Original Research Paper

Medicine

STUDY OF CLINICAL PROFILE OF DIABETES MELLITUS IN HOSPITALIZED PATIENTS IN A RURAL TEACHING INSTITUTE IN SUB HIMALAYAN POPULATION: A PROSPECTIVE ANALYSIS

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ABSTRACT
Introduction: Diabetes mellitus is a major public health problem worldwide. Its prevalence is On rise in many part of developing world and india is no exception. Individual with diabetes mellitus are considered as high priority as they are potential candidates for rapid evaluation to prevent and halt the progression of the complications. **Aim :** To evaluate clinical profile of Diabetes mellitus in hospitalised patients inDr.R.P.G.M.C Tanda at Kangra.**Results :** Study include 200 patients, out of which 103 was male and 97 were female. 95(47.5%) patients had HbA1c level between 6.5-7.5%, followed by 69(34.5%) patients in 7.6-8.5%. Most common cause for hospital admissonin diabetics was infections, 80(40.0%), followed by Acute coronary syndrome 66(33%) patients, followed by stroke(14%) and hypergylcemic emergency(13.5%). Urinary tract infection was most common infection encountered in our study(31%), followed by pneumonia (25%), followed by pulmonary tuberculosis (19%). STEMI was more common than NSTEMI in our study. ECHO finding suggest 41.48% had features of left ventriculat systolic dysfunction, 34.04% patients had features of left ventriculat diastolic dysfunction, and 24.46% patients had left ventricular hypertrophy. 14% of patients presented with neurologigal deficit, later diagnosed to had stroke, most commonly it was ischemic stroke, in 18 patients and haemorrhgic stroke in 10 patients. 20(10%) patients presented with uncontrolled hyperglycemia, out of which 13 patients diagnosed as HHS and &7 with diabetic ketoacidosis . 60(30%) patients had feature of diabetic retinopathy.34 had mild NPDR, 23 patients had moderate NPDR and 3 had sever NPDR. Neuropathy was seen in 24%(48) patients. Dyslipidemia was more commnly seen in our study, more than 95% patients had LDL level above optimal range, 62% had TG above optimal range, and 78% had hypercholesteronem. **Conclusion :**In our study patients with diabetes mellitus, most of the patients presented with features of infection followed by acute coronary syndrome followed by stroke and hyperglycemic emergencies. UTI was the most common infection encountered followed by pneumonia and pulmonary tuberculosis.Among patients with ACS, STEMI was more common in diabetics as compared to NSTEMI, but female patients presented with NSTEMI. Ischemic stroke was more common in the study we conducted.Microvascular complication of diabetes mellitus were also very common in our study.Majority of the patients who were hospitalised had uncontrolled diabetes and had longer duration of diabetes.

KEYWORDS :

INTRODUCTION

Diabetes Mellitus (DM) is a metabolic disorder of multiple etiology characterized by chronic hyperglycemia with disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion, insulin action, or both. The prevalence of DM is increasing worldwide with estimated projection of approximately 300 million patients worldwide by year 2025. India has been recognised as the diabetes capital of the world by the international diabetes federation with approximately around 40.9 million people affected by diabetes as of 2006. This number is projected to rise to 69.9 million by 2025. In the Indian diabetes population, the prevalence of macrovascular complications such as coronary artery disease and peripheral vascular disease has been reported as 21.4 and 6.3% respectively . In the same population, the prevalence of microvascular complications such as microalbuminuria and diabetic nephropathy was reported as 26.9 and 2.2% respectively.[1-4] Population growth, aging, urbanization and increasing prevalence of obesity are some of the root causes of increase in diabetes burden in the world. As WHO rightly predicts that developing countries bear the brunt of this epidemic in the 21st century, we see more than 70% of people with diabetes live in low and middle income countries. India has an estimated 50.8 million people living with diabetes. The largest age group is currently 40-59 years and this is expected to move to 60-79 years age group by the year 2030 with some 196 million cases (World Health Organization). Most of the available literature on diabetes is from studies based on urban population and studies in developed countries. Moreover, the inference from studies on western population or urban population may not be uniformly applicable to the rural setup. Hence, the present study was aimed to study clinical profile of diabetes in hospitalized patients.

SUBJECTS AND METHODS

A total of 200 diebetic patients aged >18 years were included in this study over a period of one year at Department of Medicine, Dr RPGMC Kangra at Tanda. The patients aged <18 years, unable to provide consent, and lost to follow-up were excluded from the study.

A complete medical history was obtained with special emphasis on diabetes relevant aspect such as weight loss, family history of diabetes and its complications, risk factors for cardiovascular disease, prior medical condition, exercise, smoking and ethanol use. Routine investigations like RBS, FBS, completehemogram, renal function test, liver function test, urine routine microscopy, lipid profile and HbA1c, ABG, serum bicarbonate levels, urinary and plasma ketone and troponin I in selected patients according to clinical condition.

