



A Prospective Study on Clinical Evaluation and Management of Diabetic Wounds according to Wagners Classification in Tertiary Care Hospital

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Abstract

Background: Most important complication in diabetic patients are Diabetic foot which represents a major medical, social and economic problem worldwide that significantly influence the diabetic patients quality of life .Several classification systems for diabetic foot ulcers have been proposed. The present study was intended to assess the role of Wagners wound classification in predicting the outcome of diabetic foot ulcer and also know the grade of Wagner's classification to which majority of diabetic foot ulcer patients.

Methods: This present study was carried out in the Department of General Surgery, KIMS Hospital, Bengaluru. A total of 100 patients with diabetic foot ulcer who presented during the study period were included. The diabetic foot ulcers were graded according to the Wagner's classification.

Results: Age group of 41-60 years and above 61 years showing the risk of diabetic foot ulcers in this study. In gender, males are more affected (72%) than females (38%) and most common age group fall in 41-60 years for both males and females. Neuropathy may influence the diabetic foot ulcers irrespective of gender. Nature of lesions showed that Deep thickness ulcers were higher in this study 36% followed by others. Wagner's classification showed Grade II is more prevalent in this study.

Conclusion: Glycaemic control and proper foot care, education about diabetic foot are key factors for better out come and quality of life.

Keywords: Diabetic Foot Ulcers, Wagner's Classification.

Introduction

Diabetes is a common disease affecting about 2.4% in rural and 4%-11.6% in urban dwellers in India¹. India has highest prevalence of diabetes in world and accounts for almost 1/6th the diabetic

patients. Approximately 10%-25% of all diabetics will develop some foot complications during the course of illness from simple calluses to major abscesses and osteomyelitis. Several classifications exist for grading ulceration and

their management; however Wagner's classification is the simplest, best known for evaluation and management of diabetic foot ulceration². Relative Risk of leg amputation is 40 times higher among person with diabetes than with those not diabetic. Moreover, up to 50% of diabetic amputees will undergo a second leg amputation within 5 years of initial amputation. Complications involving the foot cause significant pain and suffering, loss of productive time, hospitalization, heavy expenses to the patient, community and nation as well. To add to above vascular insufficiency and neuropathy accompanying the diabetic foot most often necessitate amputation of the limb³. In India habits like walking barefooted, lack of knowledge regarding diabetic foot, hot climate leading to increased perspiration, poor hygiene, poor sanitation, diet poor in proteins, general poverty, lack of basic medical infrastructure, etc have worsened the problem. Lack of interest from medical and surgical faculty due to required hard work for this field has added to the problem statement. The management of diabetic foot is focused primarily on avoiding amputation of lower extremities. Hence early recognition and proper therapy of diabetic foot lesion may save diabetic foot and leg¹. The amount of interest in the diabetic foot has increased tremendously over the past ten years. There continues to be great interest in the treatment and prevention of diabetic foot. Wagner's classification helps in correlating appropriate treatment to proper grade of lesion with better outcome⁴. Lesser grade lesion responds well to conservative treatment with antibiotics and debridement while those with higher lesion require some kind of amputation Standard treatment of diabetic foot according to Wagner classification

GRADE 0	Foot at Risk	Prevention
GRADE 1	Localized, superficial ulcer	Antibiotics & glycemic control
GRADE 2	Deep Ulcer to bone, ligament, or joint	Debridement, Antibiotics and glycemic control
GRADE 3	Deep abscess, osteomyelitis	Debridement, some form of amputation
GRADE 4	Gangrene of toes, forefoot	Wide debridement and amputation
GRADE 5	Gangrene of entire foot	Below knee amputation

Materials and Methods

This prospective study was conducted by General surgery department, KIMS Hospital, Bengaluru between December 2018 to December 2019. All patients were enrolled after taking written consent form. In the present Prospective hospital-based study, a total of 100 cases diagnosed with diabetic foot were selected to inpatients of Department of general surgery, KIMS hospital, Bengaluru. Institutional ethics committee permission was taken. Data was collected about Demographic factors, ethnicity, socioeconomic status, smoking habits, tobacco chewing, alcohol intake history and occupational exposures. Clinical parameters include foot ulcers onset, duration and progression of the disease. Wagner's classification for diabetic foot was used for evaluation of ulcers. Neurological assessment was performed including light touch, pinprick, position sense and vibration sense. Vascular assessment was done by examining capillary refill and distal pulses of the foot which included dorsalis pedis, posterior tibial, anterior tibial, popliteal and femoral arteries.

