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Clinical Study of Diabetic Foot

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Abstract

Introduction: Diabetes Mellitus (DM) is one of the most widespread non communicable diseases across the world. Two types of complications are encountered usually with DM: microvascular and macrovascular.

Material and Method: Hospital based cross-sectional study. 50 patients reporting to the General Surgery dept. within study duration and eligible as per inclusion criteria will be included in the study.

Results: Out of 50 cases 32.00 patients present with cellulitis, 28.00% patients with ulcers, 22% patients presents with gangrene and 18% patients present with abscess.

Conclusion: Diabetes Mellitus is a lifelong disease and diabetic foot complications can be life threatening, physically incapacitating, costly to treat and result in extensive morbidity.

Keywords: Diabetes, foot ulcers, neuropathy.

Introduction

Diabetes mellitus is characterized by chronic hyperglycemia and disturbance of carbohydrate, fat & protein metabolism associated with absolute or relative deficiency in insulin secretion and/or insulin action.¹

Diabetes is known for its micro & macro vascular complications like retinopathy, neuropathy, cardiovascular & peripheral vascular disease. One of the most devastating complications of diabetes is ‘Diabetic Foot’ which is responsible for > 50% non-traumatic major limb amputations.²

The World Health Organization (WHO) defines diabetic foot as the lower limb of a diabetic patient that has the potential risk of pathologic consequences, including infection, ulceration and/ or destruction of deep tissues associated with neurological abnormalities, various degree of peripheral neuropathy, vasculopathy and superimposed infection are mainly responsible foot ulceration. Ulcers which develop are difficult to treat due to poor wound healing which results from a combination of neuropathy, ischemia and hyperglycemia.

An inciting event such as unnoticed trauma through which micro-organisms gain entry, sluggish leukocyte response and high sugar content leads to destruction of proper host defense mechanisms which spread in subcutaneous and sub facial planes to the deeper tissues. Superficial ulcers are mainly colonized by staphylococcus aureus and/or streptococcus pyogenes while deep infections like

osteomyelitis and abscesses result from a combination of aerobic and anaerobic micro-organism (gram positive cocci, gram negative bacilli like Escherichia coli, Proteus and Klebsiella spp. and anaerobes including bacteroids and Peptostreptococci.)^{3,4,5}

Materials & Method

Study design: Hospital based Cross sectional study.

Study duration: Six months

Study population: All patients of Diabetic foot.

Sample size: 50 patients reporting to the Surgery dept. within study duration and eligible as per inclusion criteria

Inclusion Criteria: All patients of Diabetic foot who gave informed verbal consent

Exclusion Criteria: Diabetic foot associated with venous ulcers and lymphedema.

Assessment Tool: Pre designed Pre structured questionnaire containing questions regarding Clinical History, Demographic data, Risk factors for limb amputations and various treatment modalities was used.

Study Methodology: After obtaining permission of Institutional Ethical Committee and obtaining informed verbal consent from eligible study participants, all details of patients along with relevant investigational details were recorded in questionnaire.

Data analysis: Data thus collected were entered into excel and were then analyzed with help of SPSS software through tables, diagrams and appropriate statistical test wherever required.

Results

In present study, maximum 52% patients belonged to age group was 51-70 years followed by 13(26%) in 31-50 age group, 3 (6%) cases in 0-30 age group and 8(16%) cases in more than 70 year age group. Male patients (78%) contributed to larger proportion of our study population as compared to females (22%).

Table-1: Distribution of Cases According to Chief Complaints

Chief Complaints	No. of patients	Percentage
Cellulitis	16	32.00
Ulcers	14	28.00
Abscess	9	18.00
Gangrene	11	22.00
Total	50	100.00

Out of 50 cases 32.00 patients present with cellulitis, 28.00% patients with ulcers, 22% patients presents with gangrene and 18% patients present with abscess.

Table 2: Distribution of cases according to grade of Foot Lesion (Wagener's classification).

Grade	No of cases	Percentage
I	16	32.00
II	12	24.00
III	7	14.00
IV	14	28.00
V	1	2.00
Total	50	100.00

Maximum patients were from grade I foot lesion.

Table-3: Distribution of Cases According to history of trauma

History of trauma	No. of patients	Percentage
Present	36	72.00
Absent	14	28.00
Total	50	100.00

In present study out of 50 patients, 36 cases were having history of trauma, it accounts for 72.00% of the present study.

Discussion

This hospital based cross-sectional study was conducted in surgery department. 50 patients reporting to the General Surgery dept. within study duration 6 months and eligible as per inclusion criteria were included in the study.

Wheel Lock⁶ did a study which revealed that the youngest age with diabetic foot was 32 years and the oldest age was 89 years. In the present study , maximum 52% patients belonged to age group was 51-70 years followed by 13(26%) in 31-50 age group , 3 (6%)cases in 0-30 age group and 8(16%) cases in more than 70 year age group. When compared with Wheel Lock⁶ series, there is not much difference in the oldest group but the youngest patient was found to be 16 years younger than the compared study.

Mayfield et al⁷ did a study on sex wise distribution of diabetic foot which included 32 males and 29 females.

Conclusion

Diabetes Mellitus is a lifelong disease and diabetic foot complications can be life threatening, physically incapacitating, costly to treat and result in extensive morbidity.

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