

Foot Care Awareness among Diabetic Patients

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ABSTRACT

Objective: To assess the awareness of the patient regarding foot care.

Methodology: This retrospective study was conducted at Diabetes & Endocrinology Ward, Chandka Medical College Hospital, Shaheed Mohtarma Benazir Bhutto Medical University, Larkana from 1st January 2022 to 30th June 2022. There were 200 patients enrolled in this study suffering from type-2 diabetic patients with an age more than 30 years were included. A well-structured questionnaire was designed for documenting the awareness related questions about foot care from each diabetic patient. Patients were classified as those who have visited physician for foot care or not, ulceration presence, and risk status.

Results: The mean age of the cases were 50.7±10.4 years with more males having no foot ulceration while higher females suffering from foot ulcerations. The educational status presented higher level of primary education in both groups while this was followed by no education in foot ulceration diabetic patients. The knowledge scores presented higher number of patients above age 45 having the knowledge of foot care with 127 females presented. The awareness of self-foot care was observed in on 45 cases with highest in those having at least secondary education. There were 45.5% those diabetic patients having long time history of diabetes. There were 9% cases with previous history of foot ulceration. The awareness of foot care practice was observed in 37.5% of the total cases with only 4 those having foot ulceration. There was very poor hygiene awareness about feet in cases with foot ulceration. Awareness about not soaking the feet was only present in 24% of ulceration foot diabetic patients while 34% were not aware of risks with walking barefoot outside. Those patients whose feet were examined by physicians had significantly higher trend of walking barefoot. They also were less aware of drying toes web spaces as compared to the other groups.

Practical implication

Conclusion: Diabetic foot ulceration was observed significantly low in those patients who had knowledge regarding self-care.

Keywords: Foot ulcers, Diabetes, Neuropathy, Guidelines, Amputation

INTRODUCTION

Diabetes mellitus (DM) is a major health problem faced by both developed and developing countries. It is still a major health concern for many countries and posing serious threats to various populations. According to World Health Organization, DM is major cause of death globally and its prevalence upsurge in future. Recent facts and figures by diabetes federation showed that diabetes cause deaths of 5 million people in year 2015.^{1,2} As frequency of diabetes is increasing rapidly, chances of foot diseases related to diabetes is also determined to be on higher trend. DM is considered as a metabolic disease occurred due to hyperglycemia that leads to neuropathy in diabetic patients. Peripheral neuropathy is a major cause of foot ulcers and amputations in diabetic patients.³

Foot complications are widely associated with diabetes and self-care and recommended guidelines and mostly suggested to diabetic patients as a routine care. These complications often results into amputation of lower extremities. Diabetic foot is regarded as group of syndromes triggered due to infection, ischemia and neuropathy.^{4,5} If foot ulcers not properly evaluated or treated at the time of diagnosis, it would result into detrimental results and increases the chances of amputation up to 6 folds even after the first evaluation.^{6,7} Studies have highlighted that majority of the diabetic patients at the time of diagnosis of this diseases were not aware of the self-foot care.^{8,9}

In developed states like America, more than half of non-traumatic lower extremity is due to diabetes and its ratio is much higher than non-diabetic patients. Research also highlighted, nearly half of the patients died within few years after amputation.¹⁰ In Pakistan, the overall incidence rate of foot ulcers in diabetic patients is 12%. However, higher incidence rate was observed in previous decade (2011-2022) up to 19% as compared to 1900s.¹¹ The purpose of present study was to estimate the frequency of foot ulcers in diabetic population. The results of present study will prove beneficial in highlighting the importance of self-foot care among diabetic patients.

MATERIALS AND METHODS

This retrospective study was conducted at Diabetes & Endocrinology Ward, Chandka Medical College Hospital, Shaheed Mohtarma Benazir Bhutto Medical University, Larkana from 1st January 2022 to 30th June 2022. The study was approved from ethical boards before its initiation. There were 200 patients enrolled in this study after having their written approval of participation. The sample size was generated through sample size calculator by WHO, which applied 95% CI and 80% power of test. All those patients suffering from type-2 diabetic patients with an age between 35-65 years were included. Pathology other than type-2 diabetes and patients with foot cancer and severe trauma were excluded from this study. Data of each patient was collected from their medical files where information including age, gender, type of diabetes, duration of diabetes, occupation and level of education, clinical features including examination findings (especially polyphagia, polydipsia, polyuria), laboratory findings (HbA_{1c}, FBS, RBS) was noted. All the patients were categorized on the basis of their feet condition. A well-structured questionnaire was designed for documenting the awareness related questions about foot care from each diabetic patient. Patients were classified as those who have visited physician for foot care or not, ulceration presence, and risk status. The data was entered and analyzed through SPSS-25. The Fisher test and chi square test was used as analysis tool. p value <0.05 was taken as significant.

RESULTS

The mean age of the cases were 50.7±10.4 years with more males having no foot ulceration while higher females suffering from foot ulcerations. The educational status presented higher level of primary education in both groups while this was followed by no education in foot ulceration diabetic patients. There was a significant variance within smoking and non-smoking group with a very less number of smokers having foot ulceration (Table 1).

The knowledge scores presented higher number of patients above age 45 having the knowledge of foot care with 127 females

presented. The awareness of self-foot care was observed in on 45 cases with highest in those having at least secondary education. The treatment through OHA was highest among diabetic cases while mild neuropathy was reported in 56/200 cases. Peripheral vascular disease was absent in most of the diabetic patients. There were 45.5% those diabetic patients having long time history of diabetes. There were 9% cases with previous history of foot ulceration (Table 2).

