ORIGINAL ARTICLE

SOCIO-DEMOGRAPHIC, CLINICAL AND THERAPEUTIC PROFILE OF PATIENTS WITH RISK OF DIABETIC FOOT

Perfil sociodemográfico, clínico e terapêutico de pacientes com risco para pé diabético

ABSTRACT

Objective: to create a socio-demographic, clinical and therapeutic profile for people at risk for diabetic foot and with diabetic foot. Method: exploratory, descriptive study, with a quantitative approach, conducted with 109 people with diabetes mellitus in five Basic Health Units of Cuité/PB. For data collection, a questionnaire was used and then they were entered into an Excel spreadsheet for Windows, arranged in tables with frequency distributions of the variables. The discussion was based on the literature. Results: the prevalence of risk for diabetes foot and with diabetic foot women was 59% and aged between 53 and 63 years old. Hypertension was the risk factor in prevalence (64.2%), and 87.1% had zero phase in diabetic foot classification; 64.2% examined and moisturized the feet after bathing, but 45.8% did not dry the digital areas and did not use appropriate footwear. Conclusion: it is essential to carry out educational activities aimed at preventive care and changing habits minimizing the risk of developing diabetic foot. Descriptors: Epidemiology; Diabetes Mellitus; Diabetic Foot; Nursing.

RESUMO

Objetivo: traçar o perfil sociodemográfico, clínico e terapêutico de pessoas com risco para pé diabético e com pé diabético. Método: estudo exploratório, descritivo, com abordagem quantitativa, realizado com 109 pessoas com Diabetes Mellitus, em cinco Unidades Básicas de Saúde de Cuité/PB. Para a coleta de dados, foi utilizado um questionário. Em seguida, os dados foram digitados em uma planilha Excel for Windows, sendo dispostos em tabelas com distribuição de frequências das variáveis. Realizou-se a discussão à luz da literatura. Resultados: a prevalência do risco para pé diabético e pé diabético em mulheres foi de 59%, com faixa etária entre 53 e 63 anos. A Hipertensão Arterial foi o fator de risco predominante (64,2%) e 87,1% apresentaram a fase 0 na classificação de pé diabético, 64,2% examinavam e hidratavam os pés após o banho. No entanto, 45,8% não secavam áreas interdigitais e não utilizavam calçados apropriados. Conclusão: é imprescindível a realização de ações educativas que visem o cuidado preventivo e à mudança de hábitos, minimizando o risco de desenvolver o pé diabético. Descriptors: Epidemiologia; Diabetes Mellitus; Pé Diabético; Enfermagem.

RESUMEN

Objetivo: trazar el perfil sócio-demográfico, clínico y terapéutico de personas con riesgo para pie diabético y con pie diabético. Método: estudio exploratorio, descriptivo, con enfoque cuantitativo, realizado con 109 personas con diabetes mellitus, en cinco Unidades Básicas de Salud de Cuité/PB. Para la recolección de datos fue utilizado un cuestionario, en seguida, digitados en una planilla Excel for Windows, dispuestos en cuadros con distribución de frecuencias de las variables. La discusión se pautó basado en la literatura. Resultados: la prevalencia del riesgo para pie diabético y pie diabético en mujeres fue de 59% y el grupo de edad entre 53 y 63 años. La hipertensión arterial fue el factor de riesgo en predominancia (64,2%) y 87,1% presentaron la fase cero en la clasificación de pie diabético; 64,2% examinaba e hidrataba los pies después del baño, sin embargo, 45,8% no secaban áreas interdigitales y no utilizaban calzados apropiados. Conclusión: es imprescindible la realización de acciones educativas para el cuidado preventivo y cambio de hábitos minimizando el riesgo de desarrollar el pie diabético. Descriptors: Epidemiología; Diabetes Mellitus; Pie Diabético; Enfermería.
INTRODUCTION

Diabetes Mellitus (DM) is a group of metabolic diseases characterized by insufficient production of insulin and consequent hyperglycemia associated with a number of disorders and complications that may lead to irreversible changes in kidney, heart, brain function among others, compromising the quality of life and survival of people with the disease, due to their high mortality.¹

This problem is universal, affecting people in all socioeconomic areas and it is a major public health problem, both for its high prevalence and mortality and by its social and economic repercussions, as demonstrated by the high costs associated with the prevention, control, and treatment of its complications.²³

Estimates from the World Health Organization (WHO) show that more than 180 million people have diabetes, and this number is likely to be more than double by 2030. In this scenario, it can be calculated that in Brazil, the population of diabetics corresponds from 12 to 13% also with a prevalence of 11.3 million for 2030.⁴⁵

