ORIGINAL ATICLE

A STUDY OF SOCIO DEMOGRAPHIC AND CLINICAL PROFILE OF CASES OF DIABETIC FOOT

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ABSTRACT

Introduction: Diabetic foot is a complication of Diabetes Mellitus, which is a group of metabolic disorders sharing the phenotype of hyperglycemia. The aim of the therapy is to avoid diabetic foot complications, salvage the limb with available modalities in hospital, preventing recurrences and rehabilitation.

Methods: This article summarizes the profile of 200 patients with diabetic foot seen in General Surgery department of Civil Hospital at Ahmedabad. The diagnosis of diabetic foot was based on clinical, biochemical and radiological investigations. Clinical presentation can be divided into infective, vascular and neuropathic groups.

Results: Average age of presentation was 55.02 year. There is a higher incidence in male patients, majority of patients (57%) belongs to lower socioeconomic status. The average duration of diabetes is 9.78 years. Severity of lesion correlated with severity and duration of diabetes. Commonest presenting feature is an abscess followed by gangrene. Staph.aureus is the most common organism isolated from diabetic foot. X-Rays of feet were taken and majority presented with osteomyelitic changes. The average duration of hospital stay was 17.34 days.

Conclusion: Foot ulceration in diabetic patients is a resource consuming, disabling morbidity that often is the first step towards lower extremity amputation. Prevention is the best treatment. Effective glycemic control and education are of key importance for decreasing diabetic foot disease, while early presentation and hospital admission, aggressive and appropriate medical and surgical treatment according to grade if disease can improve outcome and reduce the morbidity and mortality due to diabetes.

Key words: Diabetes Mellitus, Different Treatment Strategies, Results, Complications

INTRODUCTION

Diabetic foot is a clinical triad of sensory neuropathy, trauma and deformity. Other factors are ischemia, callus formation and edema. Diabetic foot problems are serious complications of diabetes mellitus as they cause significant morbidity and mortality. In Singapore, diabetes mellitus is on the rise.[1]

In view of the increasing disability, rising health care costs, and reduction of the quality of life of diabetic patients that arise from diabetic foot problems[2], the multifactorial reasons for the development of diabetic foot problems have been gaining attention in recent years. Various factors have been shown to predispose these patients to diabetic foot problems. These include sensory neuropathy and peripheral vascular disease.[3,4] The epidemiology of diabetic foot problems and the predictive factors for limb loss have been studied by Nather et al.[5]

Low socioeconomic status is often associated with the occurrence of several chronic diseases[6] and poor socioeconomic factors have been empirically accepted as a risk factor for the development of diabetic foot problems[3]. However, the role of socioeconomic factors in Asian populations, like that of Indians, has not been well studied.[2] The objective of this study was to investigate the socioeconomic profiles and clinical profile including outcome of patients presenting with diabetic foot problems to the surgeon at Civil Hospital, Ahmedabad.

METHODOLOGY

All patient presented with Diabetic foot were included in the study. Various evaluation methods were done to confirm diagnosis and evaluation of foot lesions. This includes pus smears for gram staining, x-ray foot for suspected deep infection, CT scan/MRI for osteomyelitic changes. Vascularity assessed by non invasive methods – Ankle:Branchial pressure index, toe pressure, Doppler ultrasounds, etc.

All clinical information along with socio-demographic information of the patient was collected by using pretested questioner. The patients were followed up till the hospital stay in the hospital.

The data were entered in Microsoft excel and analyzed.

RESULTS

In our study average age of presentation was 55.02 year. There is a higher incidence in male patients with about three fourth of them presenting with the disease…these can be attributed to habit of smoking and proneness to trauma. Also in our study majority of patients (57%) belongs to lower socioeconomic status while only 34% in the middle and 9% to the upper class.

The average duration of diabetes is 9.78 years and in contrast to our study Griffith and Jeffery[8] study was 12 years, this difference may be due to late detection of diabetes in our country. Severity of lesion correlated with severity and duration of diabetes. Commonest presenting feature is an abscess, irrespective of type of lesion and duration of diabetes followed by gangrene. While site of lesion was equal on dorsum and sole of foot, the combined presentation on both foot and feet was only present in one tenth of patients. Also staph.aureus is the most common organism isolated from diabetic foot. X-Rays of feet were taken and majority presented with osteomyelitic changes.

