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Research Article

**TO DETERMINE THE INCIDENCE OF DIABETIC  
NEPHROPATHY AMONG DIABETIC PATIENTS  
ATTENDING THE MEDICINE DEPARTMENT OF ALLIED  
HOSPITAL FAISALABAD**Dr. Ayesha Iftikhar<sup>1</sup>, Dr. Shah Zaib Zahid<sup>2</sup>, Dr. Syeda Saliha<sup>3</sup><sup>1</sup> House officer, Allied Hospital, Faisalabad<sup>2, 3</sup> Punjab Medical College Faisalabad**Article Received:** March 2020**Accepted:** April 2020**Published:** May 2020**Abstract:****Aim:** To assess the incidence of diabetic nephropathy in patients attending the Allied Hospital Faisalabad.**Material:** This prospective cross-sectional study has been conducted at the Allied Hospital Faisalabad for one year duration from April 2019 to April 2020. One hundred patients with type 2 diabetes with a duration of diabetes below five years and age 30, 70 years were selected. Urine complete examination and urinary albumin to creatinine ratio was seen in the first void urine.**Results:** In 20% of a hundred patients, urinary albumin index was 30 mg / g and diabetic nephropathy was diagnosed. There was no evidence of diabetic nephropathy in 70% of patients.**Conclusion:** Diabetic patients have a high percentage of diabetic nephropathy in the study.**Key words:** diabetic nephropathy, Urinary albumin creatinine ratio.**Corresponding author:****Dr Ayesha Iftikhar,**

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**INTRODUCTION:**

Diabetes is an important cause of premature deaths worldwide. It is estimated that by 2025 there will be four hundred and eighteen million people with glucose intolerance and three hundred and eighty million people with type 2 diabetes<sup>1-3</sup>. About fifty percent of patients with type 2 diabetes will die early. Diabetes often causes complications and costs individuals and society very high. With the appearance of complications, the quality of life decreases<sup>4-5</sup>. Diabetes is the most common global cause of renal replacement therapy. It is estimated that end-stage renal disease (ESRD) develops in 20% of patients with type 2 diabetes during their lifetime. In the United States, about 40% of recent kidney disease cases are caused by new diabetic nephropathy<sup>6-7</sup>. Renal impairment develops in many, if not all, patients throughout their lives have renal problems. In the UK diabetes prospective study (UKPDS), 24.9% of patients developed microalbuminuria within ten years of being diagnosed with type 2 diabetes, and 20% of patients with type diabetes achieve ESRD throughout their lives. Impressive evidence suggests that kidney disease can be largely prevented in these patients. In diabetic patients, renal disease is clinically characterized by progress towards diabetic nephropathy and, as a result, by increased urinary albumin excretion with the development of end stage renal disease (ESRD)<sup>8-9</sup>. The first clinically detectable stage of diabetic nephropathy is microalbuminuria, and low but abnormal (30-299 mg / day) urine albumin is the earliest clinical evidence of nephropathy. This is called microalbuminuria<sup>10</sup>.

Without any specific intervention, 80% diabetic with sustained microalbuminuria have 10-20% increase in their rate of urinary albumin excretion per year to the stage of macroalbuminuria or overt nephropathy (urinary albumin excretion  $\geq 300$ mg per 24hour). The decrease in glomerular filtration rate in macroalbuminuria cases varies considerably from person to person for several years. Due to special intervention, the rate of GFR decline may be delayed. Compared to patients with type 1 diabetes, most people with type 2 diabetes had microalbuminuria and kidney disease shortly after being diagnosed with diabetes. This is because diabetes has been around for many years before the diagnosis is made. Microalbuminuria transforms into macroalbuminuria in 20-40% of patients with type 2 diabetes without specific interventions. Albuminuria is not only the earliest symptom of kidney disease in patients with diabetes, but also a much higher rate of cardiovascular morbidity and mortality. Therefore, microalbuminuria is an indicator of the presence of underlying vascular disease and should aggressively reduce all cardiovascular risk factors. Detection of kidney

disease is very important for preventing and reducing morbidity and mortality from cardiovascular and kidney disease. In a study of more than 1,000 primary care physicians, only 12% detected microalbuminuria in over 50% of patients with type 2 diabetes. The evaluation of microalbuminuria is particularly important in the diagnosis of diabetic nephropathy, because low-level albuminuria, which is negative for bayonet, is a previous clinical manifestation of diabetic nephropathy, which may exist for several years before the development of the filtration index. Interventions should be started when high levels of albumin are detected in the urine to delay the progression of renal disease<sup>11</sup>. This study shows the percentage of patients suffering from diabetic nephropathy. This study provides us with very important information about kidney disease in diabetics under the age of five.

