ORIGINAL RESEARCH PAPER
Volume - 12 | Issue - 06 | June - 2023 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

SELF-CARE PRACTICES AND ASSOCIATED FACTORS AMONG PATIENTS WITH DIABETIC FOOT ULCER: A CROSS SECTIONAL STUDY AT TERTIARY CARE HOSPITAL IN MADURAI, TAMIL NADU

Community Medicine

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ABSTRACT

Introduction: Diabetic Foot Ulcer imposes a substantial socio-economic burden on the patients and their families by virtue of risk of long-term hospitalization, life-threatening infections, limb amputation and associated disabilities. The early identification of risk factors, regular health education and providing podiatric care is essential for prevention of ulcer. **Methodology:** A descriptive study was conducted among 64 patients of diabetic foot ulcer at Velammal Medical College Madurai, from July to December 2022. Patients' socio-demographic characteristics, clinical history and self-care practices were studied. **Results:** Mean age of the patients was 59 (±10) years, mean duration of diabetes was 12 (±7.32) years and mean blood sugar level was 217(±80) mg/dl. Most common site of wound was sole (39.1%) and deep ulcer was found among 28.1% of patients. Only 28.1% patients were always following healthful eating plan and 50% were always monitoring their blood glucose. Around 54.7% patients were never involved in physical exercise. Only 48.4% were inspecting their feet, 15.7% were walking barefoot outside, 46.9% were washing their feet and 32.8% were cutting nails on regular basis. **Conclusion** Poor self-care including foot care practices were observed among patients. Structured diabetes self-management educational programs emphasizing behaviour change and effective follow up is crucial.

KEYWORDS

Diabetic Foot Ulcer, Self-care practices, Risk factors

INTRODUCTION

The prevalence of Diabetes is approaching epidemic proportion in many developing countries including India with estimated 77 million individuals living with diabetes.[1]

In India, diabetic foot ulcers were found in around 4.54% of patients who were newly diagnosed with type 2 diabetes mellitus of which, 46.1% had neuropathy, 19.7% had ischemic, and 34.2% had neuro-ischemic foot ulcers.[2] The most common risk factors for developing diabetic foot ulcers includes poor glycemic control, peripheral neuropathy, vascular disease and improper foot care.

The diabetic patients with foot ulcers require long-term hospitalization and carry the risk of developing life-threatening infections and limb amputation.

Although there are several studies conducted to evaluate the self-care practice among diabetic patients, there is inadequacy in research on self-care practices among patients who have developed the diabetic foot ulcer.The rapid increase of foot ulcer among people with diabetes requires solid epidemiological knowledge of risk factors, the quality of health care services required and carefully designed preventive strategies to address the needs of specific groups.

AIMS AND OBJECTIVES

1. To evaluate the role of various socio-clinical and behavioural risk factors in developing the diabetic foot ulcer.
2. To study the clinical profile of diabetic foot ulcer patients admitted in a tertiary care hospital.

MATERIALS AND METHODS

A cross sectional descriptive study was conducted at Velammal Medical College Hospital & Research Institute, Madurai, from July to December 2022. A total of 64 cases admitted in the department of General Surgery were included in the study through convenience sampling. This study was approved by the Institutional Ethical Committee and informed consent was obtained before conducting the interview.

A semi-structured questionnaire was utilised which consisted of socio-demographic characteristics, clinical history, examination findings and self-care practices taken up by the patients with regard to diabetes mellitus.

RESULTS

Table 1: Socio-demographic and clinical characteristics of diabetic foot ulcer patients

Variables	Frequency (n)	Percentage (%)
Gender		
Male	47	73.4
Female	17	26.6
Age	59.48±9.85 (Mean ±SD)	
Family Income	17500 (27750-10000)Median(IQR)	
Socio-Economic Status		
Lower class	4	6.3
Lower middle class	10	15.6
Middle class	13	20.3
Upper middle class	24	37.5
Upper class	13	20.3
Duration of Diabetes	Mean±SD	12.31±7.32
Blood Sugar (mg/dl)	Mean±SD	216.8±80.08
Site of wound		
Lateral Aspect	4	6.3
Medial Aspect	6	9.4
Sole	25	39.1
Toe involvement	14	21.9
Dorsum of the foot	12	18.8
Others	3	4.7
Duration of wound		
<1 Month	17	26.6
1-3 Months	36	52.2
>3 Months	11	17.2
Wagner's Grading		
Superficial ulcer	12	18.8
Deeper, full thickness extension	18	28.1
Deep abscess formation or osteomyelitis	17	26.6
Partial Gangrene of forefoot	13	20.3
Extensive Gangrene	4	6.3

Table 1 shows that majority of the patients were male (73.4%) and the mean age was around 59 (±10) years. The most of the patients were married (96.9%) and they belong to Hindu religion (93.8%). The majority of the patients were unskilled worker (25.0%) followed by semiskilled worker (18.8%) and around 18.8% were illiterate. All of the patients had type 2 diabetes and the mean duration of diabetes was 12.31 (±7.32) years. Hypertension was the most common comorbid condition observed in 17.2% patients. Alcoholics, smokers and tobacco users were 20.3%, 10.9% and 6.3% respectively. Around 17.2% patients had history of previous amputation. The most common site of the wound was sole (39.1%) and (82.8%), the duration of the wound was 3 months or less.

