Research Article

Study on the awareness on diabetic foot care among care givers of patients with diabetes

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Abstract

Background: The prevalence of foot ulcers in patients with diabetes is high and amongst its commonest complications. Lack of awareness on foot care is the most importance reason for its occurrence. Aim: To assess the awareness on foot care among caregivers of patients with diabetic foot ulcers. **Materials and Methods:** Patients with type 1 and type 2 diabetes were included in the study. Knowledge regarding foot care was assessed using a questionnaire containing fifteen'yes/no' response questions. Caregivers were regarded as having good knowledge if they scored 11-15, satisfactory if 7-10 and poor if < 7'yes' responses. **Results:** A total of 33 subjects were included in the study. Among these caregivers 21(63.6%) had poor knowledge, 11(33.3%) had satisfactory knowledge and just 1(3%) had good knowledge on diabetic foot care. All respondents with literacy level 10th standard and above (27%) had satisfactory or good knowledge; however only 3 among the remaining 73% of caregivers had satisfactory knowledge. About 88.8% of patients with income > Rs 12000/month (n=9) had satisfactory or good awareness, while only 16% of the remaining patients (n=24) had satisfactory knowledge on foot care practices. **Conclusion:** The overall awareness regarding foot care among caregivers of diabetic patients is poor (38%). Both literacy and financial status of patients had a positive correlation with awareness. Health programs directed towards foot care targeting the underprivileged section of society might help reduce foot complications in diabetes.

Keywords: diabetes, prevalence.

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INTRODUCTION

Diabetes, animportant non communicable lifestyle disease affecting mankind is rapidly increasing and now estimated to affect over 366 million people globally[1,2]. Over 63 million Indians currently are diabetics and these numbers are to touch 100 million by 2030[3,4]. A vast majority of underprivileged rural population receive little health care education and limited health-care facilities [5]. Foot ulcers are amongst the most common complications of diabetes mellitus. The prevalence of foot ulcers in patients with diabetes is 4-10% and lifetime incidence may be as high as 25 percent[6]. With increased longevity, the incidence of diabetes related complications are rising. The risk of limb amputation increases with age and the duration of diabetes. Prevention of foot ulcers is extremely important considering the negative impact on a patient's life and the economic burden over the family[6].Simple health education measures can improve knowledge and practice regarding management of diabetes and foot care in diabetes. However there's a dearth of studies in India on the awareness of foot care among caregivers of patients with diabetic foot. We intend to study the awareness on diabetic foot-care among caregivers of patients with foot ulcers.

AIMS AND OBJECTIVE

1. Study the awareness on diabetic foot care amongst caregivers of patients with diabetic foot ulcers.

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2. Study the factors involved in poor awareness about foot care in diabetes.

MATERIAL AND METHODS

Source of Data

This questionnaire based study was done among caregivers of patients admitted to a tertiary care hospital in Mangalore with diabetic foot ulcers.

Inclusion Criteria

The caregiver must be sharing the dwelling and spend six to eight hours with the patient daily.

Exclusion Criteria

The caregiver with history of neuro psychiatric illness or substance abuse.

Methods

The caregiver knowledge regarding diabetic foot care was assessed using fifteen 'yes/no response' questions (table-1), with each having one point. After obtaining an informed consent, the caregiver is handed over the questionnaire to mark his responses either as 'yes or no'. Any clarification or difficulties in interpreting these questions will be provided to him. Based on the responses, the caregivers were regarded to have good knowledge (11-15 points), satisfactory (7-10 points) and poor (less than 7points). The data obtained were analyzed by frequency, ratios and percentages.

Table 1: Questionnaire cum response sheet provided to caregivers

	Questionnair	
1	Importance of taking antidiabetic treatment to prevent complications:	Yes / No
2	Daily washing the feet:	Yes / No
3	Using warm water for washing/ bathing:	Yes / No
4	Checking temperature of water before using:	Yes / No
5	Drying the feet after washing:	Yes / No
6	Talcum powder usage for keeping interdigital spaces dry:	Yes / No
7	Keeping skin of feet soft to prevent dryness:	Yes / No
8	Lotion not to be applied in the interdigital spaces:	Yes / No
9	Daily change of socks:	Yes / No
10	Trimming nails of feet straight with care:	Yes / No
11	Inspection of feet once a day:	Yes / No
12	Wearing comfortable coat shoes:	Yes / No
13	Checking shoes from inside before wearing:	Yes / No
14	Not walking bare foot:	Yes / No
15	Warning signs for which consultation is required:	Yes / No

RESULTS

In the present study 33 caregivers were included. Among the caregivers 63.6% (n-21) had poor knowledge with less than 7 'yes' responses, 33.3% (n-11) had satisfactory knowledge scoring 7-10 and remaining 3% (n-1) had good knowledge on diabetes foot care scoring above 10 in the questionnaire.

