Original Research Paper

General Surgery



ABSTRACT

Background Diabetes mellitus is a major public health problem with rising prevalence globally and it is estimated that it will increase to 642 million by 2040. International Diabetes Federation has recently estimated that 69.2 million people are affected by diabetes in India. Diabetic foot is the most devastating & disabling complication in diabetes. The aim of the study was to analyse the Foot problems & Foot care practices among Diabetic patients in a Tertiary care centre in Chidambaram, Tamilnadu. Methods A cross sectional study conducted on 100 patients, who were admitted in RMMCH from AUG 2021 to AUG 2022 For "DIABETIC FOOT PROBLEMS". Pre-tested structured questionnaires were administered by surgery Resident to diabetes patients admitted for FOOT PROBLEMS. The knowledge and practice scores were classified as "GOOD" if score ≥70%, "SATISFACTORY" if score was 50-69% and "POOR" if score was < 50% foot lesions were GRADED according to WAGNER'S classification (GRADE 0 to GRADE 5). Results Out of 100 patients studied, 70% of patients presented with foot ulcers at the time of admission. Only 20% of patients had "GOOD" Foot Care practices. Majority (51%) of patients had "POOR" practice & poor knowledge of foot care. Conclusion This study has highlighted the lack of Knowledge & poor foot care practices among Diabetic peoples had increased the risk of developing Foot Problems & its complications. Good knowledge & practice regarding Diabetic foot care will reduce the risk of Diabetic complications & ultimately Amputations.

KEYWORDS:

INTRODUCTION

Diabetes mellitus (DM) is a Chronic metabolic disorder that is characterized by Hyperglycemia. Diabetic foot is one of the most devastating & disabling complication in diabetes and is defined as a group of syndromes in which ischemia, neuropathy & superadded infection leads to tissue breakdown. Due to multiple and prolonged complications, diabetes affects almost all systems of the body.

The lifetime risk of a person with diabetes having foot ulcer could be as high as 25% and is the commonest reason for hospitalisation. Diabetic foot ulcers (DFUs) comprise 12–15% of total estimated cost of diabetes in the developed countries, increasing to 40% in the developing countries. Among the complications of diabetes, DFUs affects the patient's quality of life in case of amputation. However, it is possible to prevent amputation using educational and Foot care strategies. Cost of treating a DFUs is more than twice that of any other chronic ulcer. Diabetic foot amputation remains an unpleasant impact on patients' life more than other complications. Among diabetes complications, the foot ulcers are considered as the most preventable ones. Risk factors of DFUs are correlated with poor practices and knowledge.

According to international working group on diabetic foot, in every 20 seconds, somewhere in the world diabetic patients loses their leg due to complications. Therefore increasing the knowledge, awareness and self-care of the foot among diabetic patients have found to be cost effective ways of preventing DM foot ulceration.

AIM

To analyse the Foot problems & Foot care practices among Diabetic patients in a Tertiary care centre in Chidambaram, Tamilnadu.

OBJECTIVES

- To describe the common foot lesions among diabetic respondents
- To determine the GRADE OF FOOT LESION at the time of admission in respondents.
- To describe foot care practices among diabetic respondents
- To analyse the GRADE OF FOOT LESIONS & FOOT CARE PRACTICES among the respondents.

METHODS

Study & Study Design

- This is a cross sectional study carried out in a Tertiary care centre, Chidambaram, Tamilnadu, India. 100 patients with diabetes were studied over a period of Aug 2021 to Aug 2022. Data were gathered and the subjects were selected by consecutive sampling. To Diagnose and classify the patients, The American Diabetic Associationthe diagnostic criteria were utilized. Participants in the study was voluntarily involved in the study.
- Patient with Diabetic Foot problems aged more than 18 years admitted in Government Medical college hospital Cuddalore, [Erstwhile Rajah Muthiah Medical College] were included in the study.
- A set of self-administered, pretested questionnaire were given to asses "Foot care practice".
- A Clinician examined respondent's feet using Standard foot examination protocols.

The questionnaire was in English and translated to Tamil language for easy communication with local population. The questionnaire consisted of 10 questions on knowledge and self-care practice and each correct question was assigned one mark. The survey instrument used was a pretested, structured questionnaire prepared on the basis of recommendation of the American College of Foot and Ankle

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Surgeons and used in similar previous study. The questionnaires were administered by surgery resident .The outcome variables of the study were knowledge and practice regarding foot care in diabetic patients. Data obtained were analysed using SPSS statistical software version 15 (SPSS Inc., Chica- go, IL, USA). Frequency and descriptive statistics were used to examine the general characteristics of the respondents.

The response to questions on knowledge, practice and barriers to foot care were analysed and the knowledge and the current practice score of each respondent was determined. Their knowledge and practices score were classified as "GOOD, SATISFACTORY & POOR" depending upon the score. If score \geq 70% (7-10), it was regarded as good, if score was 50-69% (3-6) it was regarded as satisfactory and if score was less than 50% (<3) it was regarded as poor. Statistical analysis were made and P value of <0.05 was considered statistically significant.

FOOT CARE PRACTICE	SCORE
GOOD (≥70%)	7 TO 10
SATISFACTORY (50 - 69%)	3 TO 6
POOR (< 50 %)	LESS THAN 3

Foot lesions were graded according to WAGNER'S CLASSIFICATION.