Results

Descriptive statistics like mean and percentages were used to interpret the results

Table 1

VARIABLES	NO of patients (n =100)
Age (in years)	
21-40	12 (12%)
41-60	50 (50%)
>61	38 (38%)
Gender	
Males	72 (72%)
Females	28 (28%)
Neuropathy	
Neuropathy Present	62 (62%)
Neuropathy Absent	38 (38%)
Nature of Lesion	
Superficial ulcers	17 (17%)
Deep thickness ulcers	36 (36%)
Cellulitis	21 (21%)
Abscess	10 (10%)
Gangrene	15 (15%)
Necrotizing fasciitis	01 (01%)
Distribution according to Wagner's classification Wagner's Grade:	
Grade 0	00 (0%)
Grade I	17 (17%)
Grade II	36 (36%)
Grade III	27 (27%)
Grade IV	14 (14%)
Grade V	06 (06%)

Table 2: Treatment modalities in the present study

Conservative	16
Debridement	21
Disarticulation	22
Fasciotomy	12
Debridment + SSG	14
Debridement + fasciotomy	03
I and D	06
Below knee amputation	05
Above knee amputation	01

Table 1 shows the clinico-demographic factors from the patients of present study. The data shown that incidences of diabetic foot is more in age group of 41-60 years age groups and above 61 years showing the risk of age factor. In gender, males are more affected (72%) than females (38%) and most common age group fall in 41-60 years for both male and females. Irrespective of gender incidence of neuropathy condition was higher when compared with non neuropathy patients. Nature of lesions showed that Deep thickness ulcers were higher in this study 36% followed by cellulitis, Gangrene, Abscess,

superficial ulcers, and necrotizing fasciitis. Patients were stratified according to Wagner classification, showed that Grade II (36%) frequency is higher in our study followed by grade III, grade I, grade IV and grade V. Of the 100 diabetic patients the most common procedure followed was Disarticulation (22%) and Debridement (21%). For other patients conservative treatment (16%) and procedures like Debridement +SSG (14%), Debridement + fasciotomy (3%), Fasciotomy (12%), I and D (6%), amputations (6%) was performed (TABLE 2).

Discussion

For years, Wagner's classification for diabetic foot ulcers is using for the assessment and management of the diabetic foot due to it is a simplest, best known method for evaluation and management of diabetic foot ulcers. Age groups of the present study shown that age range of 40-60 years and above are in higher risk group. The results are in accordance with Ahmad et al 2013-16. The results of the present study are in similar with Anil gupta et al., 2016 and Ali Sm et al., 2001 where the males are predominantly have risk of diabetic foot ulcers when compared with females (table 1). Regarding to peripheral neuropathy, the present study showed a higher number of cases than absence of neuropathy may be associated with diabetic complication among the patients group. After seeing the results, Neuropathy (62%) may be an important risk factor for diabetic foot infections. According to the Wagner classification 36% patients had grade II disease and occupied highest frequency in this study. In the present study after assessing patients with diabetic foot ulcers by Wagner's classification, the most important initial finding need to asses in the patients is whether patient had a neuropathic or not? If the patient is known to be neuropathic, pressure relief was the mainstay of treatment. We found poor vascular status in few cases, those cases were referred to vascular surgeon for further management.

Conclusion

Foot ulceration in diabetic patients is resource consuming, disabling morbidity, and often the first step towards lower extremity amputation. Prevention is the best treatment. Wagner's classification helps in correlating appropriate treatment to proper grade of lesion with better outcome. Lesser grade lesions respond well to conservative treatment with antibiotics and debridement while those with higher lesions require some kind of amputation. Effective glycaemic control and education are of key importance for decreasing diabetic foot disease.

With early presentation and hospital admission, aggressive medical and surgical treatment according to the grade of the disease can improve outcome and reduce the morbidity and mortality due to diabetes.

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