

ORIGINAL ARTICLE

ARE WE TELLING THE DIABETIC PATIENTS ADEQUATELY ABOUT FOOT CARE?

Rashid Ali, Umer Farooq*, Mir Jalal-ud-din, Raheel Jahangir Jadoon, Muhammad Adeel Alam**, Asfandyar Qureshi***, Syed Usman Shah[†]

Department of Medicine, [†]Department of Orthopaedics, Women Medical College, Abbottabad, *Department of Community Medicine, **Pharmacology, ***Physiology, Ayub Medical College, Abbottabad-Pakistan

Background: Diabetes mellitus affects more than 285 million people worldwide. The prevalence is expected to rise to 439 million by the year 2030. Diabetic foot ulcers precede 84% of non-traumatic amputations in diabetics. One lower limb is lost every 30 seconds around the world because of diabetic foot ulceration. Apart from being lengthy, the treatment of diabetic foot is also very expensive. There is very limited emphasis on foot care in diabetic patients. Even in developed countries patients feel that they do not have adequate knowledge about foot care. This study was conducted to find out how much information is imparted by doctors to diabetic patients about foot care. **Methods:** This cross-sectional study was conducted in admitted patients of the Department of Medicine, DHQ Hospital, Abbottabad from May 2014 to June 2015. One hundred and thirty-nine diabetic patients more than 25 years of age were included by non-probability consecutive sampling. **Results:** The mean age was 57.17 (\pm 11.1) years. 35.3% of patients were male and 64.7% were female. The mean duration of diabetes in patients was 8.3 (\pm 6) years. Only 36.7% of patients said that their doctor told them about foot care. Less than 40% of patients knew that they should daily inspect their feet, wash them with gentle warm water, and dry them afterwards. Only 25.2% of the participants knew how to manage corns or calluses on feet. 66.5% of patients knew that they should not walk bare foot. Overall, 63% of our patients had less than 50% knowledge of the 11 points regarding foot care that the investigators asked them. **Conclusion:** Diabetic foot problems are the one of the costliest, most disabling and disheartening complication of diabetes mellitus. Doctors are not properly telling diabetic patients about foot care. There is a deficiency of knowledge among the diabetic patients regarding foot care.

Keywords: Diabetes mellitus, Diabetic foot/Prevention and control, Guideline Adherence

J Ayub Med Coll Abbottabad 2016;28(1):161-3

INTRODUCTION

Diabetes mellitus affects more than 285 million people worldwide which are expected to rise to 439 million by the year 2030.¹ More importantly, there will be a 69% increase in the number of adults with diabetes in developing countries and 20% increase in developed countries from 2010 to 2030.¹ This translates to the fact that a staggering 75% of the diabetics will be living in the resource poor developing countries in next 15 years.²

One of the most disabling and costly complication of diabetes is the diabetic foot ulcer. Diabetic foot ulcer and its complications leading to amputation has become a major health care problem. 15 to 25 percent of diabetic patients are likely to develop foot ulceration in their lifetime.³ Diabetic foot ulcers precede 84% of non-traumatic amputations in diabetics.⁴ One lower limb is lost every 30 seconds around the world because of diabetic foot ulceration.⁵ The 5-year mortality after amputation in diabetics ranges from 68–90% which is very high compared to non-diabetic individuals.⁶

Moreover, about two-thirds of diabetic patients treated for diabetic foot will again develop the same complication in the next 5 years.⁷ Treatment of a

diabetic ulcer is unfortunately challenging and prolonged. Patients usually need to be hospitalized for long periods of time. In fact, diabetic foot and its complications are associated with more days of hospital stay than any other chronic complication of diabetes.⁵

Apart from being lengthy, the treatment is also very expensive. The treatment cost for wounds with Wagner grade I was \$3096 in 2010 on the average in five industrialized countries. But, if the wound became complicated and lead to amputation, the cost rose to \$107900.⁷

Financial considerations set aside; quality of life is badly disturbed in diabetes and foot complications. Numerous studies have confirmed that diabetic foot disease has a huge depressing psychological and social effect, including reduced social activities, greater family tensions for patients and their partners, considerably reduced employment opportunities, and financial problems.⁸

Despite all of this being said, there is very limited emphasis on foot care in diabetic patients. Diabetes being a lifelong problem, patient plays a crucial role in prevention of diabetic foot problems. A review of the published literature quickly reveals that

even in developed countries patients feel that they do not have adequate knowledge about foot care. And there are large gaps between reported 'adequate' knowledge and actual knowledge.^{9,10}

Numerous other studies reinforce the point that although managing diabetic foot remains extremely difficult and expensive; patients are not told adequately about foot care.^{11,12} Even those patients who have major risk factors for lower limb complications are not offered foot care in an appropriate manner.¹³ A study conducted in India found out that 67.2% diabetic patients do not have adequate knowledge regarding foot care.¹⁴