"Wagner's Classification For Diabetic Foot Disease (adopted From Levin And O'neals)"

Grade	Description
Grade 0	No Ulcer but high risk foot
Grade 1	Superficial Ulcer
Grade 2	Deep Ulcer (cellulitis); no bony involvement or
	abscess
Grade 3	Osteomyelitis ,Abscess
Grade 4	Localised gangrene eg.toe ,heel
Grade 5	Extensive Gangrene of the entire foot

RESULTS

Table: Distributions of responses to questions related to the practice of foot care

Questions related to practice of foot care		Yes No/don't	
	(%)	know (%)	
1. Do you Inspect feet regularly	30.9	69.1	
2. Do you wash feet regularly	72.4	27.6	
3. Do you Dry the feet after washing	66.0	34.0	
4. Do you trim toe nails regularly	33.5	66.5	
5. Do you apply moisturizers for dry skin of	10.8	89.2	
leg			
6. Did you walk Bare foot	27.7	72.3	
7. Do you receive advice when you bought	18.1	81.9	
footware			
8. Do you check the size of footware	35.4	64.6	
appropriate for your foot length			
9. Do you inspect the inside of footwares	49.1	50.9	
before wearing			
10. Do you wear protective shoes while	20.4	79.6	
working/jogging.			

The mean practice score was 5.7 ± 1.9 . The range of the current practice score obtained in this study was 2-10, out of maximum possible score of 10. Less than half of the respondents (30.9%) regularly inspect their feet, (72.4%) regularly wash their feet and 27.7% were Bare foot walkers, 35.4% wear appropriate size footwares, (49.1%) inspect the inside of their footwear before wearing.

On classifying the practice score of the study participants, only 20% had good practice of diabetic foot care (score \geq 70%), 39% had satisfactory score (score 50-69%) and 51% had a poor practice of diabetic foot care (score <50).

Clinical Foot Findings



Distribution of Presentation of various Grades of Diabetic lesion (Based on Wagner's Classification) at the Time of admission

Grade	No. of Patients
0	NIL
1	10
2	36
3	28
4	26
5	10



Grade of Diabetic foot lesion and Foot care practice among the study population were analysed

WAGNER'S GRADE	GOOD	SATISFACTORY	POOR	TOTAL	
0	0	0	0	0	
1	8	2	0	10	
2	7	16	13	36	
3	4	14	10	28	
4	1	5	20	26	
5	0	2	8	10	
TOTAL	20	39	51	100	
GRADE OF FOOT LESION		FOOT CARE PRACTICE			
0		GOOD			
1		GOOD			
2		SATISFACTORY			
3		SATISFACTORY			
4		POOR			
5		POOR			

Majority of patients presents with GRADE 2 lesions (36%) & requires some sort of wound debridement. 26% presents with GRADE 4 lesion & 38% presents with GRADE 5 lesions. Patients presented with higher grades of foot lesions required surgical management (extensive debridement/amputation).

Patients with good practice of Foot care (score >70%) were presented with LOWER GRADES of foot lesions (wagner's grade 1 & 2) at the time of admission. Patients with "POOR" foot care practices (score <50%) were presented with HIGHER GRADES of foot lesion (wagner's grade 4 & 5)

DISCUSSION

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The result of this study showed that a greater proportion of diabetic patients had a poor Practice of diabetic foot care. These deficiencies arises from lack of awareness, need for specialist consultation when warning signs of Foot problem arises; importance of regular inspection of the footwear for objects or torn lining and regular inspection of the feet. The lack of knowledge & practice regarding foot care among diabetic patients in our study is consistent with findings by other investigators worldwide. The relationship between education and foot care among DM patients has been observed in similar studies in India, Iran and Pakistan where illiterate patients were the least knowledgeable. The knowledge of appropriate foot care has been suggested to be positively influenced by patient education which in turn reduces the risk of foot ulceration and amputation in high-risk diabetics. The association between education and knowledge may be due to the fact that, educated patient were able to read and understand some of educational supportive materials and also use information technology to obtain more information about the disease.

The deficiency in the knowledge may be due to poor communication between the doctors and the patients and also lack of counselling by the doctors and nurses as result of busy clinic schedule. Thus, patient education on the prevention of foot ulceration is imperative and should be incorporated into the routine care of patients with diabetes both in the hospital and in the community. Time must be allotted to communication, information and education during clinic sessions.

Furthermore, the education of physician is highly imperative to complement and reinforce the behaviour of patient with regards to foot care; they need to learn and imbibe the skills of counseling and risk assessment. Our study has been able to determine the knowledge and practice of foot care among diabetic patients in India.

Strengths and limitations

The results of this study are a wakeup call on the clinicians and nurses to establish a patients and physician friendly educational programmes that will enhance and sustain the good knowledge and practice of foot care. The limitation of this study was our inability to cover all geopolitical zones in India.

CONCLUSION

In conclusion, the knowledge and practice of foot care among DM patients in the study were poor; these were associated with HIGH GRADE foot lesions at the time of presentation. The result of this study has highlighted the gaps in their knowledge and practice and underscores the urgent need for a patient friendly educational intervention coupled with regular physician reinforcement to reduce the risk of diabetic foot ulcer and amputations.

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