Table 2: Response of subjects to questionnaire

Sr. No.	Questinnaire	Number of Caregivers Aware
1	Importance of taking anti-diabetic treatment to prevent complications	21 (63.6%)
2	Daily washing the feet	20(60.6%)
3	Using warm water for washing/ bathing	12(36.4%)
4	Checking temperature of water before using	7 (21.2%)
5	Drying the feet after washing	15 (45%)
6	Talcum powder usage for keeping inter-digital spaces dry	8 (24.2%)
7	Keeping skin of feet soft to prevent dryness	8(24.2%)
8	Lotion not to be applied in the inter-digital spaces	9 (27.3%)
9	Daily change of socks	10 (30.3%)
10	Trimming nails of feet straight with care	20 (60.6%)
11	Inspection of feet once a day	13 (39.4%)
12	Wearing comfortable coat shoes	8 (24.2%)
13	Checking shoes from inside before wearing	11 (33.3%)
14	Not walking bare foot	19 (57.6%)
15	Warning signs for which consultation is required	9 (27.3%)

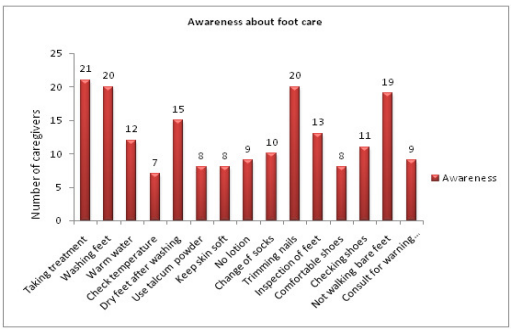

Figure 1: Graph showing the awareness about foot care among caregivers of patients with diabetic foot

Twenty one caregivers were aware about the importance of taking regular treatment in preventing foot complications. Similarly, twenty caregivers were aware about the need to wash feet regularly and trim their nails. The awareness about avoiding bare foot walking was also good with nineteen caregivers being aware of this fact. However they were not aware about the importance of checking temperature of water before using it, using talcum powder and keeping skin soft, regular change of socks and checking shoes before wearing. A total of 21 caregivers scored less than 7 correct responses in the yes/no questionnaire provided, as depicted in table 1. Eleven caregivers scored between 7 and 10, while one caregiver had good knowledge on foot care in diabetes and scored over 10. Subjects with literacy level '10th standard and above' (27%) had satisfactory or good knowledge; however only three in the remaining 73% had satisfactory knowledge. About 88.8% of patients with income >12000/month (n-9) had satisfactory or good awareness, while only 16% of the remaining patients (n-24) had satisfactory knowledge.

DISCUSSION

Diabetic foot accounts for nearly 50% of hospital admissions in patients with diabetes. Diabetic peripheral neuropathy and microvascular complications commonly seen in poorly controlled diabetics play a major role in the occurrence of foot ulcers[7]. Loss of skin sensation, foot deformities and limited joint mobility can result in abnormal bio-mechanical loading of the foot which leads to callus formation [8]. Neuropathic ulcers usually heal by 20 weeks while neuro-ischemic ulcers usually lead to limb amputation. With progression of diabetes, patients develop a level of sensory loss that allows them to hurt themselves without recognizing the injury[9]. This is a major component of all diabetic ulcerations and hence all diabetic patients should be screened for loss of protective sensation to identify those at risk for foot ulceration[10,11]. A second causative factor is high plantar pressure due to limited joint mobility and foot deformities. Repeated trauma also plays a significant role in causation of these ulcers [11]. The study showed that the awareness about foot care among caregivers of diabetic patients was inadequate with 63% of patients having poor knowledge which was comparable with the study done in Chennai where only 33% of patients scored well on knowledge regarding foot care[12]. The findings were similar to another study done in Maharashtra where 76% of patients were not aware that feet require special attention and 99% of patients did not inspect their feet for cracks and fissures[8].Studies done in Nigeria and Iran showed similar observations on poor awareness in foot care[13,14]. However, a study done in Vellore found 75% of patients to have good knowledge on foot care practice. This was attributed to the community health programs and focused diabetes care program initiated by in the health care providers [15]. The burden of treatment of diabetic foot in India is high where patients spend nearly 5.7 years of income on various modalities of treatment[16]. The financial burden could be reduced by simple education of patients on diabetic foot care. This could reduce risk of amputations by nearly 67 percent[17]. There are few studies conducted in South India on the awareness on foot care among care givers of diabetic patients. A better educated caregiver would improve the practice of foot care among diabetes patients and reduce amputations. Poor literacy related well with poor awareness on diabetic foot care in this study. This was similar to studies done in Chennai and Vellore [12, 15]. Patients with better financial status showed better knowledge regarding foot care. This might be due to the higher number of hospital visits and counselling received by these patients. A study from Puducherry showed as little as 5 minutes spent on patient education about foot care improved their practices reducing long term complications[2]. Participants in the study were better aware on importance of regular treatment, avoiding bare foot walking, trimming nails and washing feet. This was in contrast to the study done at Vellore where the patients were better aware about the importance of inspecting and examining feet daily. It has been shown that simple measures like daily foot inspection and use of proper footwear also helps preventing complications. Most of

their study population were barefoot walkers and were unaware about the need to avoid barefoot walking to prevent diabetic foot ulcers[15]. A good glycemic control can reduce microvascular complications and educating patients about risk factor modification and early recognition of foot ulcers is absolutely essential in preventing further complications[18]. Caregivers play a pivotal role in accomplishing the above objective. The study highlights important deficiencies in knowledge regarding foot care among caregivers of diabetic patients. The findings can be used to guide health education programs on foot care and thereby try and prevent these foot ulcers and amputations. We need to educate the individuals at risk on annual screening for diabetic complications and on practice of diabetes foot care.

CONCLUSION

The overall awareness regarding foot care among caregivers of diabetic patients was poor (38%). Both literacy and financial status of the patient and caregiver had a positive correlation with their awareness of foot care practice. Health programmes directed towards foot care targeting the underprivileged section of society might help reduce foot complications in diabetes.

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