

Knowledge and Awareness of Diabetic Foot Complications in Diabetic Patients

Sarah Naif Aldawish, Ahmad Hassan Alsomali, Abeer Jalawi alotaibi, Abdulwhab Abdulhaq Alkhars

Almaarefa University, Saudi Arabia

*Corresponding author: Sarah Naif Aldawish, E-mail: sara-naif1993@hotmail.com

ABSTRACT

Background: diabetic foot problems are common throughout the world, resulting in major economic consequences for the patients, their families, and society. Foot ulcers are more likely to be of neuropathic origin, and therefore eminently preventable, in developing countries, which will experience the greatest rise in the prevalence of type 2 diabetes.

Aim of the Work: to assess the level of awareness of Diabetic foot disease amongst patients with type 2 diabetes mellitus aim. To measure the knowledge of diabetic about sign and symptoms of diabetic foot. To measure the knowledge of risk factors of diabetic foot in diabetic patients.

Patients and Methods: this is a questionnaire-based cross-sectional study enrolling a total of 100 randomly selected diabetic foot Saudi adults ensuring diversity in age range and educational stages. Descriptive analysis was done using Statistical Package for Social Sciences (SPSS) 23. Awareness levels for DF were calculated as absolute frequencies and were reported as overall percentages.

Results: a number of 99 participants with type 2 Diabetes Mellitus participated in the study, 91% of the participants were either overweight or obese, 92% of participants had concomitant hypertension, (57.5%), dyslipidemia and (26.7%) eye problems. Also 76% of the specimen reported altered sensation in their lower limbs, and 90% reported having no previous diabetic foot disease education. Only 22.2% of participants reported having examined their feet, but only when they experienced a problem. A number of participants achieved mediocre scores for knowledge (mean 4.45, standard deviation (s.d.) 2.201, confidence interval (CI) 4.2–4.7) and practice (mean 11.09, s.d. 2.233, CI 10.8–11.5) on diabetic foot care (DFC). Those who had a higher level of education and who were less than 65 years old had a significantly better score for previous foot care education ($p < 0.05$).

Conclusion: The study demonstrated that awareness of DFD was suboptimal, based on current DFC guidelines. To minimize the burden of DFD, improved screening and prevention programs as well as patient education should be provided to T2DM patients, whilst maintaining an aggressive approach to risk factor modifications, footwear and identifying the at-risk foot.

Keywords: Diabetes, diabetic foot, type-II diabetes, sequella.

INTRODUCTION

Diabetic foot disorders (DFD) one of the common chronic complications of diabetes, which may lead to major and minor limb loss¹. More than 50% of lower limb amputations are performed on diabetic patients around 3970 in KSA². It is estimated that 90% of the total diabetic patient end up with amputation. Diabetic foot complications are contributing to both mortality and morbidity among the diabetic population leading to substantial physical, physiological and financial burden for the patients and community at large³. Moreover, diabetic foot infections are a well-recognized risk factor for hospitalization and amputation⁴. According to a recent meta-analysis, one in every 30 hospitalized patients at any given time is affected by a diabetic foot infection. Additionally, patients with diabetes who develop an infection have been reported to have a 155-fold increased risk of amputation compared to those who do not. This study aimed to determine the risk factors of complication of diabetes in lower limb to assess the level of awareness of Diabetic foot disease amongst patients with diabetes mellitus aim. To measure the

knowledge of diabetic about sign and symptoms of diabetic foot, and to measure the knowledge of risk factors of diabetic foot in diabetic patient's⁵.

AIM OF THE WORK

- 1- To assess the level of awareness of Diabetic foot disease amongst patients with type 2 diabetes mellitus aim.
- 2- To measure the knowledge of diabetic about sign and symptoms of diabetic foot.
- 3- To measure the knowledge of risk factors of diabetic foot in diabetic patients.

PATIENTS AND METHODS

Population research and sampling: Based on a cross-sectional study of enrollment a total of 100 diabetic patients on June 2018 randomly selected in Saudi Arabia to ensure diversity in age group and educational stages. **Statistical analysis:** Data was entered and analyzed using Microsoft Excel 2016 (Microsoft Corporation, Seattle, WA, USA).

