which the blood vessels enter and leave [1]. The upper part of the ureter distends into the hilum to form the pelvis of the kidney which is subdivided into major and minor calyces. There are usually 2 - 3 major calyces and 8 - 12 minor calyces [2]. Each minor calyx envelops a renal papilla which is perforated by openings of 10 - 25 collecting ducts. Each papilla is seen to be the tip of pyramidal area extending from the hilum towards the capsule forming the medullary pyramid. The peripheral part of each pyramid does not show a clear demarcation from the cortex of the kidney. Each pyramid with its overlaying cortex is to be regarded as a lobe. In the fetus and young child, the kidney surface is irregular and is said to be lobulated. In the cortex, lobules are demarcated by radially oriented interlobular blood vessels, but no demarcation exists in the medulla [1].

# EMBRYOLOGICAL CONSIDERATIONS

## Development of the urinary system :

In the 3rd week of development, the embryonic mesoderm differentiates into 3 distnict parts :

**1.** Paraxial portion, which forms the somites.

**2.** Lateral mesodermal plate which splits into somatic and splanchnic mesodermal layers.

**3.** Intermediate mesoderm, which is segmented in the cervical region forming nephrotomes, however, in the thoracic and lumbar regions it forms a solid unsegmented mass of tissue, the nephrogenic cord. From this intermediate mesoderm, the excretory units of the urinary system arise [3].

### *Pronephros:*

It appears early in the 4th week by a few solid cell clusters "nephrotomes" in the cervical region which acquire a cavity "nephrostome" then elongate forming pronephric tubules that open into "pronephric duct" that opens caudally into the cloaca [4]. The pronephros soon degenerates but most of its duct is utilized by the next kidney [5], so this kidney is transient.

***Mesonephros:***

It appears later in the 4th week, caudal to the rudimentary pronephros, where it acts as an intermediate kidney [4]. The nephrogenic cord is divided into clusters of mesenchymal cells which acquire a lumin forming mesonephric vesicles, that is in turn, form S-shaped mesonephric tubules. These tubules grow laterally and become continuous with the pronephric duct, now called mesonephric duct [4]. The medial end expands and becomes invaginated by capillaries to form the glomerular (Bowman's) capsule. The cluster of capillaries that project into this capsule is called a glomerulus [5]. Both the capsule and the glomerulus form a mesonephric (renal) corpuscle. The thoracic mesonephric tubules degenerate leaving those in the lumbar region [6].

***Metanephros:***

It begins development early in the 5th week and starts to function six weeks later[5]. The metanephros, the permanent kidney, develops from the ureteric bud, which begins as a dorsal outgrowth from the mesonephric duct, and the metanephric mesoderm. Then, the ureteric bud extends dorsilaterally and upwards forming the renal pelvis. The pelvis divides into major and minor calyces and collecting tubules which grow out from the minor

calyces [4]. Each collecting tubule branches and rebranches into successive generations of collecting tubules. Near the blind end of each collecting tubule, clusters of mesenchymal cells in the metanephric mesoderm forming small metanephric vesicle which soon gives rise to renal tubules. Hence a urineferous tubule consists of two embryologically different parts, a nephron derived from the metanephric mesoderm and a collecting tubule derived from the ureteric bud.

## *Renal histology and functional correlation :*

### (A) Macroscopic features[7].

#### *1. The renal cortex and medulla :*

* The kidney have an outer red cortex and pyramidal masses of yellowish renal medulla.

#### *2. Renal lobes :*

Each medullary pyramid and its connected cup of cortical tissue comprise a renal lobe :

a) The cortical portion of each lobe contains many nephrons and the pyramids contain numerous collecting tubules.

b) Each lobe contains many medullary rays, which are cortical tissue comprised of small blood vessels