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ORIGINAL ARTICLE

Evaluation of Diabetic Nephropathy and Associated Risk Factors in Type I and Type II Diabetic Patients at Badin, Sindh

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ABSTRACT

Aim: To investigate evaluation of diabetic nephropathy and associated risk factors in type I and type II diabetic patients.
Study design: Cross sectional prospective study
Place and duration of study: Diabetic Clinic, Badin, 06 Months from August 2020 to January 2021
Methodology: Five hundred patients were conducted at Diabetic Clinic, Badin of Type I diabetes mellitus and Type II diabetes mellitus.
Results: Twenty-five patients of Type I and 475 patients of Type II. The mean comparison of age, weight, height, body mass index, blood sugar, systolic BP, diastolic BP, HbA1c, serum creatinine, urine albumin and serum urea showed their significant value.
Conclusion: Type II diabetes mellitus represent the large majority of macroalbuminuric, diabetics at risk of ESRD and diabetic nephropathy as compared to type I diabetic patient.
Keywords: Diabetes mellitus, Diabetic nephropathy, Risk factors

INTRODUCTION

Diabetes creates when the body's cells can't retain sugar (glucose) and use it for energy. Additional sugar develops in your circulatory system accordingly. Diabetes that isn't very much managed may have significant impacts, making hurt an assortment of body tissues in your body, including your heart, kidneys, skin, and nerves. Insulin is a hormone delivered by your pancreas that guides in the development of sugar from your circulatory system into your cells, where it is utilized for energy[1].

Diabetes has no known medicine. Medicine and way of life adjustments, then again, can help you carry on with a long and solid life[2].

Diabetes is caused by several different pathogenic mechanisms. This can vary from autoimmune degradation of the pancreas' B-cells, resulting in insulin deficiency, to anomalies that lead to insulin resistance. The basis of the abnormalities in carbohydrate, fat, and immune function in diabetes is the deficient action of insulin on target cells.

The reason of the inconsistencies in carb, fat, and protein assimilation in diabetes is the insufficient action of insulin on target tissues. Insufficient insulin action results from inadequate insulin emanation, just as diminished tissue responses to insulin in any event one, centers on the astounding pathways of synthetic action. Obstacle of insulin emanation and distortions in insulin movement consistently exist together in a comparable patient, and it is routinely undefined which irregularity, if either alone, is the fundamental driver of the hyperglycaemia.

Diabetic nephropathy (otherwise called diabetic kidney sickness) is kidney disability brought about by diabetes. Diabetes will influence the part of your kidneys that channels your blood if your blood glucose levels are excessively high. At the point when a channel is broken, it becomes 'flawed,' permitting protein into the pee. Diabetes mellitus can prompt constant kidney infection and kidney disappointment in certain individuals.

Diabetic nephropathy is a significant sort 1 and types 2 diabetes complexity. Ineffectively controlled diabetes can obliterate vein groups in the kidneys, which eliminate squander from the blood, over the long run. This will influence the kidneys and raise circulatory strain. Hypertension can deteriorate kidney injury by bringing up tension on the kidneys' delicate sifting framework[4].

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Diabetic inconveniences represent over 40% of kidney disappointment cases, with an expected 180,000 people managing kidney disappointment because of diabetes entanglements. Diabetes is likewise the main source of the end-stage renal infection (ESRD). Diabetic nephropathy advances to ESRD, the fifth and last advance.

Diabetic nephropathy is a sluggish advancing condition. You will postpone or even stop the movement of the infection with early consideration. Diabetic nephropathy doesn't generally prompt kidney sickness or ESRD, and creating diabetes doesn't ensure that you will have diabetic nephropathy.

This examination intends to investigate the unmistakable threat factors that add to the making of diabetic nephropathy in two sorts of diabetes mellitus patients in Badin, Sindh Province, similarly as the ordinariness of the disease[3].

