

Original Research Article

Clinical profile of patients with diabetes: a hospital based cross sectional study

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ABSTRACT

Background: Diabetes is a leading cause of morbidity and mortality. Early identification of complications and management of the same is important to prevent the morbidity and mortality. The objective of the study was to study the clinical profile of patients with diabetes.

Methods: A hospital based cross sectional study was carried out among 25 diabetic individuals. Baseline demographic details, risk factors and complications were noted. Investigations like fasting blood sugar, lipid profile and blood pressure were carried out for all patients. Their treatment status was noted.

Results: Majority (56%) belonged to age group of 40-59 years. Males were more (64%) than females (36%). Only 28% were normal weight. 52% admitted that they consumed alcohol. 72% were non-smokers and only 8% were tobacco chewers. Hypertension was the most common complication associated with diabetes in 64% of the cases. 4% each had coronary heart disease, stroke, and neuropathy. No one was found to have cataract. 12% had diabetic foot while 8% had kidney disease. Mean levels of total cholesterol was 164.76; mean level of triglyceride was 169.28; mean level of HDL was 45.08; mean level of LDL was 91.32; mean level of Fasting blood sugar was 186; mean Systolic blood pressure was 168.48 and mean Diastolic blood pressure was 114.4. Majority (76%) were on Oral hypoglycemic drugs only and only 4% were on insulin. 20% were on Oral hypoglycemic drugs + insulin.

Conclusions: Males were affected more with diabetes. Hypertension was the most common complication. Significant number had developed serious complications and hence early screening for complications in all diabetes patients is required.

Keywords: Clinical profile, Risk factors, Co-morbidities, Complications, Diabetes, Treatment

INTRODUCTION

It was observed that there are more than six crore Indians affected with diabetes mellitus.¹ India became diabetic capital of the world with 31.7 million cases of diabetes mellitus more than that of China which had 20.8 million cases of diabetes mellitus. It has been predicted that the world number of diabetics will touch around 79.4 million

by the year 2030 and at the same time it may cross the figure of 79.4 million in India.²

Diabetes mellitus is not caused by a single factor but it is multifactorial. Apart from genetic factors many other factors like advancing age, alcohol consumption, obesity, lack of physical activity, overeating, belonging to upper social class can lead to the occurrence of the diabetes

mellitus. In India, the prevalence of diabetes mellitus is more in urban areas compared to the rural areas.³

Indian population is susceptible to develop the coronary heart disease. This may be due to lower amounts of high density lipoproteins and dyslipidemia. Diabetes mellitus is known to predispose an individual to this condition. Hence incidence of complications associated with diabetes mellitus occur at an early age among Indian diabetics compared to the diabetics of the western countries. Hence there is need for early screening of complications among all the diabetic patients.⁴

More number of people suffering from complications of the diabetes mellitus is due to early onset diabetes mellitus in India. Early onset of the diabetes simply means longer duration of the disease mellitus and more complications associated with it. But there is lack or paucity of data on complication profile of diabetics in India.⁵

A study has shown that diabetic neuropathy was the most common complication of diabetes mellitus in 24.6% of the cases of the diabetes mellitus. This was followed by next most common complication of the diabetes mellitus i.e., cardiovascular diseases associated with the diabetes mellitus in 23.6% of the cases of the diabetes. Kidney disease which is also one of the common complications of the diabetes mellitus was seen in 21.1% of the cases. Retinopathy was seen in 16.6% of the cases of diabetes mellitus. While it was observed that the prevalence of foot ulcers was seen in 5.5% of the cases of diabetes mellitus. Hence early screening is advised for all cases of the diabetes mellitus so that early identification can help control these complications more better in cases with diabetes mellitus. Proper control of the blood sugar is also very much important in cases of diabetes mellitus so that these complications which are associated with the diabetes mellitus can either be prevented or their occurrence can be delayed to a significant duration. This will help to improve the quality of life of the patients with diabetes mellitus.⁶

Thus, this data focuses on the importance of the studies on clinical profile of the patients with diabetes mellitus. As motioned in the above literature regarding diabetes mellitus, diabetes mellitus is an important cause of increased morbidity in terms of complications of diabetes mellitus in individuals.

Hence present study was carried out with the objective to study the clinical profile of patients with diabetes mellitus.

METHODS

A hospital based cross sectional study was carried out among 25 diabetic individuals over a period of six months from January 2021 to June 2021 at a tertiary care hospital located in Hyderabad. Institutional Ethics Committee permission was obtained before the start of the study. Written informed consent was taken from all eligible patients after they were explained about the nature of the

study and investigations required for the present study. They were also assured that their information will be kept confidential. All the participating patients were treated and managed as per the standard guidelines.

Inclusion criteria

Age more than 18 years, either gender, known cases of diabetes.

Exclusion criteria

Age less than 18 years, known cases of diabetes who are bed-ridden, not willing to give blood sample for investigations.

