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

***Thesis***

***Submitted for partial fulfillment of Master Degree***

***In Radiodiagnosis***

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**2016**

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|---|---|
| **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 resistively 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 .

# Acknowledgment

First and foremost **"Thanks to ALLAH"**, the most beneficent and merciful.

I would like to express my appreciation, deepest gratitude and enormous to **Prof. Sahar Mohammed Elfiky,** Professor of Radiodiagnosis, Faculty of Medicine, Ain Shams University. Because of her continuous guidance and advice her own scientific experience, which she devoted to me to do my thesis, Her ethics and experience will be always my guide and I am so proud to be one of her students.

I wish to express my sincere gratitude to **Dr. Rasha Salah Eldin Hussein**, Lecturer of Radiodiagnosis, Faculty of Medicine, Ain Shams University for her continuous help, cooperation, encouragement, close supervision and honest assistance.

I extend my deepest thanks to all professors and all colleagues in Radiology department, Faculty of Medicine, Ain Shams University, for their support and assistance since the start of my residency.

Finally, I would like to express my special deep thanks and gratitude to my mother, all my family members and my close friends for their continuous support and encouragement.

# INTRODUCTION

Diabetic nephropathy is the most common cause of chronic renal failure, defined as the presence of persistent proteinuria >0.5gms/24 hours and manifested as nephrotic syndrome initially by microalbuminuria & progress to heavy protienuria & renal failure. In contrast to other renal disorder the protienuria 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).**