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Original Research Paper

The Importance of Patients Education and Diabetic Foot care in Preventing Serious Complications in the Eastern Region of Saudi Arabia, 2016

Medical Science

KEYWORDS : Diabetes mellitus, Diabetic Foot, Prevention, Neuropathy

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ABSTRACT

Introduction And Aim: Diabetes mellitus (DM) is one of the most prevalent diseases in the world. In 2014, it was estimated to be 9% among adults aged 18 years and older. It was directly causing more than 1.5 million people to die in 2012, according to WHO. In Saudi Arabia, 3.4 million cases were diagnosed with DM in 2015. DM has a lot of complications. The most common chronic complication is Diabetic Foot (DF). DF can be caused by nerve damage (neuropathy) or poor circulation and both of these types can lead to serious complications. Fortunately, most of these complications can be prevented with proper and careful foot care. Diabetic foot care means the daily inspection, cleaning, and thorough drying of the feet of a diabetic to prevent complications. However, Most of the diabetic patients do not know about proper footwear or therapeutic footwear. So the aim of this study is to measure the knowledge of diabetic patients about diabetic foot and the importance of foot care in the prevention of its complications in the eastern region of The Kingdom of Saudi Arabia.

Material And Methods: A descriptive cross-sectional study was designed based on validated anonymous self-administrated questioners. Simplified diabetic patients sampling with interview has been adopted to collect the data. Inclusion criteria: only a diabetes mellitus (DM) diagnosis, male and female and 18 years of age and more. Criteria for exclusion: non-diabetic patients, children, and patients who were unable to provide the requested information during data collection. Data were analyzed in a database created using Microsoft Office Excel 2010 spreadsheets, and later transferred to IBM SPSS (Statistical Package for the Social Sciences) version 19 for statistical analysis.

Results: A total of 128 patients were included in this study, 76 were males and 52 were females from the eastern region of Saudi Arabia. The mean age of the patients was 50.03 ± 14.42 years. Since (P-value=0.042) which is less than (0.05), therefore, there is a significant relationship between the education level and the type of diabetes mellitus. Most of the respondents that we have collected had a university level of education, about (28.9%) of university level diabetic patients don't know their type of DM.. Only about 11.72% examined their feet when they visit health care providers. However, about the half (53.13%) never examined their feet when they visit their health care providers. About 18.75% did it only when they have a problem in their feet and 16.40% let the health care providers examine their feet once a year.

Conclusion: Nearly the half of the respondents is not aware and not educated about these life-threatening complications of DF. There is an article explaining the basics of foot care practice in Saudi Arabia although they still need to educate diabetic patients further. Primary health care centers should improve their system by establishing a comprehensive quality assessment and educate the staff more to provide good foot care for their patients. Therefore, specialized training for healthcare providers to ensure regular foot examination and foot education for the patients must be a priority of any strategy to control DF from further complications.

Introduction:

Diabetes mellitus (DM) is one of the most prevalent diseases in the world. In 2014, it was estimated to be 9% among adults aged 18 years and older. It was directly causing more than 1.5 million people to die in 2012, according to WHO. [1] In Saudi Arabia, 3.4 million cases were diagnosed with DM in 2015. [2] DM has a lot of complications; the most common chronic complication is Diabetic Foot (DF). DF can be caused by nerve damage (neuropathy) or poor circulation and both of these types can lead to serious complications. DF Complications in both types of DM may include athlete's foot (a fungal infection), calluses (a toughened area of skin), bunions and other foot deformities, or ulcers (that can range from a surface wound to a deep infection). [3, 4]

In the peripheral nerve dysfunction associated with diabetes (diabetic neuropathy), patients have a reduced ability to feel pain or sense their feet. This means that minor injuries may remain undiscovered for a long period. People with DM with either type I or II are also at risk of developing a diabetic foot ulcer. [5] The peripheral nerve dysfunction can also be combined with peripheral artery disease (PAD). This combination causes poor blood circulation to the extremities (diabetic angiopathy). As a result, wounds will take a long period to heal an infection. Then lower limb amputation (surgical removal of part of the limb) may be necessary. [6]

Fortunately, most of these complications can be prevented with proper and careful foot care. Diabetic foot care means the daily inspection, cleaning, and thorough drying of the feet of a diabetic to prevent complications. However, Most of the diabetic patients do not know about proper footwear or therapeutic footwear. Additionally, Neuropathy is a ma-

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jor contributing risk factor for foot ulcers; inadequately fitted shoes which cause friction and injury cannot be felt in those patients with sensory neuropathy. [7]

The evidence shows that lowering blood glucose levels can reduce the risk of microvascular and neuropathic complications of patients with type 2 diabetes. [8] Therefore, diabetic patients may go through serious infections and so many other complications if they are uneducated on how to keep their glucose levels in their blood maintained. There is insufficient evidence that education alone, without any additional preventive measures, will effectively reduce the occurrence of (DF) complications and amputations. [9]

The aim of this study is to measure the knowledge of diabetic patients about diabetic foot and the importance of foot care in the prevention of its complications in the eastern region of The Kingdom of Saudi Arabia.

