

“A Study to Compare the Demographic Profile of Diabetic and Diabetic Nephropathy Adult Human Subjects”

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ABSTRACT

Diabetes is a world step up public problem. There has been an exponential rise in diabetes worldwide and India is no exception. This is chronic condition associated with macro vascular disease as coronary heart disease, peripheral arterial disease etc. and micro vascular disease like retinopathy and nephropathy. So this study was on an assessment the *occurrence of nephropathy among diabetic patients in relation to their socio-demographic, disease history and management*. In this descriptive survey study 200 (diabetic and diabetic nephropathy) were selected by purposive random sampling method from the hospital OPD visitors who have been given verbal consent, from Indore city. Information schedule and interview method were used to data collection. Data were tested statically using percentage and chi square. Result of the present study showed that there was significant relevance and occurrence of diabetic nephropathy among the adult patients as per their socio-demographic background. As well as a significant relevance and occurrence of diabetic nephropathy found among adults as per their disease history and disease management.

INTRODUCTION

Diabetes is a metabolic and endocrinal disorder. This condition is characterized by abnormal metabolism of carbohydrate, fat and protein which lead to dyslipidemia and hyperglycemia that is cause of defect in insulin action, insulin secretion or both. Diabetes is a world step up public health problem. According to the most recent estimates published in the *Diabetes Atlas 2006*, India has the largest number of diabetic patients in the world, estimated to be 40.9 million in the year 2007 and expected to increase to ~69.9 million by the year 2025. (Habib, F. and Durrani, M. A., 2018)

Diabetes is a leading cause of chronic kidney disease which develops the diabetic nephropathy. Kidney disease in diabetic patients is clinically characterized by increasing rates of urinary albumin excretion, starting from normoalbuminuric, which progresses to microalbuminuria, macroalbuminuria, and eventually to ESRD. Diabetic Nephropathy is characterized with albuminuria (ratio of urine albumin to creatinine $\geq 30\text{mg/g}$), impaired estimated glomerular filtration rate (eGFR $<60\text{ mL/min/1.73 m}^2$), or both, in adults with Diabetes Mellitus. Diabetic nephropathy and its related health problem are one increasing challenge for health care system in world wide. Among all diabetes complications diabetic nephropathy is the diabetes specific complication with the greatest mortality. DN and CKD share common risk factors that enhance the risk of progressive disease and adverse outcomes, 50% of the adults with DM are affected by CKD.

METHODOLOGY

Design of the study-

In the present study survey method was use for data collection. Sample was defined into urban adult patients selected from Private hospitals through purposive random sampling technique.

Sample size: The sample of the study was consist 100 diabetic and 100 diabetic nephropathy patients of age 40-70years from OPD visitors in the hospital of Indore city.

Tool and technique: Information schedule and interview method were used in the study to collecting data. Data was taken only those subjects who are given his verbal consent for collection the information. Subjects were

belongs to several background such as gender, education and income groups. Subjects who were suffering from serious health problems such as heart diseases, liver disease, cancer, CKD 5th stage were excluded from the study.

To test the null hypothesis percentage and Chi square test were computed to find out significance between the groups in statistical analysis at minimum of .05 P value.

RESULT AND DISCUSSION

Table-1: The socio-demographic background in diabetic nephropathy adult patients

Variable	Option	DM n=100	DMN n=100	Total N=200(%)	Chi square
Gender	Male	60	70	55%	5.99**
	Female	40	30	45%	
Age	40-50 year	20	17	18.5%	7.76*
	51-60 year	33	52	42.5%	
	>60 year	47	31	39%	
Education level	Illiterate	11	14	12.5%	0.47
	School	50	44	47%	
	Higher	39	42	40.5%	
Income group	Low	10	8	9%	6.14*
	Middle	50	67	58.5%	
	High	40	25	32.5%	
Social history	No.	70	40	55%	18.78*
	Smoking/alcohol/tobacco	20	45	32.5%	
	More than 1	10	15	12.5%	