After obtaining IEC permission and written informed consent from the eligible patients, the data was recorded in the pre designed, pre tested, semi structured study questionnaire prepared for the present study based on the extensive review of literature.

Basic socio-demographic characteristics like age, sex and duration of diabetes were noted. Height and weight were measured as per the standard guidelines using standard equipments like height rod and standardized digital weighing machine. Height was recorded in cm to the nearest 0.5 cm and weight was recorded in kg to the nearest 0.5 kg. Based on height and weight, body mass index was calculated in kg/m². Blood pressure was measured in the sitting position as per the standard guidelines using standardized digital sphygmomanometer.

Before taking the blood pressure, the patient was asked to relax for 5-10 minutes. Three readings were taken at an interval of five minutes and the lowest reading was accepted for the present study purpose.

Risk factors like alcohol consumption, smoking and tobacco chewing were noted in the pre designed, pre tested, semi structured study questionnaire. Complications of diabetes like Hypertension, coronary heart disease, stroke, neuropathy, and cataract and kidney disease were confirmed from the medical records of the patients.

Investigations like total cholesterol, triglycerides, HDL, LDL, fasting blood sugar were done for all the patients. Blood sample collection was done while the patient was fasting in the early morning with all aseptic precautions.

The measurements of the above parameters were carried out using standard equipments in the certified laboratory. Finally the treatment status of the patients was noted by asking them to provide the prescriptions.

Statistical analysis

The data was entered in the Microsoft Excel worksheet and analyzed using proportions.

RESULTS

Table 1 shows distribution of study subjects as per socio-demographic characteristics.

Table 1: Distribution of study subjects as per socio-demographic characteristics.

Socio-demographic characteristics		Number	%
Age (mean=51.52 years)	18-39	4	16
	40-59	14	56
	≥60	7	28
Sex	Male	16	64
	Female	9	36
Duration of diabetes (years) mean=5.24	0-5	18	72
	> 5	7	28

Table 2: Distribution of study subjects as per risk factors of diabetes.

Risk factors of diabetes		Number	%
Body weight	Normal weight	7	28
	Overweight	10	40
	Obesity	8	32
Alcohol consumption	Yes	13	52
	No	12	48
Smoking	Yes	7	28
	No	18	72
Tobacco chewing	Yes	2	8
	No	23	92

Table 3: Distribution of study subjects as per complications of diabetes present.

Complications of diabetes		Number	%
Hypertension	Yes	16	64
	No	9	36
Coronary heart disease	Yes	1	4
	No	24	96
Stroke	Yes	1	4
	No	24	96
Kidney disease	Yes	2	8
	No	23	92
Diabetic foot	Yes	3	12
	No	22	88
Neuropathy	Yes	1	4
	No	24	96
Cataract	Yes	0	0
	No	25	100

Majority of the study subjects belonged to the age group of 40-59 years i.e. 56% and only 16% were seen in the age group of 18-39 years. Males were more (64%) than

females (36%). Majority of the cases were known cases of diabetes since 0-5 years.

Table 2 shows distribution of study subjects as per risk factors of diabetes. Only 28% were normal weight and remaining were either overweight or obese. 52% admitted that they consumed alcohol. 72% were non-smokers and only 8% were tobacco chewers.

Table 4: Distribution of study subjects as per lipid profile, blood pressure and fasting blood sugar.

Variable	Mean	Standard deviation
Total cholesterol	164.76	34.15
Triglycerides	169.28	55.32
HDL	45.08	30.75
LDL	91.32	25.17
Fasting blood sugar	186	84.98
Systolic blood pressure	168.48	52.77
Diastolic blood pressure	114.4	22

Table 5: Distribution of study subjects as per present treatment.

Present treatment	Number	%
Oral hypoglycemic drugs only	19	76
Insulin only	1	4
Oral hypoglycemic drugs + insulin	5	20
Total	25	100

Table 3 shows distribution of study subjects as per complications of diabetes present. Hypertension was the most common complication associated with diabetes in 64% of the cases. 4% each had coronary heart disease, stroke, and neuropathy. No one was found to have cataract. 12% had diabetic foot while 8% had kidney disease.

Table 4 shows distribution of study subjects as per lipid profile, blood pressure and fasting blood sugar. Mean levels of total cholesterol was 164.76; mean level of triglyceride was 169.28; mean level of HDL was 45.08; mean level of LDL was 91.32; mean level of fasting blood sugar was 186; mean systolic blood pressure was 168.48 and mean diastolic blood pressure was 114.4. Table 5 shows distribution of study subjects as per present treatment. Majority i.e. 76% was on Oral hypoglycemic drugs only and only 4% were on insulin. 20% were on Oral hypoglycemic drugs + insulin.

