Original Research Article

A study of glycemic control and prevalence of neuropathy and foot ulcers at tertiary health care center

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Abstract

Background: Diabetes Mellitus (DM) is most common non communicable diseases across the world. Aims and **Objectives:** To study glycemic control and prevalence of neuropathy and foot ulcers at tertiary health care center **Methodology:** This was a cross-sectional study carried out in the known patients of diabetes diagnosed by Glucose tolerance test and attending the OPD or IPD of the department of Medicine of a tertiary health care centre during the one year period i.e. January 2018 to January 2019 the data was entered to excel sheet and analyzed windows excel software for windows 10. Result : In our study we have seen that The majority of the patients were in the age group of >70 were 30.23%, followed by 60-70 were 25.58%, 50-60 were 20.93%, 40-50 were 16.28%, 30-40 were 6.98%. The majority of the patients were Male i.e. 68% and Female were 32% The prevalence was maximum with HbA1C 9-10 were 8.84%, followed by 8-9 were 4.88%, 7-8 were 3.95%, 6-7 were 1.16%. The prevalence was maximum with HbA1C 9-10 were 2.56%, followed by 8-9 were 2.09%, In 7-8 were 0.70%, 6-7 were 0.23%. **Conclusion:** It can be concluded from our study as the Glycemic control deranged the prevalence of Peripheral neuropathy and Diabetic foot ulcer increased.
Key Word: HbA1C, neuropathy, Diabetic foot ulcers (DFU)

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INTRODUCTION

Diabetes Mellitus (DM) is most common non communicable diseases across the world. Two types of complications are encountered usually with DM: microvascular and macrovascular. Diabetic neuropathy is one of the most commonly-occurring micro vascular complications, of which the most common type is distal symmetrical neuropathy or polyneuropathy. Patients who present with diabetic foot ulceration are heterogeneous. Even though most of them have peripheral polyneuropathy, there are several other factors that may vary among patients, such as the existence of peripheral arterial disease (PAD), infection and co-morbid conditions. PAD is present in approximately one-half of patients with foot ulcers.[1] Diabetes-related conditions in the lower limb that increases the risk for amputation among people having DM include peripheral neuropathy, PAD, and sepsis. Peripheral neuropathy cause loss of sensation, resulting in inability to recognize foot problems and may lead to development of foot deformities that increase pressure points prone to ulceration. Common risk factors for amputation include older age, male gender, a member of certain racial/ethnic groups, having poor glucose control, having diabetes for a long duration and practicing poor preventive health care.6 It is estimated that up to 15% of all people with diabetes will eventually develop a foot ulcer and up to 10% of all non-traumatic amputations are performed on patients with diabetes.[2] So in our study seen glycemic control and prevalence of neuropathy and foot ulcers at tertiary health care center

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METHODOLOGY

This was a cross-sectional study carried out in the known patients of diabetes diagnosed by Glucose tolerance test and attending the OPD or IPD of the department of Medicine of a tertiary health care centre during the one year period i.e. January 2018 to January 2019, so during the one year period there were 430 patients of diabetes were included into the study. All details of the patients like age, sex was noted. All the patients undergone HbA1C test and the prevalence of peripheral neuropathy and diabetic foot ulcer if any were also noted the data was entered to excel sheet and analyzed windows excel software for windows 10.

RESULT

Table 1: Distribution of the patients as per the age

Age	No.	Percentage (%)
30-40	30	6.98
40-50	70	16.28
50-60	90	20.93
60-70	110	25.58
>70	130	30.23
Total	430	100.00

The majority of the patients were in the age group of >70 were 30.23%, followed by 60-70 were 25.58%, 50-60 were 20.93%, 40-50 were 16.28%, 30-40 were 6.98%.

Table 2: Distribution of the patients as per the sex

Sex	No.	Percentage (%)
Male	292	68
Female	138	32
Total	430	100

The majority of the patients were Male i.e. 68% and Female were 32%

Table 3: Distribution of the patients as per the prevalence of neuropathy and glycemic control (HbA1C)

HbA1C	No.	Percentage (%)
6-7	5	1.16
7-8	17	3.95
8-9	21	4.88
9-10	38	8.84
Total	81	18.84

The prevalence was maximum with HbA1C 9-10 were 8.84%, followed by 8-9 were 4.88%, 7-8 were 3.95%, 6-7 were 1.16%.

Table 4: Distribution of the patients as per the prevalence of diabetic foot ulcer and glycemic control (HbA1C)

HbA1C	No.	Percentage (%)
6-7	1	0.23
7-8	3	0.70
8-9	9	2.09
9-10	11	2.56
Total	24	5.58

The prevalence was maximum with HbA1C 9-10 were 2.56%, followed by 8-9 were 2.09%, In 7-8 were 0.70%, 6-7 were 0.23%.

DISCUSSION

There is a dramatic rise in the prevalence of Type 2 Diabetes Mellitus (T2DM) and its associated complications across the globe. The projected worldwide burden of diabetic patients is estimated to escalate from 135 million in 1995 to 300 million in 2025[6]. In addition, there is an exponential increase in the devastating long-term complications of T2DM including peripheral artery disease[7], stroke[8], cardiovascular disorders, biliary tract disease[9], hyperlipidemia[10], colorectal cancer[11] and sepsis[12]. A study has reported a prevalence of 8.1%-41.5% for T2DM related retinopathy, 21%-22% for albuminuria, 6.7%-46.3% for nephropathy and 21.9%-60% for neuropathy[13]. Diabetes, once considered as a disease of developed countries, is one of the endo- [3] crine disorders that reached epidemic proportions worldwide now. The metabolic deregulation associated with diabetes mellitus (DM) causes secondary path physiologic changes in multiple organ systems that impose a tremendous burden[4] on the individual with diabetes and on the health care system. Overall all 15% of individuals with diabetes mellitus will have foot ulcer during their lifetime and the annual incidence is 2-3%[5] Owing to a high susceptibility to concomitant infection, hyperlipidemia, and peripheral vasculopathy in diabetic patients, long-standing T2DM invariably lead to neuropathy, lower limb ischemia and Diabetic Foot Ulcers (DFUs). The estimated lifetime risk of a diabetic patient to develop a DFU has been reported to range from reach 15% to 25%[14]. In our study we have seen that The majority of the patients were in the age group of >70 were 30.23%, followed by 60-70 were 25.58%, 50-60 were 20.93%, 40-50 were 16.28%, 30-40 were 6.98%. The majority of the patients were Male i.e. 68% and Female were 32% The prevalence was maximum with HbA1C 9-10 were 8.84%, followed by 8-9 were 4.88%, 7-8 were 3.95%, 6-7 were 1.16%. The prevalence was maximum with HbA1C 9-10 were 2.56%, followed by 8-9 were 2.09%, In 7-8 were 0.70%, 6-7 were 0.23%. From this we can concluded that as the Glycemic control is poor with respect to HbA1C the peripheral neuropathy and Diabetic foot ulcers were common. These findings are similar to Hamdi Almaramhy [15] they found that those majority **of** patients who had poorly controlled T2DM with advanced stage of DFUs.

CONCLUSION

It can be concluded from our study as the Glycemic control deranged the prevalence of Peripheral neuropathy and Diabetic foot ulcer increased.

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