

*Clinico-epidemiological characteristics of
diabetic nephropathy in the Diabetes Clinic,
Ain Shams University-A 20 year experience*

Thesis

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بسم الله الرحمن الرحيم

"قالوا سبحانك لا علم لنا
إلا ما علمتنا انك أنت
العليم الحكيم"

صدق الله العظيم

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Thesis submitted by El Sayed Mohamed Abd El Mageed

ABSTRACT












Objectives. To determine the Clinico-epidemiological characteristics of diabetic nephropathy ; including prevalence, clinical features , metabolic risk factors and other associated comorbidities in the Diabetes Clinic, Children's Hospital , Ain Shams University .

Subjects and Methods . Study included 94 children and adolescents with type 1 diabetes mellitus . they were 42 (44.7%) males and 52 (55.3%) females ,mean age 12.48 ± 3.57 years, mean disease duration 6.4 ± 2.9 years, and mean HbA1c 8.2 ± 1.5 % .there is Measurement of random blood glucose, HbA1c, total cholesterol , triglyceride level and Baseline urinary albumin/creatinine ratio to detect diabetic nephropathy.

Results. Normoalbuminuria 70.21% ,microalbuminuria 29.79% and there is no macroalbuminuria or ESRD .mean age ,disease duration and body mass index significantly higher in microalbuminuric diabetic patients than normoalbuminuric,other risk factors for microalbuminuria HbA1c($p=0.005$) Systolic blood pressure ($p=0.001$), Diastolic blood pressure ($p=0.005$), Total Cholesterol ($p=0.017$), Triglyceride($p=0.035$).

Conclusion. Early detection of diabetic nephropathy , adaption of multifactorial interventions targeting the main risk factors (hyperglycemia ,hypertension , dyslipidemia) and the use of agents with renoprotective effect (ACE inhibitors) reduce the progression of renal disease .

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List of Abbreviation

A/C ratio	Albumin/creatinine ratio
ACE	Angiotensin converting enzyme
ACEi	Angiotensin converting enzyme inhibitor
AER	Albumin excretion rate
APCs	antigen presenting cells
AGEs	Advanced glycation end products
ARB	Angiotensin receptor blockers
BMI.....	Body mass index
BP	Blood pressure
CBV	Coxsackie B virus
CSII	Continuous Subcutaneous Insulin Infusion
DCCT.....	Diabetes control and complications trial
DKA.....	Diabetic ketoacidosis
DN	Diabetic nephropathy
EC	Endothelial cells
ECM.....	Extracellular matrix
EDIC.....	Epidemiology of diabetes intervention
ESRD	End stage renal disease
EV	Enterovirus
FBG.....	Fasting blood glucose
GAD.....	Glutamic acid decarboxylase

GBM Glomerular basement membrane
 GFR Glomerular filtration rate
 GLA gamma linolenic acid
 2h PPG 2houres post prandial blood glucose
 HbA_{1c} Glycosylated haemoglobin
 HDL High density lipoprotein
 IAA..... insulin auto antibodies
 IA insulin antigen
 ICA..... islet cell antibodies
 IDDM..... Insulin dependent diabetes mellitus
 IGF Insulin like growth factor
 IFG Impaired fasting glucose
 IL interleukin
 IVGTT IV Glucose Tolerance Test
 MA..... Microalbuminuria
 NAG..... N-acetyl B-glucosaminidase
 NO Nitric oxide
 OGTT..... Oral glucose tolerance test
 RAAS Renin angiotensin aldosterone system
 Th T helper
 TGF-beta..... Transforming growth factor-beta
 UAE..... Urinary albumin excretion



Introduction

Micro- and macroalbuminuria are important markers for early and progressive diabetic kidney disease. Patients with type 1 diabetes face a 20-50% probability of developing end-stage renal disease (ESRD) requiring dialysis or renal transplantation (*Nordwall,2004*) but over the last decades, cumulative incidence of nephropathy has further declined, which was attributed to intensified treatment regimens and a more aggressive therapy of hypertension and dyslipidemia (*Nordwall,2004*).

Since the 1980s, microalbuminuria has been established as an early marker of progressive kidney disease in diabetes (*Perkins,2005*), starting at pediatric age (*Gorman,1999*), and currently albumin excretion rate (AER) remains the best available noninvasive predictor for diabetic nephropathy and should be measured regularly according to established guidelines (*American Diabetes Association, 1994*).

Since the Diabetes Control and Complications Trial (DCCT), glycemic control was established as the dominant risk factor for the development of diabetic nephropathy (*Diabetes Control and Complications Trial,1994*). Moreover, the DCCT follow-up Epidemiology of Diabetes Interventions and Complications study has demonstrated a persistent delay of progression of diabetic nephropathy 7-8 years after the end