Many studies on diabetes have been conducted in Pakistan. But only two have touched upon the subject of diabetic foot care. One of them has focused on practice of foot care among the diabetic patients. It found out that only 6% of the diabetic patients were practicing foot care as per international recommendations.¹⁵ It also found that foot care practice was related to foot care knowledge. The second study focused on foot care knowledge among diabetic patients as well as their practices. It showed that less than 30 percent diabetic patients had good knowledge about foot care.¹⁶

Therefore this study was conducted to assess the level of knowledge about foot care in our diabetic patients and hence assess how much importance is given to foot care by our health care professionals.

MATERIAL AND METHODS

This cross-sectional study was conducted in admitted patients of the Department of Medicine, District Headquarter Hospital, Abbottabad from May 2014 to June 2015. Non-probability consecutive sampling was used. All diabetic patients more than 25 years of age were included in the study except those who had an active diabetic foot problem or had it in the past or had any foot deformity or who had any communication problem. The sample size was 139 (calculated according to prevalence of diabetes in Pakistan 10%, confidence level of 95%, absolute precision of 5%).

After taking consent patients were interviewed according to a structured questionnaire. These questions were developed keeping in mind the American Diabetes Association Guidelines about foot care. Patients were also asked about their source of knowledge regarding diabetes and foot care.

The data were analysed by using the statistical package SPSS, version 20 and presented as mean \pm standard deviation for quantitative variables. In case of categorical variables, data was presented in terms of frequencies and percentages.

RESULTS

The mean age of our patients was 57.17 (\pm 11.1) years. 35.3% of patients were male and 64.7% were female.

The mean duration of diabetes in patients was 8.3 (\pm 6) years. 79.1% of patients were using oral hypoglycaemics, 12.3% were using insulin, and 7.9% were using both. 61.2% patients said that they used their anti-diabetic medications regularly, while rest of the patients were non-compliant. Only 36.7% of patients said that their doctor told them about foot care.

Patients were also asked what they would do if they got an injury to their foot. 33.8% patients said that they would do self-medication, while 45.3% said that they would consult a doctor. Table-2 summarizes the response in this question.

Patients were also asked about the source of their knowledge. Table 3 summarizes the responses to this question.

Table-1: Knowledge of patients regarding foot care

Does the patient know?	Percentage
Inspecting the feet daily	36.7
Washing feet daily with gentle warm water	34.5
Drying feet after washing them, especially between the toes	38.1
Keeping the skin of feet soft and smooth	43.9
Precautions while cutting nails	51.8
Precautions while choosing foot wear	47.5
Avoiding walking barefoot	66.5
Checking shoes before wearing them	64.0
Protect feet from extremes of temperatures	41.0
Managing corns or calluses on feet	25.2
Smoking affects feet	66.2

Table-2: Response regarding injury to foot

Response	Percentage
No action	8.6
Self-medication	33.8
Consultation from a medical store keeper	7.2
Consultation with a doctor	45.3
Others	5.0

Table-3: Source of information about foot care

Source of information	Percentage
Doctor	51.8
Nursing staff	0.7
Media	2.9
Diabetic patients	44.6

DISCUSSION

The results of our study points out to the overwhelming lack of knowledge of diabetic patients about foot care. 63.3% of patients said that their physicians did not tell them about foot care. In a study done by De Berardis G *et al.* in Italy, 28% patients said that their doctor did not tell them about diabetic foot care.¹³ This points out to the casual approach of our doctors towards imparting information to diabetic patients.

Diabetic should daily inspect their feet, wash them with gentle warm water, and dry them afterwards was known to less than 40% of patients.

The knowledge regarding managing corns or calluses on feet was the most deficient among our patients with only 25.2% of the participants knew what

to do with them. These can get infected if not properly managed and hence lead to significant morbidity.

The fact that diabetics should avoid walking barefoot was the best known piece of information among our patients. 66.5% of patients knew that they should not walk bare foot as this can lead to trauma to their feet. 64% patients knew that they should check their shoes before wearing them.

Overall, 63% of our patients had less than 50% knowledge of the 11 points regarding foot care that the investigators asked them.

Viswanathan V. *et al*¹⁴ reported that 67.2% of their patients scored less than 50% in their questionnaire that was used to gauge the knowledge of patients regarding foot care.

In a study conducted in Nigeria by Desalu OO *et al.*, 30.1% of patients had good knowledge regarding foot care.¹⁷ The study done by Hasnain S *et al.* in Pakistan showed that only 29.3% diabetic patients had good knowledge regarding foot care.¹⁶

An alarming 49.7% of the patients said that they would either manage a wound on their feet by themselves or ask a medical store keeper for help or would just adopt a wait and see policy. This is a dangerous trend as even a small wound can lead to fulminant infection and can lead to amputation of the limb if not properly managed.