RESULTS

By the end of the study, after interviewing all the sample patients and then followed by collection and analyzing results, the following was found:

Table (1): Reliability

Case Processing Summary			
		N	%
Cases	Valid	99	100.0
	Excluded ^a	0	.0
	Total	99	100.0

Table (2): Reliability statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
.690	11

Table (3): Frequencies

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	35-45	61	61.6	61.6	61.6
	46-55	28	28.3	28.3	89.9
	56-65	6	6.1	6.1	96.0
	<=66	4	4.0	4.0	100.0
	Total	99	100.0	100.0	

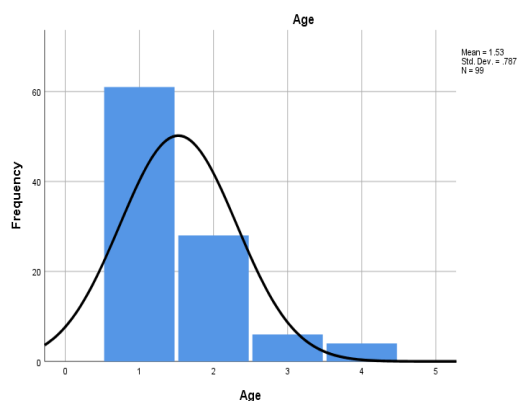


Figure (1): A total of 99 participants with participated in the study, of whom 83 (83.8%) were female and 16 (16.2%) were male. Their mean age was 59±9.28 years.

Table (4): Level of awareness of Diabetic foot disease

Level of awareness of Diabetic foot disease amongst patients with type 2 diabetes mellitus	Yes	%	No	%	Don't know	%
Do you think that poorly controlled diabetes mellitus can cause diabetic foot as complication	70	70.7%	10	10.1%	19	19.1%
Do you expect that the symptoms of diabetic foot appear in those who take care to control the level of sugar always	80	80.8%	3	3%	16	16.1%
Do you expect diabetic foot symptoms to appear in people who do not take sugar control directly? Or after a few years of neglect	84	84.8%	5	5%	10	10.1%

Table (5): Knowledge and attitudes about diabetic foot care and previous diabetic foot education

Knowledge and attitudes	Yes	%	No	%	Don't know	%
Do you think that poorly controlled diabetes mellitus can cause diabetic foot as complication	57	57.58	16	16.16	26	26.26
Do you expect that the symptoms of diabetic foot appear in those who take care to control the level of sugar always	59	59.6	25	25.25	15	15.15
Do you expect diabetic foot symptoms to appear in people who do not take sugar control directly? Or after a few years of neglect	77	77.78	9	9.09	13	13.13

More than half of the specimen believed that DM is a cause to Diabetic foot if it is not treated well. About sixty percent of the specimen believes that the symptoms of diabetic food will always appear in those who take care to control the level of sugar. Most of the specimen believes that the symptoms would appear in people who didn't have control over their Diabetes after few years.

Table (6): Knowledge of Diabetic Foot complications

Knowledge of Diabetic Foot complications	Yes	%	No	%	Don't know	%
Do you think a patient with diabetic foot would have pus discharge?	80	80.8%	5	5%	14	14.2%
Do you think Discoloration in the foot present with loss of sensation?	75	75.7%	15	15.2%	9	9%
Do you think Discoloration in the foot could be a sequella of diabetic foot?	80	80.8%	7	7%	12	12.1%

Table (7): Knowledge and attitudes about diabetic foot care and previous diabetic foot education

Knowledge and attitudes	Yes	%	No	%	Don't know	%
Do you think a patient with diabetic foot would have pus discharge?	77	77.78	5	5.05	17	17.17
Do you think Discoloration in the foot present with loss of sensation?	87	87.88	2	2.02	10	10.10
Do you think Discoloration in the foot could be a sequella of diabetic foot?	74	74.75	8	8.08	17	17.17

Most of the specimen (77%) believes that a patient with diabetic foot would have bus discharge. And almost all (87%) believes that the discoloration in the foot present with loss of sensation. Also, a large number (74%) believes the discoloration of the foot could be a sequella of diabetic foot.

