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

(سورة البقرة: الآية ٣٢)

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Thesis submitted by El Sayed Mohmed Abd El Mageed

ABSTRACT

Objectives. **To determine the Clinico-epidemiological characteristics of diabetic nephropathy ; including prevalence, clinical features , metabolic risk factors and other associated comorbidties 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 , adopation 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 intervension

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