

PATTERN OF NEPHROTIC SYNDROME  
THROUGH SEVEN YEARS FOLLOW-UP  
IN EGYPTIAN CHILDREN

THESIS SUBMITTED FOR THE MASTER  
DEGREE IN PEDIATRICS

BY

26358 ✓

DR. HANYA RABIE ESSA ELMARSAFY

SUPERVISED BY

DR. FARIDA A. FARID

ASSISTANT PROFESSOR OF PEDIATRICS

DR. GALILA M. MOKHTAR

LECTURER OF PEDIATRICS

FACULTY OF MEDICINE

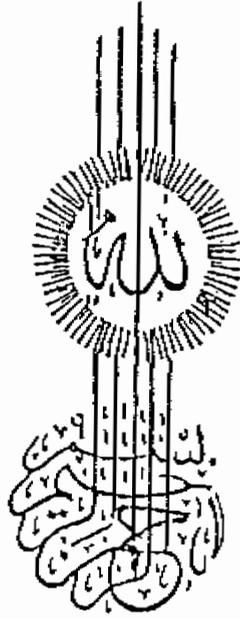
AIN SHAMS UNIVERSITY

1987



92612

. R



سُبْحَانَكَ لَا إِلَهَ إِلَّا أَنْتَ  
أَنْتَ أَنْتَ الْعَلِيُّ الْعَظِيمُ  
صَدَقَ اللَّهُ الْعَظِيمُ



TO MY PARENTS  
WHO MADE ME THE WAY I AM

2

**ACKNOWLEDGEMENT**

## ACKNOWLEDGEMENT

I am greatly indebted to my Professor Dr. Farida A. Farid, Assistant Professor of Pediatrics, Faculty of Medicine, Ain Shams University for her kindness, valuable guidance, support and continuous encouragement, during the supervision of this thesis.

I feel much honoured to express my greatest thanks to Dr. Galila M. Mokhtar, Lecturer of Pediatrics, Ain Shams University, for her remarkable help, supervision, unlimited generosity in time and effort along this work.

I would like to express my grateful thanks to Dr. Safinaz Elhabashy, assistant lecturer of Pediatrics, Ain Shams University.

I would like to express my appreciation to Dr. Sawsan Moselhy, Assistant Lecturer of Pediatrics, Ain Shams University.

Last, but by no means least, thanks for my patients.

Hanya Elmarsafy

## TABLE OF CONTENTS

### INTRODUCTION AND AIM OF WORK

### REVIEW OF LITERATURE

Nephrotic syndrome	1
Epidemiology (incidence, age, sex)	2
Aetiological classifications	4
Pathology	9
Complications of nephrotic syndrome	22
Treatment of nephrotic syndrome	34

### MATERIALS AND METHODS

Choice of cases	43
Methodology	43

### RESULTS

48

### DISCUSSION

59

### SUMMARY

73

### REFERENCES

77

### ARABIC SUMMARY

✓

LIST OF TABLES.

**Table (1):** Classification of nephrotic syndrome.

4

**Table (2):** Incidence of nephrotic syndrome among children attended to our pediatric nephrology clinic from 1980 to 1986 (inclusive).

**Table (3):** The percentage of nephrotic patients as regards the follow-up years.

**Table (4):** Statistical data of our 63 nephrotic patients through 7 years follow-up.

a- From 1980 to 1986.

b- From 1982 to 1986.

c- From 1983 to 1986.

d- From 1984 to 1986.

e- From 1985 to 1986.

f- Through 1986.

**Table (5):** Clinical data of our nephrotic patients.

**Table (6):** Percentage of nephrotic patients in comparison to the nephrotic nephritic patients.

^

**Table (7):** The age of onset in nephrotic patients.

**Table (8):** The age of onset in nephrotic nephritic patients.

**Table (9):** Frequency of relapse/year in total cases.

**Table (10):** Frequency of relapse/year in nephrotic group in relation to age of onset.

**Table (11):** Frequency of relapse/year in nephrotic nephritic group in relation to age of onset.

**Table (12):** Comparison of frequency of relapse/year in both nephrotic and nephrotic nephritic group at age of onset less than 6 years.

**Table (13):** Comparison of frequency of relapse/year in both nephrotic and nephrotic nephritic group at age of onset above 6 years.

**Table (14):** Response of our patients to steroid therapy.

**Table (15):** Number of patients with different regimens of treatment.

**Table (16):** Patients using prednisone therapy alone.

**Table (17):** Clinical data of cases given alkylating agents.

**Table (18):** Complications of our nephrotic patients (50 nephrotic and 13 nephrotic nephritic) during 7 years follow-up study.

**Table (19):** Clinical data of death cases.

## LIST OF FIGURES

**Figure (1):** The age of onset in nephrotic group.

**Figure (2):** The age of onset in nephrotic nephritic group.

**Figure (3):** Response of our patients to steroid therapy.  
(Steroid responsive).

**Figure (4):** Response of our patients to steroid therapy.  
(Steroid dependent).

**Figure (5):** Response of our patients to steroid therapy.  
(Steroid resistant).

11

INTRODUCTION & AIM OF WORK

## INTRODUCTION AND AIM OF WORK

The nephrotic syndrome is defined as a clinical state characterized by proteinuria and hypoalbuminemia, usually accompanied by edema and hypercholesterolemia with generalized hyperlipidemia and sometimes accompanied by hematuria, hypertension and reduced glomerular filtration rate.

It may occur at any time in the course of many different primary and secondary glomerular disease.

It occurs commonly in children but also in adults (ISKDC, 1978).

The aim of this work is to follow-up nephrotic patients regarding the course, prognosis, response to therapy, and to detect as well any complications that may occur.

12

REVIEW

## NEPHROTIC SYNDROME

### Definition:

The nephrotic syndrome is a clinical state characterized by proteinuria (greater than or equal to 2gm/m<sup>2</sup>/24hs), hypoalbuminemia (below 2gm/dl), usually accompanied by edema and hypercholesterolemia (above 220mg/dl) with generalized hyperlipidemia and sometimes accompanied by hematuria (rates of urinary excretion of red cells greater than 100,000 red cells/h/m<sup>2</sup>) at time of diagnosis, hypertension (more than the standard for age) and reduced glomerular filtration rate. It may occur at any time in the course of many different primary and secondary glomerular lesion (Arneil, 1976).

Proteinuria is the essential feature of nephrotic syndrome due to abnormal increase in permeability of the glomerular basement membrane to proteins. So it is preferred to define the syndrome as albuminuria of sufficient quantity to result in hypoalbuminemia. The presence or absence of edema, hypoproteinemia, hyperlipidemia, or lipiduria may help to define the severity of the illness and the patient's response to it, but these factors do not seem helpful in eliciting the cause or calculating the prognosis.