3- To measure the knowledge of risk factors of diabetic foot in diabetic patient's

Table (8): Knowledge of risk factors of Diabetic Foot

Knowledge of risk factors of Diabetic Foot	Yes	%	No	%	Don't know	%
Do you think the old age has high chance for diabetic foot?	79	79.7%	15	15.1%	5	5%
Do you think repeated trauma can cause diabetic foot in diabetes mellitus patient?	76	76.7%	17	17.1%	2	2%
Do you think smoking is a risk factor to get diabetic foot in diabetes mellitus patient?	88	88.8%	7	7%	4	4%
DO you think keeping skin of the feet soft to prevent hygiene good for the diabetic foot?	78	78.7%	10	10.1%	11	11.1%

Table (9): Knowledge and attitudes about diabetic foot care and previous diabetic foot education

Knowledge and attitudes	Yes	%	No	%	Don't know	%
Do you think the old age has high chance for diabetic foot?	27	27.27	32	32.32	40	40.41
Do you think repeated trauma can cause diabetic foot in diabetes mellitus patient?	74	74.75	8	8.08	17	17.17
Do you think smoking is a risk factor to get diabetic foot in diabetes mellitus patient?	9	9.09	71	71.72	19	19.19
Do you think keeping skin of the feet soft to prevent hygiene good for the diabetic foot?	79	79.8	4	4.04	16	16.16

The specimen opinions about whether the old age and its relationship with diabetic foot disease, about half (40%) answered that they have no idea about it. But many of them (74%) agreed that repeated trauma can cause diabetic foot in Diabetic patients. And a large number again (71%) of the specimen agreed that smoking doesn't affect the diabetic foot cases in Diabetic patients. And a large percentage of the specimen (about 80%) agreed that keeping skin of the feet soft could prevent diabetic foot.

DISCUSSION

Published data about diabetic foot infections in Saudi Arabia is scarce, and this study is one of few discussing this important issue concerning a large percent of diabetic patients in the kingdom. Diabetes is the global epidemic of the 21st century. The number of adults with diabetes in the world was 135 million in 1995. At present, 366 million people are affected by diabetes worldwide and 80% of them live in low and middle-income countries. By 2030, the global burden of diabetes is projected to increase to 552 million people⁶. Between 2010 and 2030, there will be a 69% increase in the number of adults with diabetes in developing countries and a 20% increase in developed countries⁷. A total of 99 participants with participated in the study, they are 100% of the study sample, of whom 83 (83.8%) were female and 16 (16.2%) were male. The awareness level of the questionnaire isn't homogenous, and the knowledge of patients seemed to be haphazard and

not based on scientific background. The study has tried to shed a light on the level of understanding of the risk factors and complications of Diabetes Mellitus disease, which has many other bad complications that Diabetic Foot is a part of. And it has shown that there's a low level of understanding to these complications, even among college educated population, which is a serious matter. Gap of this study is that it is restricted to a relatively small number of Diabetic patients. A large number of patients across the kingdom might reveal. I would suggest further studies exploring more aspects of this topic due to its seriousness, and the widespread of Diabetes in Saudi Arabia. And these studies outcomes and recommendations to be highly taken into consideration by the meant authorities.

CONCLUSION

The awareness of the benefits of healthy lifestyle and the awareness of the importance of improvement of Diabetes needs to be taken into consideration by the government represented in Ministry of Health since the sample population has a low level of awareness of these concepts. And this role could be aided by the physicians responsible for the treatment of Diabetes by clearing these issues for patients and help them understand the case and complications of Diabetes which may lead to Diabetic foot, and to correct the mis-concepts that some patients have⁷. Awareness could be also elevated by the use of campaigns lead by medical students in their family and friends' environment after the students are given the right knowledge about the complication and its protocol of preventing and improving the cases.

CONFLICTS OF INTEREST

There are no conflicts of interest.

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