PLASMA PROSTAGLANDIN E CONCENTRATIONS IN GLOMERULONEPHRITIS AMONG EGYPTIAN CHILDREN

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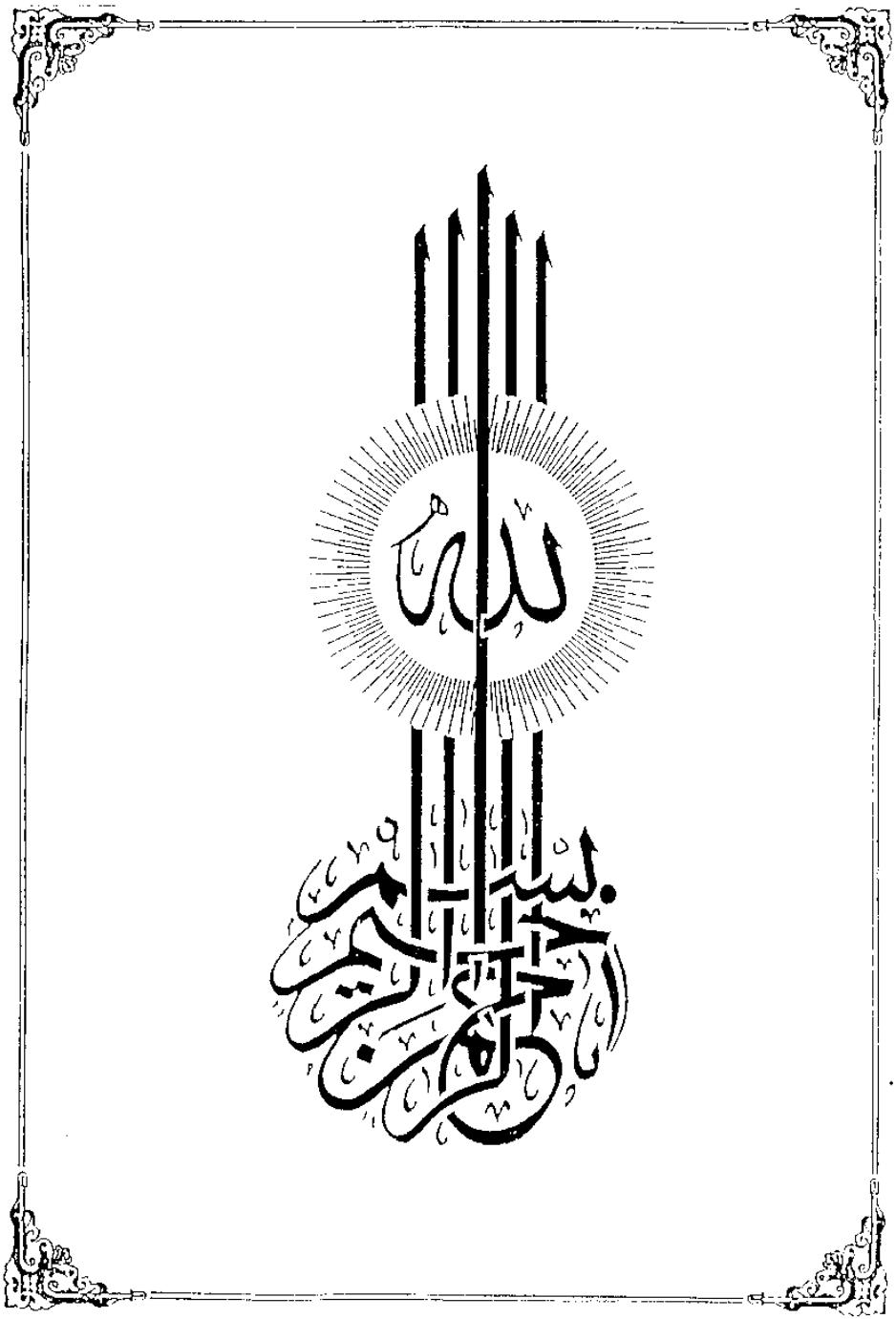

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TO MY WIFE AND MY CHILDREN

A C K N O W L E D G E M E N T

I would like to express my deep thanks and gratitude to my advisor, my teacher and my professor Dr. YAHIA M. EL-GAMAL, Professor of Pediatrics, Faculty of Medicine, Ain Shams University, for giving me the privillage of working under his supervision with his continuous guidance, unfailing support and encouragement throughout this work.

