



STUDY OF FACTORS INFLUENCING MANAGEMENT OF DIABETIC FOOT ULCERS IN TERTIARY CARE CENTRE

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ABSTRACT **OBJECTIVE** ; study of prevalence of diabetic ulcers and various factors including pathological processes which could influence healing of the lesions. **METHODS** : observational study carried out in tertiary care centre of 250 diabetic foot cases over a period of one year. July 2018-july 2019. **RESULTS** : The highest number of patients were in the age group of 51-60 years (32%). Males are almost two times more affected than females, as former are more prone to risk of trauma, which is a initiating factor in 33% cases. Farmers had more incidence of diabetic foot lesions. Majority patients were known diabetic. Most of their hospital stay was for 4-6 weeks. After 5 to 6 years of diabetes duration, most of patients present with neuropathic lesions and they are in 35-80 years age group, some of whom develop gangrene. **CONCLUSIONS** : Good glycemic control along with patient education on importance of foot care practices is essential to prevent diabetic foot complications and latter can also aid in early detection of lesions thus affecting healing process. Guideline based care for diabetic foot infections and employment of multidisciplinary terms would help improve outcome and minimize amputations.

KEYWORDS : diabetic foot ulcer, diabetes, peripheral neuropathy

INTRODUCTION:

Diabetes is an epidemic endocrine disorder worldwide. It is estimated that by the year 2030 India will have the largest number of diabetic patients¹. The prevalence of diabetes mellitus in India ranges from 5–17%, with higher levels found in the southern part of the country and in urban patients¹, more frequently in elderly.

The diabetic foot is one of the most common and serious complications of diabetes mellitus and a frequent cause of hospitalization(30%) and disability³⁴. The lifetime risk of a diabetic person having a diabetic foot ulcer has been reported to be as high as 25%.⁵ Diabetic foot ulcer can lead to infection, gangrene, amputation and even death if not treated on time.

Its also a major concern of diabetic patients affecting their quality of life from social and economic stand point. In India, 85% of amputations are preceded by foot ulcers. Almost 75% of these amputations are performed on neuropathic feet with secondary infection, which is potentially preventable.⁶ Neuropathic lesions account for 80% of foot ulcers, with neuroischemic lesions making up the remaining 20%.⁷

Based on National Institute of Health and Clinical Excellence strategies, early effective management can reduce severity of complications, possible mortality and improve overall quality of life. Aim of the study is to identify current trends concerning the pathology and factors which influence the management of diabetic foot ulcers of patients presenting to a tertiary care centre in a developing nation.

MATERIALS AND METHODS:

An Observational study was conducted on 250 diabetic foot ulcer patients attending various surgical units in the Department of Surgery, Osmania Medical College Hospital over a period of 1 year, from July 2018- July 2019. The cases were evaluated through history taking, clinical examination, investigations, management and follow-ups.

RESULTS:

In our study involving 250 patients, age of patients ranged from 19 years to 84 years of age. Highest number of cases was found in the age group 51-60 years (31%). Maximum number of diabetic foot i.e 80% are between the age group of 41-70 years. 160 (64%) cases were male and 90 (36%) females. Majority of patients were farmers (54%). 35 patients (14%) had Type I diabetes, remaining had Type II diabetes. 64 cases (25%) gave a history of trauma before the onset of lesion.

Ulcer was the major lesion seen in 120 patients (48%), rest had accompanying conditions such as ; 65 patients Cellulitis (26%), 50 patients gangrene (20%), 15 patients (6%), abscess in 30 (12%) cases had Osteomyelitis and 15 patients (16%) had Charcot's joint. 45 patients (18%) presented with duration less than or equal to 1 year. Only 20

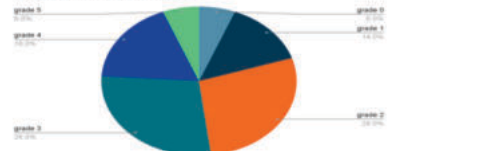
patients (8%) had diabetes of more than 20 years. Maximum 80 patients (32%) in our study had diabetes of 6- 10 years and in 10 patients (4%) were detected as a diabetic at the time of admission. Staphylococcus aureus was found in about 40% on culture of pus. Other organisms isolated include Pseudomonas 12%, Klebsiella 18%, E-coli 14%, Proteus 10%. 130 cases (52%) were found to have neuropathy, majority of whom were from 35-80 years. 160 patients (64%) showed atherosclerotic change.