CONCLUSION

The results of our study point to the fact that we as physicians are not properly telling our diabetic patients about foot care. Less than 37% of doctors are telling their patients about taking special care of their feet. Diabetic foot problems are one of the costliest, most disabling and disheartening complication of diabetes mellitus. Therefore, we all need to repeatedly counsel our diabetic patients about proper foot care.

AUTHOR'S CONTRIBUTION

RA: Designed the study, analysed data and drafted the manuscript. UF: Analysed the data. MJ, RJJ: Facilitated data collection, helped in drafting and revising the manuscript.

REFERENCES

1. Shaw JE, Sicree RA, Zimmet PZ. Global estimates of the prevalence of diabetes for 2010 and 2030. *Diabetes Res Clin Pract* 2010;87(1):4-14.

2. King H, Aubert RE, Herman WH. Global burden of Diabetes, 1995-2025: Prevalence, Numerical estimates, and Projections. *Diabetes Care* 1998;21(9):1414-31.
3. Yudovsky D, Nouvong A, Pilon L. Hyperspectral imaging in diabetic foot wound care. *J Diabetes Sci Technol* 2010;4(5):1099-113.
4. Barshes NR, Barshes NM, Wrobel JS, Mahankali A, Robbins JM, Koungias P, *et al.* The system of care for the diabetic foot: objectives, outcomes, and opportunity. *Diabet Foot Ankle* 2013;4.
5. Madanchi N, Tabatabaei-Malazy O, Pajouhi M, Heshmat R, Larijani B, Mohajeri-Tehrani MR. Who are diabetic foot patients? A descriptive study on 873 patients. *J Diabetes Metab Disord* 2013;12:36.
6. Icks A, Scheer M, Morbach S, Genz J, Haastert B, Giani G, *et al.* Time-dependent impact of diabetes on mortality in patients after major lower extremity amputation: survival in a population-based 5-year cohort in Germany. *Diabetes Care* 2011;34(6):1350-4.
7. Iraj B, Khorvash F, Ebneshahidi A, Askari G. Prevention of diabetic foot ulcer. *Int J Prev Med* 2013;4(3):373-6.
8. Goodridge D, Trepman E, Embil JM. Health-related quality of life in diabetic patients with foot ulcers: literature review. *J Wound Ostomy Continence Nurs* 2005;32(6):368-77.
9. Olson JM, Hogan MT, Pogach LM, Rajan M, Raugi GJ, Reiber GE. Foot care education and self management behaviors in diverse veterans with diabetes. *Patient Prefer Adherence* 2009;3:45-50.
10. Rajan M, Pogach L, Tseng CL, Reiber G, Johnston M. Facility-level variations in patient-reported footcare knowledge sufficiency: implications for diabetes performance measurement. *Prim Care Diabetes* 2007;1(3):147-53.
11. Matwa P, Chabeli MM, Muller M, Levitt NS. Experiences and guidelines for footcare practices of patients with diabetes mellitus. *Curationis* 2003;26(1):11-21.
12. Simmons D, Scott D, Kenealy T, Scragg R. Foot care among diabetic patients in south Auckland. *N Z Med J* 1995;108(996):106-8.
13. De Berardis G, Pellegrini F, Franciosi M, Belfiglio M, Di Nardo B, Greenfield S, *et al.* Are Type 2 diabetic patients offered adequate foot care? The role of physician and patient characteristics. *J Diabetes Complications* 2005;19(6):319-27.
14. Viswanathan V, Shobhana R, Snehalatha C, Seena R, Ramachandran A. Need for education on footcare in diabetic patients in India. *J Assoc Physicians India* 1999;47(11):1083-5.
15. Saeed N, Zafar J, Atta A. Frequency of patients with diabetes taking proper foot care according to international guidelines and its impact on their foot health. *J Pak Med Assoc* 2010;60(9):732-5.
16. Hasnain S, Sheikh NH. Knowledge and practices regarding foot care in diabetic patients visiting diabetic clinic in Jinnah Hospital, Lahore. *J Pak Med Assoc* 2009;59(10):687-90.
17. Desalu OO, Salawu FK, Jimoh AK, Adekoya AO, Busari OA, Olokoba AB. Diabetic foot care: self reported knowledge and practice among patients attending three tertiary hospital in Nigeria. *Ghana Med J* 2011;45(2):60-5.

Address for Correspondence:

Dr. Rashid Ali, 67/2, Rah-e-Sakoon, Habibullah Colony, Abbottabad-Pakistan

Cell: +92 321 981 2182

Email: dr.rashidali@gmail.com