**PATIENTS AND METHODS:**

This study is cross-sectional with 100 patients held in the Allied Hospital Faisalabad for one year duration from April 2019 to April 2020. Participants were divided into two groups; without diabetic nephropathy and diabetic nephropathy. Patients with type 2 diabetes aged 30 to 70 years were included, both men and women with diabetes under the age of five. Patients with acute febrile illness (temperature  $\geq 100$  F) or urinary tract infection (urine with a nitrite positive test strip, over 250 leukocytes per ml) were excluded. During the first visit a full history and physical examination were carried out. Patients who agreed were given a sterile, well-closed plastic container. They received instructions for collecting the first empty urine in the middle of the stream. A pipette and urine microscopic examination were performed. The urine sample was immediately stored at a temperature between 2-4 ° C °. Sodium azide (0.02%) was added to the urine sample to stop bacterial overgrowth. After careful consideration of the exclusion criteria listed above, a urine sample was selected for testing. All samples before the assay were mixed well. For estimation of microalbumin; Randox Microalbumin, an assay based on the principle of Immunoturbidimetric was used. Spectrophotometer was used in laboratory for calculating results. A urine sample was tested for urinary creatinine using the Jaffe reaction.

**RESULTS:**

The majority of patients, i.e. 37 (37%), are registered at the age of 41-50. There were 48 (48%) women and 52 (52%) men. There were 34 (34%) patients with hypertension and 23 (23%) patients smoked. When calculating the incidence of diabetic nephropathy in 20 (20%) patients with type 2 diabetes lasting less than 5 years, 80 (80%) cases were not reported with these complications (Table 1) Stratification of patients with nephropathy 7

(35%) in the age group of patients for diabetes by age and sex reveals 10 (50%) cases between 51 and 60 years old. The majority of patients were male

(52%). Most patients (70%) with diabetic nephropathy had hypertension. Nine patients with diabetic nephropathy smoked cigarettes (Table 2).

**Table 1: Sociodemographic data of the patients**

Variable	n.	%age
<b>Age (years)</b>		
≥31-40	26	26
41-50	37	37
51-60	34	34
61-70	3	3
<b>Gender</b>		
Male	52	52
Female	48	48
<b>Hypertensive status</b>		
Hypertensive	34	34
Normotensive	66	66
<b>Smoking habit</b>		
Smoker	23	23
Non-smoker	77	77
<b>Diagnosis</b>		
Diabetic nephropathy	20	20
No evidence of diabetic nephropathy	80	80

**Table 2: Stratification of diabetic nephropathy for age and gender**

Age (years)	Yes	No
31-40	1(1%)	25(25%)
41-50	7(7%)	30(30%)
51-60	10(10%)	24(24%)
61-70	2(2%)	1(1%)
<b>Gender</b>		
<b>Male</b>	11(11%)	41(41%)
Female	9(9%)	39(39%)

### DISCUSSION:

Diabetes has become a serious health problem in Pakistan. Prevalence rates among Pakistani people in rural and urban areas are between 5% and 15%<sup>11-12</sup>. An ominous development in a person with diabetes is persistent clinical proteinuria (excretion of urinary protein greater than 0.5g/24 h). Ultimately, this leads to a decrease in glomerular filtration rate and ultimately to terminal renal disease or early cardiovascular mortality<sup>13</sup>. In this study, the incidence of diabetic nephropathy was 20%, and the results of this study are comparable to those of other epidemiological studies in which the incidence of diabetic nephropathy was 7 to 53%, i.e.

42% in South Africa, 36.7% in India, Pakistan 13.6% and 9% in the UK population. This change can be attributed to various cases, including assessment method, disease stage and ethnic sensitivity to the development of kidney disease<sup>14</sup>. Another finding was the advantage of men with 11 cases in this study compared with 9 women with diabetic nephropathy. The duration of diabetes is an important factor in relation to diabetic nephropathy. In a study in Rawalpindi (a large city in Punjab), 57% of diabetics had diabetic nephropathy, even if the diabetes was less than 10 years old. The highest prevalence of diabetic nephropathy was observed in Korea (56.5%) and the lowest in Pakistan (24.2%).

The American Diabetes Association recommends confirming positive tests due to significant day-to-day variability. Most patients diagnosed with diabetic nephropathy were not aware that diabetes affects their kidneys<sup>15</sup>. Therefore, a thorough screening test for diabetic nephropathy is recommended as recommended for the treatment of diabetic kidney disease.

### CONCLUSION:

In the light of the results obtained in this small-scale study it is concluded that significant percentage of diabetic patients were found to have evidence of diabetic nephropathy at the time when chronic complications of diabetes are least expected. It is of vital importance to detect diabetic nephropathy earlier so that with appropriate treatment we can reduce morbidity and mortality.

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