Table A: Occupation

Sl.No.	Profession of patient	No. of cases	Percentage
1	Farmers	135	54
2	Business	25	10
3	Office Employee	10	4
4	Manual Laborer	20	8
5	Drivers	10	4
6	Housewife	50	20
Total		250	100

In this study, stay in hospital ranged from 1-12 weeks . Most of the patients stayed in hospital for 4-6 weeks. At the time of admission 175 patients (70%) had high RBS and 75 (30%) patients had RBS within normal range. 125 cases (50%) were managed by daily dressing, wound debridement and slough excision. 40 patients (16%) were treated with SSG, 35 patients (14%) underwent Incision & Drainage for abscess and Fasciotomy. Minor amputation was done in 10 cases (4%) and major (BKA and AKA) in 16%. 240 patients (96%) recovered from their lesion after treatment while remaining 10 patients (4%) died due to various complications.

TABLE B : GRADES OF ULCER



DISCUSSION:

Diabetic foot is defined as an Infection, ulceration, or destruction of tissues of the foot of a person with currently or previously diagnosed diabetes mellitus, usually accompanied by neuropathy and/or PAD in the lower extremity.⁸

The majority (60-80%) of diabetic foot ulcers will heal, while 10-15% of them will remain active, and 5–24% of them will finally lead to limb amputation within a period of 6–18months after the first evaluation. Neuropathic wounds are more likely to heal over a period of 20weeks,

while neuroischemic ulcers take longer and often lead to limb amputation.⁹ The most frequent underlying etiologies are neuropathy, trauma, deformity, high plantar pressures, and peripheral arterial disease. Loss of protective sensation is the primary factor in foot ulceration in diabetics owing to peripheral neuropathy commonly seen in chronic diabetic patients.¹⁰



Figure 1 : Diabetic Foot Ulcers, In Patient a) & b) With Respective Before And After Debridement Images

Majority of patients who develop complications are known diabetics on irregular treatment and who give the history of trivial injury before the onset of lesions and have a longer hospital stay. The main determinant for hospitalization being clinical severity of infection.

Septic lesions are common complications following ischemic lesions and neuropathic lesions. Among septic lesions, ulcers constitute the major bulk, followed by gangrene, cellulitis and then abscess. Conservative management is the primary modality of treatment for ulcers, followed by debridement. Disarticulation of toes which are gangrenous. Finally, when lesions failed to respond to conservative treatment or has unresolving abscess or was spreading gangrene, major amputations is done. Mortality of these patients if any is mainly due to septicemia, ketoacidosis and cardiovascular diseases as. However this study is of 250 cases which is too small to draw any definite conclusions.

The main components of management that can ensure successful and rapid healing of diabetic foot ulcer include education, blood sugar control, wound debridement, advanced dressing, offloading, surgery, and advanced therapies. These in turn are affected by location and duration of ulcer, foot care practices, diabetic lifestyle modifications, awareness of complications and their identification.

CONCLUSION:

This study shows the prevalence of diabetic foot ulcer presenting to tertiary care centre in Hyderabad, India; confirming the major factors influencing healing of these ulcers which are duration of diabetes, occupation, neuropathy and atherosclerosis. Thereby emphasizing the knowledge of self-care and regular foot evaluation in diabetic patients in preventing and detecting ulcers at earlier stage thus affecting recovery.

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