Glycated HbA1c reflects average glycemic control over a period of 2-3 months. HbA1c assay by High Performance Liquid Chromatography (HPLC) method is standard reference method. Hemoglobinopathies, haemolytic anemias and uremia may interfere with HbA1c result.

STATISTICAL ANALYSIS

Data were presented as frequency, percentages.

RESULTS

General characteristics

Table 1 shows general characteristics of the study population.

63% of the patients aged more than 60 years. 51.5% of these patients were males. Only 7.5% had duration of diabetes less than 5 years. 70% of these patients also had hypertension. Only 10% patients had family history of diabetes.

HbA1c
Majority of patients 95(47.5%) had HbA1c level between 6.5-7.5%, followed by 69(34.5 %) in 7.6-8.5%, followed by 14(7%) in 8.6-9.5% HbA1c level (Figure 1).

Reason for admission to the hospital
The patients admitted in medicine ward during study are presented with multiple complaints at same time for eg. Patients presented with classical symptom also have feature of infective etiology and DKA or HHS. Similarly patients with myocardial infarction also had history of infection prior to and during admission. Majority of patients 71.5% had feature of polyuria, polydypsia (Table 2).

Infection
80 patients had symptom of infection at time of admission. Out of 80 patients 25(31%) patients had symptom of urinary tract infection , 20(25%) patients had pneumonia, 15(19%) patients later diagnose to have tuberculosis, 10(12%) patents present with diabetic foot infection and 10(12%) had symptom of upper respiratory tract infection (Figure 2).

Stroke
Out of total patients, 28 patients presented with feature of neurological deficit due to stroke, and out of 28 patients 18 had ischemic stroke and 10 had hemorrhagic stroke (Figure 3).

Myocardial infarction
Total of 66 patients presented with ACS, out which 37patients had STEMI, and 29 patients had NSTEMI (Figure 4).

DISCUSSION
In our study, the subjects were included from medicine wards. The study included 200 patients detected within one year of the 200 patients studied 103 were males and 97 were female, maximum number of patients were in 60-70 age group Followed by 50-60 year. In our study maximum number of participants had history of diabetes between 10-15 year followed by 6-10 year. If we consider the clinical presentation at the time of admission to hospital, most of the patients had multiple problems at time of admission, Most of the patient presented with feature of classical symptom(Polydypsia, Polyphagia, Polyuria) also had features of infection, most commonly urinary tract infection, similarly many patients with recent history of infection present with acute coronary syndrome or hyperglycaemic emergencies eg. DKA and HHS. In our study nearly 71.5% had classical symptom like polyuria, polydypsia and weight loss. This compared with UKPDS were nearly 60-65% patients were with classical symptoms. About 80(40%) patient had symptom of infection. Out of 80 patients, 25(28%) had urinary tract infection, 20(25%) patients had pneumonia, Most of the time diagnosis of pneumonia was made on radiological and sputum examination,15(18.5%) patients had pulmonary tuberculosis, 10(12%) patients had diabetic foot infection, and 10(12%) had feature of URTI at time of admission. Urinarytract was the most common site of infection in diabetics. Although most urinary tract infections in diabetics were asymptomatic, but the presence of diabetes predisposed to more severe infection. Tuberculosis was once a common in diabetics patients. In 1930 tuberculosis was 3- 16 times frequent indiabetics. Currently, tuberculosis is less of problem in diabetics patients,Howeverdiabetes may still predispose to reactivation of tuberculosis. Foot infections are common and serious problems in diabetics patients. Infection may develop in the toe nail bed, beneath planter calluses or in ischaemic or neuropathic ulcer. Once established these infections may extend to involve deeper soft tissue, joints or bones. The result of our study was comparable tostudy conducted by Abdul et al.[5] In our study 28 patients were present with stroke. Out of 28 patients 18 suffered from ischemic stroke and 10 suffered from haemorrhagic stroke. Finding of our study were consistent with many other studies which suggest that diabetics are more prone to ischemic stroke, A study conducted by Sarkar et al[6], and study by Ali et al.[7] On pattern ofstroke in diabetics and non-diabetics, showed diabetics were more likely to have ischemic stroke.

