FREQUENCY OF DIABETIC NEPHROPATHY IN DIABETIC PATIENTS VISITING TERTIARY CARE HOSPITAL

Dr. Laraib Rafiq, MBBS

Nishtar Hospital, Multan, Pakistan.

Dr. Zulfiqar Ali, MBBS

Nishtar Hospital, Multan, Pakistan.

Dr. Mannal Saleem, MBBS

Nishtar Hospital, Multan, Pakistan.

Abstract;

Background; The incidence of diabetes mellitus (DM) and diabetic nephropathy (DN) have risen rapidly in the past few decades and have become an economic burden to the healthcare system in Pakistan, So this study was done to determine the frequency of diabetic nephropathy in diabetic patients visiting tertiary care hospital. **Material and methods:** One hundred eleven consecutive patients with diabetes mellitus presenting to diabetic OPD were included in this cross-sectional study. After brief history and previous medical record review, blood pressure readings were taken, 24hour urine and blood samples were obtained from study participants and were sent to Nishtar hospital lab, free of cost, for detection of albumin in urine sample, HbA1c and fasting blood sugar levels in blood sample. Statistical analysis was performed by entering data in SPSS version 20. **Results;** Among these 111 diabetic patients, 51 (45.9%) were male diabetic patients and 60 (54.1%) were female patients. Mean age of our study cases was 50.16 ± 6.43 years while mean duration of diabetes was 6.34 ± 2.64 years. Majority of patients 70 (63.1%) were untreated for the diabetes while only 41 (36.9%) had controlled diabetes. Mean fasting blood glucose level was found to be 206.62 ± 31.56 mg/dl. Of these patients, 20 (18%) had history of smoking while 80 (72.1%) had history of hypertension. Nephropathy was present in 30 (27%) of our study cases. Microalbuminurea was seen in 20 (18%) of our study cases while Macroalbuminurea was present in 10 (9%) of our study cases. **Conclusion;** In our study, very high frequencies of diabetic nephropathy have been observed. Diabetic Nephropathy was significantly associated with increasing age, prolonged disease duration, poor glycemic control, poor compliance with treatment and hypertension. Majority of the diabetic patients were having uncontrolled diabetes and poor compliance with the treatment which emphasizes towards well directed awareness campaigns among targeted population. Proper treatment and well controlled diabetes can help to decrease long term complications in such patients.

Introduction;

Diabetic nephropathy is the leading cause of End Stage Renal Disease (ESRD) worldwide [1][2]. It can develop in the course of type 1 as well as type 2 diabetes mellitus and the risk of development is equal in both types[1]. Prevalence of diabetes has increased in last few years especially in Asian population[3][4][5] & this rise is attributed to sedentary life style and increased prevalence of obesity[6]. According to WHO prediction, by 2025 diabetic population will reach around 300 million with Southeast Asia bearing the greatest disease burden[7]. With increased prevalence of diabetes mellitus, there has been seen a rapid and relentless rise in incidence of end stage renal disease. Especially on risk are developed countries like Pakistan, India and Bangladesh[3]. A study

conducted by Masood et al [8] reported 7.9 % frequency of nephropathy among diabetic patients. Zhou et al reported 7.8 % frequency of nephropathy among diabetic patients[9].

Diabetic nephropathy if goes undiagnosed and untreated will eventually result in ESRD and life long dialysis of patient. With limited number of health facilities offering dialysis and an increasing population of dialysis dependent patients, the ability of dialysis units to cater the needs of dialysis patients is already exhausted.

Material and methods:

One hundred eleven consecutive patients with diabetes mellitus presenting to diabetic OPD of Nishtar Hospital Multan, Pakistan were included in this cross-sectional study. Consent was taken from the participants after elaborating the purpose and procedure of the study and ensuring their privacy and confidentiality. Those patients who were already known cases of albuminuria, having primary nephrotic syndrome, glomerulonephritis, on Angiotensin Converting Enzyme (ACE) inhibitors/ Angiotensin Receptor Blockers (ARBs) were excluded from our study. After brief history and previous medical record review, blood pressure readings were taken, 24hour urine and blood samples were obtained from study participants and were sent to Nishtar hospital lab, free of cost, for detection of albumin in urine sample, HbA1c and fasting blood sugar levels in blood sample. Statistical analysis was performed by entering data in SPSS version 20.