Methods:

Study design and population

A cross-sectional descriptive study was designed based on validated anonymous self-administrated questionnaire. Simplified diabetic patients sampling with interview has been adopted to collect the data. The survey was conducted for over a month. To be eligible for this study participants had to provide signed informed consent.

Inclusion and exclusion criteria

Inclusion criteria: only a diabetes mellitus (DM) diagnosis, male and female and 18 years of age and more. Criteria for exclusion: non-diabetic patients, children and patients who were unable to provide the requested information during data collection.

Study procedure

The study was conducted in the Polyclinics of King Faisal University (PKFU), primary health care center of Al-Kelabia. The research project was in the eastern region of Saudi Arabia. The study involved questions only for diabetic patients to measure the extent of knowledge of foot ulcers in diabetic patients. The questionnaire contained (43) questions, and it was divided into three sections (A, B, and C).

A was about demographical age, gender, educational level, health insurance and living region. Section B was about patient education and the risk of developing diabetic foot ulcers. Section C measured attitude/knowledge about hygiene and foot self-care practice of diabetic patients.

Convenience sampling was used and data collection was in primary health care centers and other places. It measured the extent of knowledge of foot ulcers in diabetic patients. A standard questionnaire was adapted from Snehil Dixit (2011). [10] Before starting the collection, a pilot study was conducted to adjust the language and structure of the questionnaire and to measure the time for completing the questionnaire.

The questionnaire contained 43 questions to assess socio eco-demographic information, and questions related to knowledge of measures to prevent diabetic foot ulcers (DFU), attitudes to prevent it and self-care practices of patients with DM.

Statistical analysis

Data was analyzed in a database created using a Microsoft Office Excel 2010 spreadsheets, and later transferred to IBM SPSS (Statistical Package for the Social Sciences) version 19 for statistical analysis. Respondent data was summarized using statistical measurements of frequency, percentages and standard deviation for variables. P-value was also calculated using the level of confidence (95%) to see statistical significance level (P=<0.05).

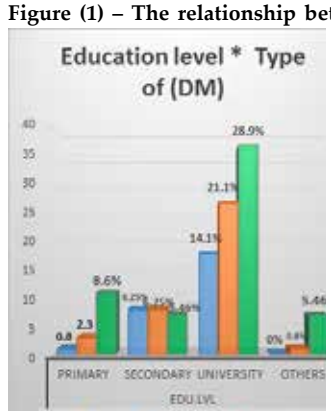
Results:

Diabetic patients knowledge about diabetes mellitus:

A total of 128 patients were included in this study, (n=76) were males and (n=52) were females from the eastern region of Saudi Arabia. The mean age of the patients was 50.03 ± 14.42 years. Since (P-value=0.042) which is less than (0.05), therefore, there is a significant relationship between the education level and the type of diabetes mellitus.

Most of the respondents that we have collected had a university level of education, about (28.9%) of diabetic patients don't know their type of DM, about 21.1% of patients are type 2 DM and 14.1% of patients type 1 DM. However, in the secondary level of education, we noticed that reasonable respondents demonstrated knowledge regarding their type of DM knowledge, which is 12.50% of the patients who knew their type of DM and 5.46% of the patients don't know their type of DM. In the primary level of education most of the patients don't know their type of DM which is considered to be 8.6%, and only 3.1% of patients know their type of DM, as shown in Figure (1).

Figure (1) – The relationship between the respondents of

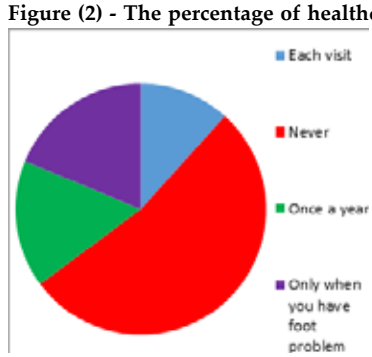


(DM) type and diabetic patients' education level.

