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DIABETIC FOOT: PREVALENCE, KNOWLEDGE, AND FOOT SELF-CARE PRACTICES AMONG DIABETIC PATIENTS

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Abstract

Introduction: According to International Diabetes Federation (IDF), approximately 425 million people worldwide suffer from diabetes. 11.6 million deaths per year are directly attributed to it. Currently 39 million people in the MENA region suffer with diabetes. This region also has the second highest rate of increase in diabetes globally, where the number of people with diabetes is predicted to increase by 96.2% in 2035.315% of the U.A.E adult population are categorized as patients of type-2 diabetes mellitus (DM).

Materials and Methods: This prospective cross-sectional study was conducted in the outpatient department of General Medicine in Tagore Medical College and Hospital, Rathinamangalam, Melakottaiyur, Chennai, wherein 50 to 60 patients with diabetes visit the OPD every day to get their weekly anti diabetic drugs. 100 such patients were screened. Inclusion criteria included a diagnosis of either type 1 or type 2 diabetes mellitus diagnosed at least six months prior. Patients underwent a detailed history and examination and investigations were done. Educational status of each respondent was assessed and classified as literate or illiterate. Literate participants were further classified as matric (high school), below (primary school) and beyond high school.

Results: Of the 100 patients assessed, 63 were men. 11 (11%) of the 100 had a current or past history of foot ulcers. The mean age of the respondents was 46 years (range 16-83 years). Patients had diabetes for an average of 8.59 years (range 1-36 years). Nineteen percent of the 100 were illiterate. Primary school, High school and Beyond High school education was seen in 44.5%, 27.5% and 9% of the study population respectively. Only 23 patients had received either an educational session or reading material about foot care. 7 had similarly received an educational session or material about foot wear.

Conclusion: Before diabetic foot care reaches the level desired by specialists in this field, many barriers must be recognized and overcome. Sound and cost-effective strategies need to be developed. Policymakers and health-care professionals should work together to remove the obstacles and facilitate the provision of adequate diabetic foot care. The impact of diabetic foot disease and amputations will only be reduced if sufficient attention is paid to the necessary preventive measures. This study emphasises that significant reductions in amputations can be

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achieved by well-organized diabetic foot care teams, good diabetes control and well-informed self-care. This study also stresses the need for opening patient centred diabetic foot care clinics for early diagnosis, treatment and prevention.

Key Words: International Diabetes Federation, diabetes, diabetic foot care clinics.

INTRODUCTION

According to International Diabetes Federation (IDF), approximately 425 million people worldwide suffer from diabetes. 11.6 million deaths per year are directly attributed to it. Currently 39 million people in the MENA region suffer with diabetes.[1] This region also has the second highest rate of increase in diabetes globally, where the number of people with diabetes is predicted to increase by 96.2% in 2035.315% of the U.A.E adult population are categorized as patients of type-2 diabetes mellitus (DM). Trends in 2015 also indicate that the prevalence of diabetes in the UAE is rising at a faster rate than both the MENA region and the rest of the world. This becomes a burden in terms of costs of treatment and affects the management of the impending complications as well.[2]

Among the complications of diabetes, the most common is diabetic foot disease. It results in deteriorating conditions such as diabetic neuropathy and foot ulcers causing a potentially devastating sequelae of mortality and morbidity. Fortunately, diabetic foot complications are also the most preventable if appropriate measures are taken.[3]

Patient education is the most effective way to reduce the complications of diabetes. Since the patient is the primary foot care taker, good awareness and practice of foot self-care is essential to reduce the incidence of diabetic foot disease.[4]

People with diabetes often receive the same generalized foot-care education, irrespective of their risk status, which is inappropriate. All diabetics require a foot assessment in order to be graded according to their level of risk. Regular foot assessment needs to be emphasized in the low-risk group. Sensory neuropathy and/or decreased blood flow in the lower limbs (peripheral vascular disease), but with no 'active' foot problems, should be regarded as being at high risk. They require intensive foot-care education including self-care skills and routine podiatry care. High risk patients such as those with an active infection require multidisciplinary care and should receive intensive education to modify behaviour and lifestyle.[5]

MATERIALS AND METHODS

This prospective cross-sectional study was conducted in the outpatient department of General Medicine in Tagore Medical College and Hospital, Rathinamangalam, Melakottaiyur, Chennai,

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wherein 50 to 60 patients with diabetes visit the OPD every day to get their weekly anti diabetic drugs.

100 such patients were screened. Inclusion criteria included a diagnosis of either type 1 or type 2 diabetes mellitus diagnosed at least six months prior. Patients underwent a detailed history and examination and investigations were done. Educational status of each respondent was assessed and classified as literate or illiterate. Literate participants were further classified as matric (high school), below (primary school) and beyond high school.

The respondents were interviewed on a pre-tested structured questionnaire after obtaining verbal consent based on American College of Physicians validated diabetic foot ulcer questionnaire. Twenty-six questions each were asked regarding the knowledge and practices of foot care.

Each correct answer was scored as one mark while the wrong answer was scored as zero mark. A score of >70% was considered as “Good knowledge and practice”, a score of 50 to 70% as “Satisfactory knowledge and practice”, while a score of less than 50% was taken as “Poor knowledge”.

The respondents were further divided into two groups, those with a past history of foot ulcer and those without ulcer.

Data were compared between those groups. Data was analysed using IBM SPSS version 22 for Windows.