MATERIALS AND METHODS

The diabetic clinic at Badin, 06 months from August 2020 to January 2021, will pick 500 patients with type I and type II diabetes were enrolled after approval of Ethical Review Board. Both genders, non-diabetic renal disease and cardiovascular disease were included. Before any data is collected, all participants can give their written informed consent. Both patients will have their age, weight, blood glucose, HbA1c, blood pressure, serum, and urinary albumin levels checked. The research procedure was checked and approved by the Hospital ethical review committee prior to the start of the study, and informed consent was obtained from each family or from the hospital ethical review committee before data was collected. Data was analyzed through SPSS-22 using t-test at 0.05 level of significance and a confidence interval of 95%.

RESULTS

Among 25 patients of type I, 56% were males and 44% were females while in 475 type II patients, 60.9% were males and 42% females (Table 1). The type I diabetes mellitus is significantly associated in younger age group as compare to type II mellitus with significant value P<0.05. Type II diabetes mellitus is significantly associated with mean body weight 66.69kg as compare to Type I diabetes mellitus with significant (P<0.05). Height is significantly associated in Type I diabetes mellitus as compare to Type II diabetes mellitus with 42.40cm with significant (*P*<0.05). Body mass index (BMI) in Type I diabetes mellitus

patients is significantly (P<0.05) low as compare to Type II patients of diabetes mellitus. Type II diabetes mellitus is significantly (P<0.05) associated with low blood sugar with mean 226.32mg. HbA1c is significant in Type I diabetes mellitus patients with mean value 2.08 as compare to Type II diabetes mellitus patients *P*<0.05. Systolic BP and diastolic BP in Type I diabetes mellitus patients is low with mean value 113.72/71.880 mmHg as compare to Type II diabetes mellitus patients with significant (*P*<0.05). Urine Albumin in Type I diabetes mellitus patients is significant (P<0.05) with mean value 59.20 g/litre as compare to Type II diabetes patient's mellitus. Serum urea in Type I diabetes mellitus patients is significantly (P<0.05) associated with diabetic nephropathy as compare to low mean 27.33 as compare to Type II patients of diabetes mellitus. Serum creatinine in Type I diabetes mellitus patients is significantly associated with diabetic nephropathy as compare to Type II diabetes mellitus patients with significant (*P*<0.05) [Table 2].

Table 1: Frequency of genders according to type I and II diabetes

Gender	Type I (n=25)		Type II (n=475)	
	No.	%	No.	%
Male	14	56.0	275	60.9
Female	11	44.0	200	39.1

Table 2: Comparison type I and II diabetes according age, weight, height, BMI, blood sugar, HbA1c, systolic BP, diastolic BP, urine albumin and serum creatinine

Variable	Type I	Type II	P value
Age (years)	21.12±10.01	51.63±10.93	0.001
Weight (kg)	42.40±9.81	66.69±14.24	0.000
Height (cm)	46.04±15.241	158.20±6.89	0.000
BMI (kg/m2)	19.43±4.31	26.67±5.34	0.001
Blood sugar	328.7±133.58	226.32±95.0	0.000
HbA1c	2.28±0.45	2.39±0.54	1.18
Systolic BP	113.72±13.69	137.81±19.29	0.000
Diastolic BP	71.88±10.20	88.36±57.68	0.000
Urine albumin	59.20±76.64	81.71±78.02	0.000
Serum urea	27.88±10.51	33.49±26.81	0.000
S. creatinine	0.92±0.27	1.18±0.45	0.000

DISCUSSION

Pakistan has an absolute populace of 144 million individuals, with the greater part (65%) country territories. In Pakistan, the quantity of people with diabetes is consistently ascending, with a yearly frequency of in excess of 100 new cases with end-stage renal illness (ESRD) per million individuals[5].

Diabetic nephropathy is a type of kidney infection brought about by diabetes. Nephropathy is the most widely recognized reason for constant renal disappointment around the world, causing renal disappointment in around 33% of dialysis patients. Patients with regular danger factors like diabetes for a more extended timeframe, hypertension, hindered metabolic control, smoking, and heftiness can profit by this treatment hyperlipidaemia and diabetes are connected to an expanded danger of entanglements.[9] Klag found that circulatory strain heights are a solid autonomous danger factor for end-stage renal sickness, and that therapies to keep away from the illness should needs the therapy and control of both high-typical and hypertension[6].