* Significant at 0.05 level

From the data displayed in the table1, clearly indicate that there is significant relevance were found in all socio-demographic like gender, age, income group and social history apart from education of the subjects. The chi value was found significant for gender, age, income group and social history. Among the gender, the majority of them, (55%) were male and remaining (45%) were female found. Table indicate that (70%) male was found more in diabetic nephropathy compare to (60%) only diabetic subjects. Although, (40%) of female were found more in only diabetic compare to (30%) diabetic nephropathy subjects. In the age, the majority of them (42.5%) were of 51-61years, followed by (39%) of > 60 years and the minimum (18.5%) were of 40-50 years affected to both of categories. Table indicate that, (52%) of middle age (51-60 year) were found more in diabetic nephropathy compare to (33%) only diabetic subjects. However, (47%) of old age (>60 year) were found more in diabetic compare to diabetic nephropathy subjects. Although. The young age (40-50 year) were found less in both of categories. According to the above table the majority of (47%) subjects were only had school education, following by (40.5%) were had higher education and minimum (12.5%) were had illiterate in both of categories. Moreover, majority of (58.5%) were found belonging to middle income group, following by (32.5%) were belonging to high income group and minimum (9%) were belonging to low income group in both of categories.

Table further indicated that, (67%) of middle-income group were found more in diabetic nephropathy compare to only diabetic subjects. However, (40%) of high income group were found more in only diabetes subjects compare to diabetic nephropathy subjects. Instead of that low income group were found same in both of categories. According to the above table the majority of (55%) had no social history of tobacco, smoking and alcohol, following by (32.5%) had any one social history of tobacco, smoking and alcohol and the minimum (12.5%) had more than one social history of tobacco, smoking and alcohol in both of categories.

Table-2: The disease history and disease management in diabetic nephropathy adult patients.

Variable	Option	DM n=100	DMN n=100	Total n=200(%)	Chi square
Family history	No history	45	60	52.5%	6.58*
	Parents	42	25	33.5%	
	Grand parents	13	15	14%	
Duration of DM	<5 year	37	30	33.5%	11.28*
	6-10years	23	45	34%	
	>10 years	40	25	32.5%	

Treatment	Tablet	59	33	46%	13.58*
	Insulin	41	67	54%	
Dietician	No.	63	45	54%	6.52*
	Yes	37	55	46%	

* Significant at 0.05 level of significance.

The above tables (2) clearly indicates that there is relevance in disease history like family history, time period of disease and disease management like treatment of disease, dietician consultation of only diabetic and diabetic nephropathy subjects. The chi values were found highly significant with all variables. There is significant difference between only diabetic and diabetic nephropathy subjects in respect of disease history and disease management. Among the subjects the majority of them (52.5%) were had no family history, followed by (33.5%) were had parental history and the minimum (14%) were had grandparents history in both of only diabetic and diabetic nephropathy subjects. Table showed that, (60%) were had found no family history more in diabetic nephropathy compare to (45%) of only diabetic subjects. on the other hand, (42%) were found parental history more in only diabetic subjects compare to (25%) of diabetic nephropathy subjects. Instead of, the grandparents family history were founded almost same in both of categories. Among the all subjects the majority of them (34%) were suffering from 6-10 years old diabetes history, followed by (33.5%) were suffering from only 5 year old diabetes and the minimum (32.5%) were suffering from >10 years old in both of categories. Table point out that, (45%) the middle period (6-10years) were suffering from diabetes more in diabetic nephropathy subjects compare to (23%) of only diabetic subjects. Instead of that (40%) long period (>40) were suffering from diabetes more in only diabetes compare to (25%) diabetic nephropathy subjects. Although (37%) short periods (< 5 year) were suffering from diabetes more in only diabetes compare to (30%) diabetic nephropathy subjects. As well as among the subjects the majority of them (54%) were following insulin treatment and remaining (46%) were following only tablets treatment for diseases management in both of categories.

The Table further revealed that, (67%) were depend on insulin in diabetic nephropathy subjects compare to (41%) only diabetic subjects for treatment and management of disease. Instead of (59%) diabetic subjects were depend more on tablets compared to (33%) diabetic nephropathy subjects for the same. Moreover, among the subjects the majority (54%) were not following dietician counselling. Table further revealed that (55%) were followed dietician counselling in diabetic nephropathy subjects as compared to (37%) only diabetic subjects.