Diabetes was controlled by giving insulin regulated by FBS, PPBS, urine sugar, improvement was found in foot lesion only after smooth control of diabetes. 13 patients were treated with systemic antibiotics with cp, cloxacillin and gentamicin. 3 were given vasodilators and gabapentin in 5 patients. Dressing was done twice to thrice daily savlon wash of whole feet and lower leg done. Cleaning of wound was done with liquid povidone iodine and hydrogen peroxide/septiloc herbal solution. Freshly prepared eusol was applied when slough present. Acetic acid was used in patient with pseudomonas.

Table 1: Socio-demographic profile of study subjects

Socio-demographic variables	Patients (n=200) (%)
Age Group	
20-40	25 (12.5)
41-50	59 (29.5)
51-60	55 (27.5)
61-70	43 (21.5)
>70	18 (9.0)
Sex	
Male	149 (74.5)
Female	51 (23.5)
Socioeconomic Status	
Lower	114 (57.0)
Middle	68 (34.0)
Upper Class	18 (9.0)

Table 2: Comparison of demographic profile with different studies

Characteristics	Current Study	Other studies
Age Group		Rooh-Ul-Muqim et al[7]
<40	12.5	9%
41-50	29.5	47%
51-60	27.5	32%
>60	30.5	12%
Sex		Griffith and Jeffery[8]
Male	74.5	60%
Female	23.5	40%

Table 3: Duration of Diabetes Mellitus

Duration	Patients (n=200) (%)
Average Duration	9.78 years
Newly Detected	26 (13.0)
5 Years Or Less	6 (3.0)
6-10 Years	76 (38.0)
11-20 Years	86 (43.0)
More Than 20 Years	6 (3.0)

Table 4: Clinical nad other diagnostic features of study subjects

Clinical Characteristics	Patients (n=200) (%)
Presenting features	
Ulcer	16 (8.0)
Abscess	109 (54.5)
Cellulitis	17 (8.5)
Gangrene	58 (29%)
Site of lesion	
Sole	41 (20.5)
Dorsum	43 (21.5)
Leg	93 (46.5)
Leg+Foot	23 (11.5)
Organism	
Staphylococcus aureus	38 (19.0)
Pseudomonas	19 (9.5)
Klebsiella	26 (13.0)
E.Coli	27 (3.5)
Streptococci	18 (9.0)
X-ray changes	
Soft tissue swelling	38 (19.0)
Previously amputated great toe	12 (6.0)
Osteomyelitis	60 (30.0)

The average duration of hospital stay was 17.34 days. Out of 200 patients 9 were expired due to uncontrolled diabetes, poor cardiac condition and due to late presentation.

CONCLUSIONS

Foot ulceration in diabetic patients is a resource consuming, disabling morbidity that often is the first step towards lower extremity amputation. Prevention is the best treatment. Effective glycemic control and education are of key importance for decreasing diabetic foot disease, while early presentation and hospital admission, aggressive and appropriate medical and

surgical treatment according to grade if disease can improve outcome and reduce the morbidity and mortality due to diabetes.

Table 5: Surgical Management in study subjects

	S	D	D+S	RAY	TMA	BKA	BKA+R	AKA	AKA+R
IN+N	15	13	49	12	6	19	4	5	2
N	0	9	1	0	0	0	1	0	0
I+N	1	9	20	4	0	7	5	2	1

Table 6: Duration of Hospital Stay

Period	Patients (n=200) (%)
<1 Week	37 (18.5)
1week -1month	139 (69.5)
1month-2month	23 (111.5)
>2months	1 (0.5)

Diabetes mellitus is a chronic disorder, manifested as broad spectrum involving microangiopathic and macroangiopathic lesions as a main causative factor of diabetic foot. Better glycemic control and proper foot care can avoid this complication. Middle age male of low socioeconomic status are more affected mainly because of increased susceptibility to trauma, smoking and unhygienic living.

Abscess formation is the most common presenting feature. Highest numbers of lesions were mixed; infective and neuropathic. Duration of diabetes correlates with severity of disease. Staph. Aureus was the most common organism isolated in our setup. As the disease is irreversible, vasodilators and vascular reconstructive surgeries are not useful.

Gabapentine act as a neuroprotective, helped to achieve painless extremity in many cases. Good control of diabetes, early presentation, and proper antibiotics can salvage the limb. Amputation was done only for gangrene and uncontrolled spreading of infection, as a life saving measure. Every attempt to save knee joint must be made to get better rehabilitation. Education regarding foot care and control of diabetes should be given to each patient and education regarding prosthesis and rehabilitation to achieve walking as normal as possible should be given to every amputated patient.

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