Constant hyperglycaemia is the foundation of the condition in all types of diabetes. Hyperglycaemia starts in the first many years of life in quite a while with type I diabetes, and it is ordinarily the lone known reason for nephropathy. Hyperglycaemia in type II diabetes, then again, regularly starts in the forties, when the kidneys have encountered the drawn-out impacts of maturing and other known blood vessel hypertension, stoutness, dyslipidemia, and smoking are additionally advertisers of constant renal injury[12].

CONCLUSION

Type II diabetes mellitus address the vast larger part of macroalbuminuric diabetics in danger of ESRD and diabetic nephropathy as compared to type I.

REFERENCES

1. Whalen K, Finkel R, Panavelil T. Lippincott Illustrated Reviews: Pharmacology 6th ed. Florida: University of Florid, Collage of Pharmacy, Gainesville, 2015.
2. Neha S, Amit J, Dubey BK. Antidiabetic activity of ethenolic extract Albizzia leebeck in alloxan-induced diabetic rats. World J Pharmaceut Res 2012; 1(5): 1350-60.
3. Rajashree R, Parineetha P, Bjhat P. Effects of a mixture Of Salacia reticulata W. and Catharanthus roseus L. extracts in streptozotocin-induced juvenile diabetic rats. J Physiol Biomed Sci 2011; 24(1): 5-8.
4. Ansari MA, Phull QZ, Arain AA, Memon AR, Kazi S, Abbasi P. Comparison between S-Allyl cysteine and gliclazide in lowering the blood glucose levels in diabetic rats J Liauat Univ Med Health Sci 2017; 16(2): 99-102.
5. Lim AK. Diabetic nephropathy–complications and treatment. Int J Nephrol Revacular Dis 2014; 7: 361.
6. Gall MA, Hougaard P, Borch-Johnsen K, Parving HH. Risk factors for development of incipient and overt diabetic nephropathy in patients with non-insulin dependent diabetes mellitus: prospective, observational study. BMJ 1997; 314(7083): 783.
7. Satko SG, Langefeld CD, Daeihagh P, Bowden DW, Rich SS, Freedman BI. Nephropathy in siblings of African Americans with overt type 2 diabetic nephropathy. Am J Kidney Dis 2002; 40(3): 489-94.
8. Parving HH. Sterby R, Anderson PW, Hsueh WA. Diabetic nephropathy: the kidney. WB Philadelphia: Saunders 1996; 1864-92.
9. Remuzzi A. Effect of low-dose enalapril on glomerular size selectivity in human diabetic nephrology. J Nephrol 1993; 6: 36-43.
10. Diabetes Control and Complications Trial Research Group. The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. NEJM 1993; 329(14): 977-86.
11. Brenner BM, Cooper ME, de Zeeuw D, RENAAL Study Investigators. Effects of losartan on renal and cardiovascular outcomes in patients with type 2 diabetes and nephropathy. ACC Curr J Rev 2002; 1(11): 26.
12. Mogensen CE, Neldam S, Tikkanen I, Oren S, Viskoper R, Watts RW, Cooper ME. Randomised controlled trial of dual blockade of renin-angiotensin system in patients with hypertension, microalbuminuria, and non-insulin dependent diabetes: the candesartan and lisinopril microalbuminuria (CALM) study. BMJ 2000; 321(7274): 1440-44.
13. Mauer SM, Steffes MW, Brown DM. The kidney in diabetes. Am J Med 1981; 70(3): 603-12.
14. Mauer SM, Steffes MW, Ellis EN, Sutherland DE, Brown DM, Goetz FC. Structural-functional relationships in diabetic nephropathy. J Clin Investigation 1984; 74(4): 1143-55.
15. Remuzzi G, Ruggenenti P. Prognosis of diabetic nephropathy: how to improve the outcome. Diabetes Res Clin Prac 1998; 39: S49-53.