DISCUSSION

Majority of the study subjects belonged to the age group of 40-59 years i.e. 56% and only 16% were seen in the age

group of 18-39 years. Males were more (64%) than females (36%). Majority of the cases were known cases of diabetes since 0-5 years. Only 28% were normal weight and remaining were either overweight or obese. 52% admitted that they consumed alcohol. 72% were non-smokers and only 8% were tobacco chewers. Hypertension was the most common complication associated with diabetes in 64% of the cases. 4% each had coronary heart disease, stroke, and neuropathy. No one was found to have cataract. 12% had diabetic foot while 8% had kidney disease. Mean levels of total cholesterol was 164.76; mean level of triglyceride was 169.28; mean level of HDL was 45.08; mean level of LDL was 91.32; mean level of Fasting blood sugar was 186; mean Systolic blood pressure was 168.48 and mean Diastolic blood pressure was 114.4. Majority i.e. 76% was on Oral hypoglycemic drugs only and only 4% were on insulin. 20% were on Oral hypoglycemic drugs + insulin.

Ogbera et al studied 4000 cases that were aged more than 12 years of age and found that the mean age was more in cases with both diabetes mellitus and tuberculosis compared to those with only tuberculosis.⁷ This finding was noted to be statistically significant. The incidence of diabetes was observed out to be 12.3%.

Costi et al included 224 cases of type 2 diabetes mellitus that were using insulin. They noted that the as per the mean age majority was elderly and males were more.⁸ Hypertension and hyperlipidemia were the most common complications associated with diabetes. 75.1% of the patients were found to have metabolic syndrome. Macro vascular complications were more than that of the micro vascular complications. All cases had higher levels of glycosylated hemoglobin, body mass index, complications.

Amutha et al found that the incidence of diabetes in young population increased from only 0.55% in the year 1992 to a high level of 2.5% in the year 2009 which was statistically significant.⁹ The incidence of type 1 diabetes in this young population was 43.2% while 48% were found to have type 2 diabetes; 4.5% were found to have gestational diabetes and 4.4% were found to be suffering from other diseases. 71.9% were found to have retinopathy and 22.1% were found to have nephropathy.

Kumar et al observed while studying 60 cases of type 2 diabetes aged 30-75 years that the mean age was 54.3 years.¹⁰ The average duration of the diabetes was 10.1 years. The mean value of HbA1c was 7. The overall body weight was on lower side, they all had lower body mass index.

Carrera et al studied retrospectively 195 patients with diabetes with age more than 18 years.¹¹ They noted that the control of the blood sugar was within acceptable range in 61.03% of the cases. Normal blood pressure was observed in 58.46% of the cases. Total cholesterol levels less than 185 were seen in 52.82% of the cases. Triglyceride levels

were less than 150 in 66.15% of the cases. The proportion of co morbidities was 49.74%. The calculated risk of heart disease was found out to be 37.81% and for stroke it was 23.5%.

Borkar et al carried out a cross sectional study including 84 cases aged 45-65 years.¹² They noted that chewing tobacco was present in 17% of the cases and smokers were 6% while 5% were addicted to alcohol. 49% of the cases had obesity and family history of diabetes was seen in 8% of the cases. Thus, they concluded that in cases with type 2 diabetes family history of diabetes, hypertension, obesity and lifestyle were commonly seen.

Prajapati reviewed hospital records of 48 patients with diabetic ketoacidosis. Among them 73% were having type 2 diabetes.¹³ Among them 23% were newly diagnosed cases. Cases with type 1 diabetes had common presenting symptoms like polyuria and polydipsia which was found to be statistically significant similarly among type 2 diabetes cases, fever was more common which was also significant. Serum potassium and sodium levels were found to be normal. But serum urea levels were higher in 42% of the cases and about 33% had raised creatinine. Not taking insulin was the predisposing factor in type 1 diabetes cases whereas it was infection in type 2 diabetes cases.

Xu et al studied 643 cases of diabetic ketoacidosis and found that among them 47.9% were of type 1 diabetes while 45.7% were of type 2 diabetes. 381 episodes of diabetic ketoacidosis were seen in known diabetes cases.¹⁴ Infection was the most common factor that precipitated diabetic ketoacidosis. In cases with type 1 diabetes dehydration and gastrointestinal symptoms were common. Only about two third of the cases received appropriate therapy. 1.7% of the cases died.

Limitations

Present study was single center study with small sample. Hence results should be interpreted cautiously. But our study findings were comparable with other studies having large sample size. Few patients may not have revealed their treatment history appropriately which can affect the present study results.

CONCLUSION

The common age group affected was 40-59 years showing that in India, the people get affected with diabetes at an early age. Obesity was common and alcohol use was common. Hypertension was the most common complication of diabetes showing that it is the earliest complication in diabetic patients. Very few were on insulin showing that present study population was more with lesser duration of diabetes or early stages of diabetes. Community based screening for early detection of diabetes and its risk factors is important to prevent occurrence of diabetes. For those with diabetes, it is important to screen

them for all complications so that they can be identified early and prompt treatment can be given.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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