Table-3: To compare diabetic and diabetic nephropathy adults as per their health condition

Variable	GROUP		Total	Chi Value	df	Sig
	Only diabetic n=100	With diabetic nephropathy n=100				
Weight gain	61	45	53.0	5.138	1	.023
Weight loss	38	53	45.5	4.537	1	.033
Intense hunger	54	43	48.5	2.422	1	.120
Poor appetite	39	59	49	8.003	1	.005
Fatigue	53	72	62.5	7.701	1	.006
Blurred vision	40	49	44.5	1.640	1	.200
Skin infection	36	38	37.0	.086	1	.770
Late Healing	35	36	35.5	.022	1	.883
Irregular breathing	53	61	57	1.306	1	.253
Insomnia	26	41	33.5	5.050	1	.025
Polyuria	38	52	45	3.960	1	.047

The above table (3) shows about the obtained data regarding percentage distribution of subjects in the different health condition among diabetic and diabetic nephropathy subjects. The indicates significant difference in weight

gain, weight loss, poor appetite, fatigue, insomnia, and polyuria as respective chi values, However, no significant difference as per chi-value was found for intense hunger, blurred vision, skin infection, late healing and irregular breathing of diabetes. The table indicates that the diabetic nephropathy were had majority in (53%) weight loss, (59%) poor appetite, (72%) fatigue, (49%) blurred vision, (38%) skin infection, (36%) late healing, (61%) irregular breathing, (41%) insomnia and (52%) polyuria compare to only diabetic subjects. However the only diabetics were majority in (61%) weight gain and (57%) intense hunger category as compared to nephropathy patients.

DISCUSSION

On the basis of founding, it can be said that there is significant relevance of all demographic variables, of diabetes nephropathy subject's rest of level of education. Diabetic kidney disease is considered to be an irreversible and progressive disease. In the subjects male had founded more prone for diabetic nephropathy as compare to female. Fatema (2017) studies also support that male were more affected with diabetic nephropathy. The present study revealed that diabetic nephropathy was found more in middle age subjects (41-50 years old). Habib (2018), studies on diabetic Pima Indians, up to 50% were found to develop nephropathy at 20 years of age. However, the middle income group subjects had more diabetic nephropathy. Although, the subjects who had no social history of smoking, tobacco and alcohol those had high risk of diabetic nephropathy but smoking and alcohol directly connected to developing diabetic nephropathy.

The result revealed that significant relevance in disease history and disease management of diabetic nephropathy subjects. The present finding showed that diabetes nephropathy developed in those subjects who had no family history of diabetes and mostly followed by subject's parental history. The result of Lim (2014) was just opposite of the study. He found that the diabetes history in subject's parent and grandparent. The present study found that long duration of diabetes (approx 10 year old) subjects were high risk to developing nephropathy. Ahmed supported the duration of DM increase the risk of diabetes nephropathy and it was directly connected to progression of diabetes nephropathy. Although the finding showed that the diabetic patient who had followed dietician consultation those had less progression of diabetes nephropathy.

Chandra, D.S.et al.,(2018) found that male-to-female ratio and mean age were higher in the CKD with DM group. In addition, a larger proportion of CKD patients with DM were smokers (48.86%) compared to CKD patients without DM (36.22%, $P < 0.001$). Percentages of patients who used alcohol did not differ between the groups as well as CKD patients with DM were generally less well-educated. Although recent studies have shown the association between smoking and progression of diabetic nephropathy, a large prospective study by Hovind et.al., (2018) did not confirm the association between smoking and decrease GFR rate in patients with DM with or without ACEI therapy.

Data from Kim,Y.H.(2014) supported the duration of DM increase the risk of diabetes nephropathy and is was directly connected to progression of diabetes nephropathy. As well as they found that the subjects diagnosed with DM in earlier age had a high risk of developing nephropathy. Each of the above-described factors increases the risk of diabetic nephropathy, but none is predictive enough for the development of diabetic nephropathy in an individual patient.

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