The awareness of foot care practice was observed in 37.5% of the total cases with only 04 those having foot ulceration. There

was very poor hygiene awareness about feet in cases with foot ulceration. Awareness about not soaking the feet was only present in 24% of ulceration foot diabetic patients while 34% were not aware of risks with walking barefoot outside (Table 3).

Those patients whose feet were examined by physicians had significantly higher trend of walking barefoot. They also were less aware of drying toes web spaces as compared to the other group whose feet was not examined by physician. In this group, patients prefer not to walk with barefoot and they washed their feet regularly. They also use nail-cutter to cut their nails (Fig 1).

Table 1: Demographic characteristics of patients in association with foot ulceration

Characteristics	Total population (n=200)	No foot ulceration present (n=150)	Foot ulceration present (n=50)	P χ^2 /Fisher's test
Age (years)	50.7±10.4	49.2±12.0	52.3±8.8	0.063
Gender				
Male	73	63	10	0.615
Female	127	67	60	
Education level				
No formal education	36	13	22	0.079
Primary education	80	57	23	0.052
Secondary education	63	61	3	0.059
Graduate	21	19	2	0.043
Smoking				
Smoker	48	40	9	0.0445
Non smoker	152	110	41	
Financial status				
Govt Job	37	34	3	0.0752
Self employed	90	48	43	
Farming	63	59	4	
Professional	10	9	-	

Table 2: Awareness and knowledge scores on diabetes foot care (n=200)

Characteristics		Total patients	Mean±SD	P value
Age (years)	<45	58	12.6±5.6	0.342
	>45	142	11.8±6.3	
Gender	Male	73	12.8±6.1	0.455
	Female	127	12.0±6.1	
Awareness regarding self-foot care	Present	45	16.12±8.1	0.0352
	Absent	155	-	
Education level	No formal education	35	8.3±6.1	0.0013
	Primary education	80	10.5±7.7	
	Secondary education	64	13.2±7.3	
	Graduate	21	14.6±8.5	
Treatment	OHA	116	23.3±9.8	0.681
	Insulin	24	18.5±8.2	
	Combination	60	19.3±9.5	
Peripheral neuropathy	Absent	90	12.1±5.4	0.0032
	Mild	56	15.2±7.5	
	Moderate	38	19.6±5.6	
	Severe	16	21.6±10.1	
Peripheral vascular disease	Present	22	15.1±4.1	0.0024
	Absent	178	17.4±9.5	
Duration of diabetes	<5 years	12	10.3±10.2	0.783
	5-10 years	26	13.2±5.8	
	10-15 years	61	14.2±8.4	
	15-20 years	86	15.6±9.5	
	Previous diabetic foot ulcer	15	11.6±4.5	

Table 3: Awareness about foot self-care

Practice	Total number of patients (n=200)	No foot ulceration (n=150)	Diabetic foot ulcer (n=50)	P-value
Foot care practices performed daily	75	71	04	0.672
Washing feet	60	53	07	0.744
Awareness about correct footwear	40	22	18	0.635
Inspecting feet	50	35	15	0.126
Care of toes web spaces	52	28	24	0.432
Not soaking feet	38	26	12	0.232
Walking barefoot				
In side house	60	23	37	0.287
Outside house	20	03	17	0.544
Use of nail cutter to cut nails	142	112	30	0.343

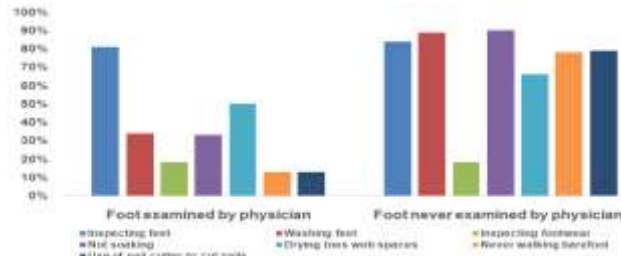


Fig 1: Difference in foot-care routine on examination basis by physician

DISCUSSION

Diabetes has a higher risk of foot ulcers than normal public of Pakistan. There are various studies which have estimated an incidence of 15 percent of foot ulcers in diabetic patients while studies has also reported an augmented incidents ranging between 25% to 32.9%.¹³ However, in few Pakistani studies as from Saad et al reported an n incident of 4.1%. In the current studies the awareness of diabetic patients in reference to foot ulcers was observed in 37.5% cases which are in similarity in with international data.^{14,15}

Rebier et al¹⁶ have reported peripheral neuropathy as most common clinical symptoms for diabetic foot ulceration formation. The prevalence peripheral neuropathy in diabetic cases in India is reported between 10.5% and 232.2% while in other developing countries, it upraise up to 15%.¹⁷ The present study reported similar findings in contest to peripheral neuropathy with 91% of such patients also having foot ulceration.

The awareness about foot care in diabetic patients can prevent them from developing foot ulceration. This statement is supported by a wide range to international research. In the current studies, patient's awareness about their foot care and presentation to a physician was assessed. It was observed that majority of the cases which did not report foot ulceration had more hygienic precautions and self care while ulceration was more common in those cases which had a limited self care approach towards their feet. Studies elsewhere have reported more than 50% diabetic patients having no foot ulceration however majority have never received any awareness or information regarding footcare.^{18,19}

Various researchers have published lack of awareness with low knowledge as well as awareness course associated with decreased educational level.¹⁹ Fatima et al²⁰ reported 7% of their study diabetic cases with good knowledge and practice about foot care while 55.3% had a limited knowledge and only 37.7% had a good awareness about foot care which was not associated with physician visits. Similar results have also been interpreted through the present research findings.

CONCLUSION

Diabetic foot ulceration was observed significantly low in those patients who had knowledge regarding self-care. Diabetes was more commonly observed in >45 years of age patients. There is a dire need of knowledge and awareness program regarding self-care in diabetes.

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