Table 2: Self-care Practices among the patients of diabetic foot ulcer

Variables	Never	Rarely	Sometimes	Often	Always
Diet					
Healthful eating plan	13 (20.3%)	10 (15.6%)	10 (15.6%)	13 (20.3%)	18 (28.1%)
Physical Activity					
At least 30 Minutes of physical activity	35 (54.7%)	9 (14.1%)	5 (7.8%)	6 (9.4%)	9 (14.1%)
Blood sugar					
Blood sugar monitoring	17 (26.6%)	4 (6.3%)	8 (12.5%)	3 (4.7%)	32 (50.0%)
Medications					
Consuming recommended medicines	1 (1.6%)	2 (3.1%)	7 (10.9%)	7 (10.9%)	47 (73.4%)
Footcare					
Frequently inspecting feet	17 (26.6%)	4 (6.3%)	5 (7.8%)	7 (10.9%)	31 (48.4%)
Inspecting shoes before wearing	31 (48.4%)	4 (6.3%)	20 (31.3%)	3 (4.7%)	6 (9.4%)
Barefoot walking outside	35 (54.7%)	19 (29.7%)	3 (4.7%)	4 (6.3%)	3 (4.7%)
Barefoot walking around the house	4 (6.3%)	9 (14.1%)	13 (20.3%)	13 (20.3%)	25 (39.1%)
Washing feet	10 (15.6%)	5 (7.8%)	9 (14.1%)	10 (15.6%)	30 (46.9%)
Moisturizing feet	28 (43.8%)	4 (6.3%)	9 (14.1%)	16 (25.0%)	7 (10.9%)
Cutting nails regularly	25 (39.1%)	3 (4.7%)	8 (12.5%)	7 (10.9%)	21 (32.8%)

Table 2 reveals that (28.1%) patients were always following healthful eating plan whereas (54.7%) patients were never involved in any kind of physical activity. Around (50%) of the total patients were found to be always monitoring their blood glucose as per health care provider's advice whereas (73.4%) were always consuming their recommended medicines as per the schedule prescribed.

Regarding foot care practices, (48.4%) of the patients have been involved in frequently inspecting their feet and (9.4%) were always inspecting their shoes / footwear before wearing it. It has been found that (48.4%) were not involved in inspecting their shoes before wearing.

A total of (54.7%) had never walked barefoot outside whereas (15.7%) patients were walking barefoot outside with the frequency of sometimes to always. A total of (46.9%) of the patients were washing their feet regularly and (39.1%) were always walking barefoot around the house. Around (32.8%) were involved in cutting their nails on a regular basis.

DISCUSSION

In our study, the mean age of DFU patients was 59.48±9.85 years, and the mean disease duration was 12.31±7.32. A study done by Al-Rubeaan K et al showed that increased age and diabetes duration ≥ 10 years is an important risk factor for development of ulcers.[3] Similarly, a study conducted by Nather A et al showed that education of up to secondary school and low average monthly household income were significant risk factors for diabetic foot problems.[4]

The mean blood sugar level was around 217 (±80) mg/dl indicating poor glycemic control. DFU is one of the most prevalent consequences in persons with poorly managed diabetes mellitus.

Around one fifth of the participants were alcoholic and smokers/tobacco users. A study conducted by Chavan et al showed that tobacco use and alcohol use were significant risk factors for diabetic foot ulcer.[5]

In our study we found that 17.2% patient had a past history of foot amputation. Patients with a history of ulceration are prone to multiple micro- and macrovascular complication including peripheral neuropathy. Yazdanpanah et al who demonstrated that the previous history of DFU or amputation is an independent risk factors for development of foot ulceration.[6]

Around 31 (48.4%) of study participants followed a diet plan regularly with a frequency of often to always. These findings are consistent with the findings of the study conducted by Rajashekaran et al who found that around 45.9% of the participants were following a healthy eating plan on a daily basis and 43.4% were doing daily exercises for 30 minutes.[7] In our study, the lesser participation of the patient in physical exercise may be attributed to the presence of deformity as 17.2% of the patient had a history of previous amputation. Only half of the total patients were found to be always monitoring their blood glucose and were adherent to their recommended medicines. A similar type of findings were obtained by Venkatesan M where diabetic medication adherence was 45.4%.[8]

About half (48.4%) of the patients were involved in frequently inspecting their feet and 9.4% were always inspecting their shoes before wearing it. A study conducted by Arulmozhi et al showed that only 16.7% of the patients regularly inspected their feet.[9] A total of 15.7% patients were walking barefoot outside and 39.1% were walking barefoot around the house. In the present study, we found that around 46.9% of the patients were washing their feet regularly and only 10.9% were always using moisturizers for their feet. Around 32.8% were involved in cutting their nails on a regular basis. A study conducted by Dhandapani et al found that around 23.86% patients walked barefoot, 74.6 % of patients were practicing daily washing of the feet, 56.4% keeping the skin of the feet soft to prevent dryness, and 49.7% were trimming toenails straight with care.[10]

CONCLUSION

In conclusion, poor self-care and foot care practices were observed among DFU patients which were important risk factors for the development of ulcers. Structured diabetes self-management educational programs emphasizing behaviour change and effective follow up is crucial for the disease management.

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