The frequency of diabetic patients feet being examined by the healthcare provider:

Only about 11.72% examined their feet when they visit health care providers. However, about the half (53.13%) never examined their feet when they visit their health care providers. About 18.75% did it only when they have a problem in their feet and 16.40% let the health care providers examine their feet once a year. Shown in Figure (2).

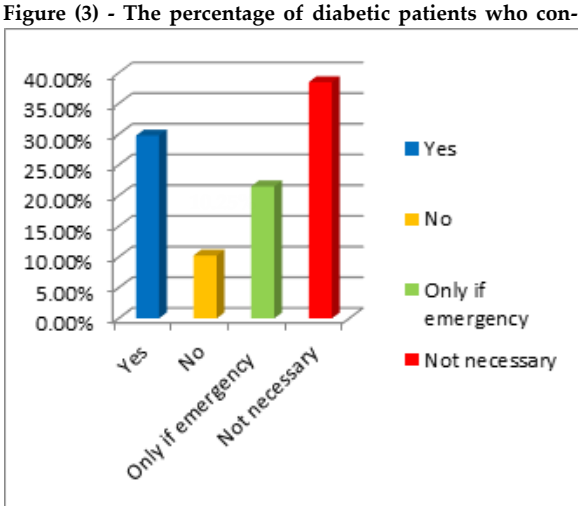
Figure (2) - The percentage of healthcare provider services



(e.g.GP) in examining diabetic patients' feet

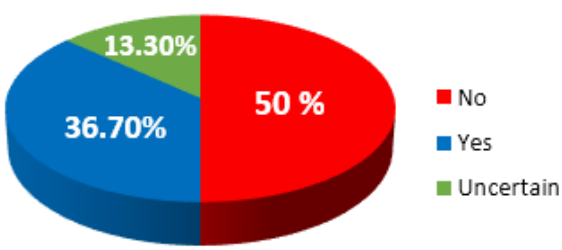
Foot self-care practice in diabetic patients:
The majority of respondents among the diabetic patients in our study (38.47%) thought that it is not necessary to contact their GPs when they notice any change in their feet and about 21.50% contact their GPs if there is emergency only. Furthermore, 10.25% do not contact healthcare providers when there is a change in their feet and 29.78% only contact the GP if so. As shown in figure (3)

Figure (3) - The percentage of diabetic patients who contact their GPs only when they notice changes in their feet.



Our data shows that around half (50%) of the diabetic patients did not inspect their feet regularly and only about 36.70% inspect their feet regularly, 13.30% uncertain. As shown in Figure (4)

Figure (4) – Diabetic patients and foot self-care practice



Discussion:
The awareness regarding DM and its control were similar to that of a study from Emirates. [11] The fact is that most of our patients knew that DM type is very important to control their blood glucose level. Our results showed that most of the diabetic patients with university education level have a high level of awareness about DM (35.2%) comparing to primary or secondary education level (15.6%). On the other hand, around half of the total respondents of the diabetic patients had poor overall knowledge regarding diabetes, which was similar to the findings of the study from the UAE. It is very important to know the type of DM, because if patients know the type, they are more likely to prevent DM from further complications like DF. [12]

Out of all the factors assessed in diabetic care, foot examination was found to be the least satisfactory with only 11.72% having been examined when they visit their healthcare providers. Interestingly, about 53.13% never examined their feet. Regular blood glucose monitoring and compliance to diet and lifestyle advice was found to be comparatively better (not shown in the figures). This is in line with an earlier finding that foot care and health education was least suggested by doctors. [13] This means a need to bring foot examination in diabetic care at primary health care centers level and start training workers, doctors and GPs. A study from India also demonstrated this. [14]

Moreover, the majority of diabetic patients (38.74%) thought that it is not necessary to contact their healthcare providers when they notice any change in their feet and 10.25% do not contact providers at all. Around half the diabetic patients had poor overall knowledge regarding diabetes (not shown in the figures). Furthermore, around half do not inspect their feet regularly and nearly one-third had good foot self-care practice, which interestingly means there is a lack of diabetic patients education and poor awareness regarding foot care practice. Previous studies done in Iran and Pakistan showed the same as our results. [12, 15]

Conclusion:
Nearly half of the respondents are not aware and not educated about these life-threatening complications of DF. More awareness is needed to educate the population about this disease by conducting diabetic foot awareness campaigns. Moreover, Primary health care centers should improve their system by establishing a comprehensive quality assessment to educate the staff more to provide good foot care for their patients to prevent further complications.

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