RESULTS

Of the 100 patients assessed, 63 were men. 11 (11%) of the 100 had a current or past history of foot ulcers. The mean age of the respondents was 46 years (range 16-83 years). Patients had diabetes for an average of 8.59 years (range 1-36 years). Nineteen percent of the 100 were illiterate. Primary school, High school and Beyond High school education was seen in 44.5%, 27.5% and 9% of the study population respectively. Only 23 patients had received either an educational session or reading material about foot care. 7 had similarly received an educational session or material about foot wear.

Out of a possible score of 13, the average score on overall foot care was 16.29 (range of 9-23). Twenty-two (11/100) had a past history of ulcer. Most men and women had a fair score. Similarly, two-thirds of both groups of patients (with and without ulcer) had fair scores.

Educational status of patients did not have any significant correlation with knowledge & practices regarding foot care.

S.No	Question	Response	Percentage

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1	To see a foot specialist regularly	45	45
2	Educational handout about foot care	23	23
3	Educational handout about shoe selection	14	14
4	To report any sores or blisters immediately to doctor	92	92
5	Has anyone taught about self-care	34	34
6	Difficulty in inspecting the feet	16	16
7	Inspection of feet daily for problems	84	84
8	Inspection of feet once a day by family member	24	24
9	Washing feet everyday	90	90
10	To dry thoroughly between the toes	71	71
11	To apply cream or oil on feet daily	36	36
12	Cream not to be applied in the inter-digital spaces	18	18
13	Testing water temperature	77	77
14	Footwear at all times, outdoors and indoors	12	12
15	To avoid walking bare foot even at night	92	92
16	If walking barefoot to religious place	24	24
17	If walking barefoot in the sun	6	6
18	Check foot wear for any objects that may have fallen into them	90	90
19	Wearing special foot wear	18	18
20	Another person cut nails	16	16
21	Cut nails as much as possible?	18	18
22	Cut nails with knife or blade	23	23
23	Taking anti diabetic treatment prevents complications	97	97
24	Majority of foot ulcers can be avoided	95	95
25	Majority of ulcers can be treated	94	94
26	Diabetes is one of the commonest causes of amputation of feet	92	92

Table 1: Overall Scoring of Knowledge and Practices about Foot Care Among the Patients

Scores	Male (n=63)	Female (n=37)	Total (100)
< 50% Poor Knowledge n (%)	13 (20.6)	3 (8.1)	16 (16)
50-70% fair	39(61.9)	28 (75.7)	67 (67)

>70% good	11 (17.5)	6 (16.2)	17 (17)

Table 2: Overall Scoring of Knowledge and Practices about Foot Care in Males and Females

Scoring	Patients Without History of Ulcer n (%)	Patients With History of Ulcer n (%)	Total
< 50% Poor	15(16.9)	1 (9.1)	16 (16)
50-70% Fair Knowledge	60 (67.4)	7 (63.6)	67 (67)
>70% Good Knowledge	14 (15.7)	3 (27.3)	17 (17)

Table 3: Overall Scoring of Knowledge and Practices about Foot Care in Patients With and Without Past History of Ulcer

Average Score	Education				
	Illiterate	Primary School	High School	Beyond High School	
<50% Poor	3 (18.4)%	8 (16.9)%	4 (14.5)%	1 (11.1)%	16 (16.0)%
50-70% Fair	12 (65.8)%	31 (69.7)%	17 (61.8)%	6 (72.2)%	67 (67.0)%
>70% Good	3 (15.8)%	6 (13.5)%	7 (23.6)%	2 (16.7)%	17 (17.0)%
Total	**19**	**44**	**27**	**9**	**100**

Table 4: Overall Scoring of Knowledge and Practices about Foot Care in Patients Compared with Their Educational Status.

DISCUSSION

A questionnaire for assessing foot care practices based on standard foot care management guidelines was formulated. This tool was useful in knowing foot care practices at particular point in time and it can indicate the need for foot care education or reinforcement, especially in those with insensate feet but are at high risk for developing a foot ulcer.[6,7]

This study throws light on the poor educational status of Indian diabetics, and this is supported by various other studies. In a study by Ward et al., A in veterans at high risk for foot ulcers showed that educational sessions improved the foot care knowledge and behavior of high-risk patients.[8]

In a Cochrane review, Valk et al., showed that patient education may have positive but shortlived effects on foot care knowledge and behaviour of patients and may reduce foot ulceration and

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amputations. In a study by Anselmo et al., only 8.7% regularly wore the footwear supplied; self foot-inspection done by 65%, creaming 77%, proper washing and drying 88%, proper cutting of toe nails 83%, routine shoe inspection 77% and no barefoot walking 95%.[9]

In a study by Chandalia et al., There was poor knowledge about foot education and foot practices. Nearly half (44.7%) of patients had not received previous foot care education and 45% walked barefoot indoors. Viswanathan et al., evaluated the knowledge of the diabetic subjects regarding the foot problems and foot care and showed that the scores on general foot care and foot complications was poor.[10]

CONCLUSION

Before diabetic foot care reaches the level desired by specialists in this field, many barriers must be recognized and overcome. Sound and cost-effective strategies need to be developed. Policymakers and health-care professionals should work together to remove the obstacles and facilitate the provision of adequate diabetic foot care. The impact of diabetic foot disease and amputations will only be reduced if sufficient attention is paid to the necessary preventive measures. This study emphasises that significant reductions in amputations can be achieved by well-organized diabetic foot care teams, good diabetes control and well-informed self-care. This study also stresses the need for opening patient centred diabetic foot care clinics for early diagnosis, treatment and prevention.

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