

ROLE OF DUPLEX DOPPLER U/S IN ASSESSMENT OF DIABETIC NEPHROPATHY PATIENTS

Thesis

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List of Abbreviation

AER	Albumin excretion rate
CCr	Creatinine clearance
DeltaCCr	Delta creatinine clearance
DN	Diabetic nephropathy
Egfr	Estimated glomerular filtration rate
EDV	End diastolic volume
FBS	Fasting blood sugar
FD	Doppler frequency
GFR	glomerular filtration rate
HR	heart rate
IDDM	Insulin dependent diabetes mellitus
LDL	Low density lipoprotein
NIDDM	Non Insulin dependent diabetes mellitus
NIH	National Institutes of Health
PI	Pulsatility index
PRF	Pulse repetitive frequency
PSV	Peak systolic volume
Sr.Cr	Serum creatinine
RI	Resistance index
RICorr	Resistance index correction
RVR	Renal vascular resistance
S/D	Systolic/Diastolic
US	Ultrasonography

Abstract

To evaluate the role of renal duplex ultrasonography in the detection of early alteration of renal blood flow in diabetic patients, we studied with duplex ultrasound 25 patients with diabetes mellitus (11 males, 14 females, their age range (28-68 years).

The resistivity indices (R.I) of the main renal as well as intrarenal arteries were calculated, diabetic patients had significantly higher resistivity indices (R.I) in the intrarenal (segmental, interlobar and arcuate) arteries.

The study also revealed a significantly positive correlation between the (R.I) in the intrarenal arteries in diabetics and blood sugar, albumin, as well as the serum creatinine levels, while gives a non significant positive correlation with the duration of diabetes. So we conclude that the current study documented early intrarenal hemodynamic alterations in the form of pathologically elevated intrarenal (R.I) in diabetics.

This denotes the potential usefulness of duplex evaluation of the intrarenal arteries, as a noninvasive procedure, for monitoring diabetic patients to predict those at risk of diabetic nephropathy.

Key Words :

DUPLEX DOPPLER U/S - NEPHROPATHY PATIENTS .

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INTRODUCTION

Diabetic nephropathy is the most common cause of chronic renal failure, defined as the presence of persistent proteinuria $>0.5\text{gms}/24$ hours and manifested as nephrotic syndrome initially by microalbuminuria & progress to heavy proteinuria & renal failure. In contrast to other renal disorder the proteinuria of diabetic nephropathy does not diminished with progressive renal failure **(Zimmerman, 2005)**.

The risk factors of diabetic nephropathy are: poor control of blood glucose, long duration of diabetes, pre-existing hypertension, racial groups (e.g.: high in Asian, Pima Indians) and also the family history of diabetic nephropathy and hypertension **(Bethesda, 2008)**.

Diabetic nephropathy affects a subset of about (40%) patients with Insulin Dependent and about (30-50%) in Non Insulin Dependent Diabetes Mellitus, after period of 15-20 years **(Platt et al., 1994)**.

The diagnosis of diabetes nephropathy established by combination of patient history, clinical & laboratory examination (urine analysis). Color Duplex U/S provides very useful information, the intrarenal resistance index (R.I) is used as a predictor in patients with diabetic nephropathy **(Milovanceva- Popovska & Dzikova, 2007)**.