In our study population only 66 (33%) showed acute myocardial infarction. Out of which 37(56.06%) patients showed STEMI, 29(43.93) showed NSTEMI. In our study STEMI in male was 59.45% and NSTEMI was 44.82%, and in female STEMI was 40.54% and NSTEMI was 55.17%. Result of our study was consistent with the study done by Misiriya et al[8]. However, In CREATE stud they found that most (60.6%) presented with STEMI and only 39.4% patients presented with NSTEMI. Among males STEMI was more common than female, NSTEMI/UA were also more common in males than females.[9]

CONCLUSION :
In our study patients with diabetes mellitus, most of the patients presented with features of infection followed by acute coronary syndrome followed by stroke and hyperglycemic emergencies. UTI was the most common infection encountered followed by pneumonia and pulmonary tuberculosis.Among patients with ACS, STEMI was more common in diabetics as compared to NSTEMI, but female patients presented with NSTEMI. Ischemic stroke was more common in the study we conducted.Microvascular complication of diabetes mellitus were also very common in our study.Majority of the patients who were hospitalised had uncontrolled diabetes and had longer duration of diabetes. This again further emphasis the importance of glycaemic control in patients of diabetes.

Table 1. General characteristics

Age-group (Year)	<30	4	2.0
	31-40	2	1.0
	41-50	28	14.0
	51-60	42	21.0
	61-70	86	43.0
	71-80	30	15.0
	>81	8	4.0
Sex	Male	103	51.5
	Female	97	48.5
	< 5	15	7.5
	6-10	55	27.5
	11-15	65	32.5
	16-20	51	25.5
	21-25	12	6.0
	>25	2	1.0
Hypertension	Normal	60	30
	Hypertension	140	70
Family history of diabetes	Present	21	10.5
	Absent	179	89.5

Table 2: Reason for admission to hospital

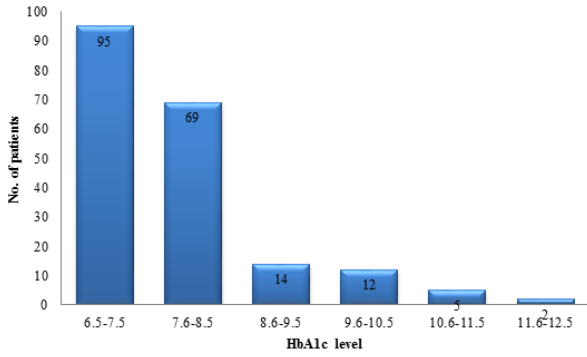| Presentation	No. of Patients	Percentage
Classical (Polydypsia, Polyuria, Polyphgia)	143	71.5
Infections	80	40.0
Myocardial infarction	66	33
Stroke	28	14
DKA	7	3.5
HHS	13	6.5

Figure 1. Distribution of HbA1c levels among diabetic patients
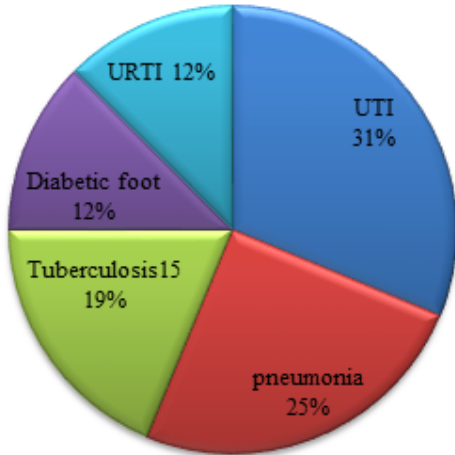

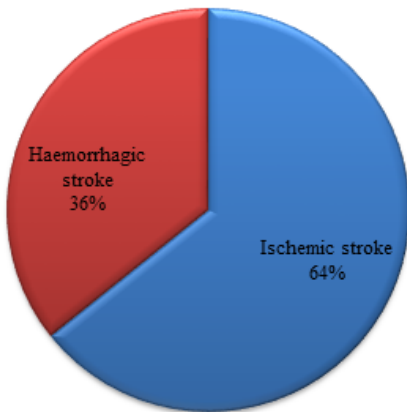**Figure 2. Distribution of infection among diabetic patients**

Figure 3. Distribution of stroke among diabetic patients
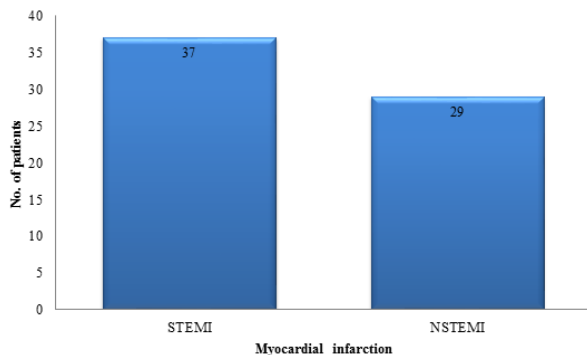

Figure 4. Distribution of myocardial infarction among diabetic patients

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