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C O N T E N T S

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ABBREVIATIONS

AIDS	: Acquired immune deficiency syndrome
Alb	: Albumin
cAMP	: Cyclic adenosine monophosphate
C.N.F.	: Congenital nephrotic syndrome (Finnish type)
C	: Creatinin
DMPGE2	: Dimethyl prostaglandin E2
DPGN	: Diffuse proliferative glomerulonephritis
E.S.R.	: Erythrocyte sedimentation rate
G.N.	: Glomerulonephritis
Ig	: Immunoglobulin
M.C.N.S.	: Minimal change nephrotic syndrome
M.P.G.N.	: Membranoproliferative glomerulonephritis
P.D.A.	: Patent ductus arteriosus
P.G.	: Prostaglandin
S.D.	: Standard deviation
S.L.E.	: Systemic lupus erythematosus
TX	: Thromboxane
U	: Urea

INTRODUCTION AND AIM OF THE WORK

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Glomerular diseases are of major importance in pediatric nephrology because of their frequency, their tendency in many instances to be progressive, and the possibility for therapeutic intervention.

Concepts of glomerular pathophysiology are currently advancing rapidly due to the widespread utlization of renal biopsy and special pathology techniques (Hoekelman et al., 1978).

Also, glomerular diseases display such important features in common that they can usefully be considered together and contrasted with diseases commencing in other parts of the kidney. Numerically, golmerular disease accounts for approximately half of the patients with severe renal disease seen in most communities and over two thirds of the patients accepted for renal replacement by units undertaking intermittent hemodialysis or renal transplantation (Wrong, 1975).

The approach to patients with glomerular disorders involves consideration of the clinical features of some specific syndromes, evaluation of histopathology, understanding of possible immunopathogenetic mechanisms, and

determination of potential etiologic factors. Glomerulopathies may be subdivided into primary glomerular disorders, which are a diverse group of diseases involving primarily or predominatly the glomeruli, and secondary glomerular disorders, which include those occurring in association with systemic disease processes (Flamenbaum and Becker, 1983).

Untill recently nephrologists usually concentrated on studying physiologic aspects of renal function about which more was known and upon which far more precise measurement could be made. New concepts have emerged regarding how glomerular immune depostis form, the factors that determine glomerular permeability to proteins in normal and diseased states, the immunogenetic basis for renal diseases, and the processes that lead from acute renal disease to progressive renal failure (Couser, 1985).

It is therefore important to initiate a systematic evaluation of children who exhibit hematuria and proteinuria, to ascertain whether they have serious disease and whether more invasive methods are needed to establish a definitive diagnosis of their problem (Tune et al., 1984).

Experience has shown that there is poor correlation between the three descriptive levels (clinical manifestations, renal biopsy and pathogenesis). Thus the immune-complex disease, even with the same antigen, may

result in a wide range of histological appearances each of which in turn may have been some reasonably constant clinicopathological associations, but unfortunately this has led to a tendency to extend to one level a descriptive term more suitable for another. It is, for instance, inappropriate to use the morphological term focal glomerulonephritis to describe the clinical syndrome of recurrent hematuria (Baratt, 1982).

Renal prostaglandins are gaining increasing recognition as important modulators of hemodynamics and excretory function in the mammalian kidney. Synthesis of these unsaturated fatty acids from arachidonate precursors is closely regulated by intrarenal factors and circulating angiotensine II, catecholamines, arginine vasopressors and bradykinin. Endogenous prostaglandins exert little influence on renal blood flow and glomerular filtration rate in the basal state by inhibition of arachidonate metabolism when renal perfusion is impaired causing marked alterations in these parameters (Levenson et al., 1982).

Exogenous adminstration of prostaglandins produces renal vasodilation, increase in renal blood flow, and natriuresis. When prostaglandins synthesis is increased by administration of arachidonic acid, there is an increase in deep cortical and inner medullary blood flow accompanied by

natriuresis, both of whcih are inhibited by indomethacin (Lee, 1981).

These findings were quite tempting to study the prostaglandins in relation to renal diseases in infancy and childhood. This is a trial to delineate changes in prostaglandins leading to or sharing in the pathogenesis of nephropathies and if this can lead to any therapeutic implications in the diseases.

REVIEW OF LITERATURE