Results;

Our study included a total of 111 diabetic patients meeting inclusion and exclusion criteria of our study. Among these 111 diabetic patients, 51 (45.9%) were male diabetic patients and 60 (54.1%) were female patients. Mean age of our study cases was 50.16 ± 6.43 years (with minimum age was 40 years and maximum age was 58 years). Mean age of the male patients was 52.90 ± 6.68 years while that of female patients was 47.83 ± 5.22 years. Our study results have indicated that majority of our study cases i.e. 61 (55%) were having their ages more than 45 years. Mean duration of disease (diabetes) was 6.34 ± 2.64 years (with minimum duration of disease was 2 years and maximum duration was 10 years). Our study results revealed that majority of our study cases i.e. 80 (72.1%) presented with duration more than 5 years. Majority of patients 70 (63.1%) were untreated for the diabetes while only 41 (36.9%) had controlled diabetes. Mean fasting blood glucose level was found to be 206.62 ± 31.56 mg/dl (with minimum level was 165 mg /dl while maximum was 260 mg/dl). Mean level of urinary albumin was found to be 90.81 ± 126.35 (with minimum level was 11 while maximum level was found to be 410).

Of these patients, 20 (18%) had history of smoking while 80 (72.1%) had history of hypertension. Nephropathy was present in 30 (27%) of our study cases. Microalbuminurea was seen in 20 (18%) of our study cases while Macroalbuminurea was present in 10 (9%) of our study cases. Diabetic Nephropathy was stratified with regards to gender, age, duration of diabetes, treatment of diabetes, control of diabetes, smoking and hypertension and p values were found to be p= 0.134, p=0.000, , p = 0.000, p=0.000, p=0.000, p= 0.023 and p= 0.000 respectively.

Discussion;

It is estimated that more than 346 million people worldwide have diabetes mellitus . By the year 2030, it is predicted that diabetes will become the seventh leading cause of death in the world [10-13]. Development of chronic kidney disease (CKD) in patients with diabetes adds significantly to the morbidity and mortality and significantly increases health care costs, even before the development of end stage renal disease (ESRD) [14-16].

Our study included a total of 111 diabetic patients meeting inclusion and exclusion criteria of our study. Among these 111 diabetic patients, 51 (45.9%) were male diabetic patients and 60 (54.1%) were female patients. A study conducted by Khan et al [17] reported 40 % male patients with diabetes which is close to our study results.

A study conducted by Azeem et al [18] reported 60 % male patients with diabetes which is higher than our study findings.

Mean age of our study cases was 50.16 ± 6.43 years (with minimum age was 40 years and maximum age was 58 years). Mean age of the male patients was 52.90 ± 6.68 years while that of female patients was 47.83 ± 5.22 years. Our study results have indicated that majority of our study cases i.e. 61 (55%) were having their ages more than 45 years. Similar results have been reported by Azim et al [18] and Muzaffar et al [19].

Of these patients, 20 (18%) had history of smoking while 80 (72.1%) had history of hypertension. Azim et al [18] reported 48 % hypertension among targeted population which is quite low as observed in our study. Muzaffar et al [19] reported 58 % hypertension in diabetic patients. These study results are close to our study results. Nephropathy was present in 30 (27%) of our study cases. A study conducted by Masood et al [8] reported 7.9 % frequency of nephropathy among diabetic patients. Zhou et al[9] reported 7.8 % frequency of nephropathy among diabetic patients. Similar results have been reported by Muzaffar et al [19]. Microalbuminurea was seen in 20 (18%) of our study cases while Macroalbuminurea was present in 10 (9%) of our study cases. Similar results were reported by Muzaffar et al. [19] Our study observed higher frequencies of nephropathy, the reason for that high frequency may be manifested in terms of poor compliance with treatment protocol and poor glycemic control.

Conclusion;

In our study, very high frequencies of diabetic nephropathy have been observed. Diabetic Nephropathy was significantly associated with increasing age, prolonged disease duration, poor glycemic control, poor compliance with treatment and hypertension. Majority of the diabetic patients were having uncontrolled diabetes and poor compliance with the treatment which emphasizes towards well directed awareness campaigns among targeted population. Proper treatment and well controlled diabetes can help to decrease long term complications in such patients.

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