The most common type of diabetes is type 1, which results from the destruction of pancreatic beta cells, and it may lead to a complete deficiency of insulin, and type 2 diabetes caused by resistance in the production of insulin or deficient secretion and reaching adults and young elderly.⁶

Most people with diabetes have overweight or central adiposity and are about 90% of cases. Another type of diabetes found very often and whose etiology is still unclear is gestational diabetes, which is a pre-clinical stage of diabetes, detected in prenatal monitoring.⁷

The main symptoms of diabetes are polyuria, polydipsia, polyphagia and unintentional weight loss. Other clinical manifestations can be observed, such as weakness, fatigue, lethargy, skin and vulvar itching, balanoposthitis and recurrent infections. However, diabetes is asymptomatic or has symptoms that are ignored by the individual, and thus, the clinical suspicion may occur from the risk factors for the disease.⁸

Many times, diabetes is only detected from complications of this syndrome with the appearance of lesions and sores that do not heal and develop infections. The diabetic foot is the offensive with superficial or deep skin lesions that are related to the presence of peripheral type neuropathies: autonomic, motor and sensory, and vascular insufficiency may occur in the lower limbs of people with uncontrolled and prolonged diabetes. These lesions can alter the quality of life because if not properly handled, it tends to lead to amputations final solution.⁹

The prevalence of foot ulcers reaches 4% to 10% of people with diabetes. About 40% to 60% of non-traumatic lower limb amputations occur in these patients, and 85% of them are preceded by foot ulcers.¹⁰

Given this context and by the need for more studies on this subject to identify the profile of people with diabetes, this study is important. Considering the importance of nursing in this context, it is up to the nurse performing the nursing consultation noting the risk factors related to diabetes and its complications, and perform a physical examination, with special attention to the patient’s feet, for the prevention of ulcers and possible complications like gangrene.

OBJECTIVE

• To describe the socio-demographic, clinical and therapeutic profile for people at risk for diabetic foot and with diabetic foot.

METHOD

Exploratory, and descriptive study with a quantitative approach. The survey was conducted in the five Basic Health Units (BHU) of the urban area of the municipality of Cuité/PB, located in the micro region of Curimatáu.

The population established for the study was 403 people with Diabetes Mellitus assisted in the eight BHUs and registered in HiperDia Program of the Municipal Health. As inclusion criteria, there are considered: people aged over 18 who possessed medical diagnosis of DM; to submit any sensory changes, motor and/or autonomic of the lower limb. As exclusion criteria, there were: people with cognitive impairment or speech impairment that it would hinder to answer the research questions.

A sampling error of 5% and a 95% confidence interval was considered to calculate the sample size. After the calculation, a sample was delimited to 197 patients. Since the collection was performed only in BHUs of the urban area, the researchers made a proportionality calculation. Thus, the obtained sample was of 109 people with diabetes.

For the data collection procedure, a questionnaire in three parts was used: socio-demographic, clinical and therapeutic data...
involving people with sensory changes, motor, autonomic of the lower limbs. An interview with a structured form to use the data collection instrument was used to perform the collection, followed by physical examination using inspection as a diagnostic method to observe the presence of calluses, hyperemia, autonomic neuropathy, and motor. Wagner scale was used for classification of skin lesions and to observe the presence and degree of sensory neuropathy the monofilament test was applied.

For data analysis, they were entered into an Excel spreadsheet for Windows, arranged in tables for the frequency distribution of variables and discussed based on the literature.

When invited to participate in the study, participants were informed about the purpose of the study; confidentiality, anonymity and they could quit at any time of the research, secured by signing the Informed Consent Form (TCLE), provided at the time of interview. The criteria followed the Resolution 466/2012 of the National Health Council that guides research involving human beings. The search began after the approval of the Research Ethics Committee, under the CAAE 31344314.3.0000.5182.

### RESULTS

The results were concentrated into tables according to socio-demographic characteristics, risk factors, clinical and therapeutic data of people with diabetic foot.

Table 1 shows the demographic data of people at risk for diabetic foot and with diabetic foot in the city of Cuité/PB, 2015.
Table 1. Distribution of socio-demographic data of people at risk for diabetic foot and with diabetic foot, Cuité-PB, 2015.

<table>
<thead>
<tr>
<th>Socio-demographic data</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>45</td>
<td>41.0</td>
</tr>
<tr>
<td>Female</td>
<td>64</td>
<td>59.0</td>
</tr>
<tr>
<td><strong>Age group</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 - 30</td>
<td>02</td>
<td>2.00</td>
</tr>
<tr>
<td>31 - 41</td>
<td>08</td>
<td>7.00</td>
</tr>
<tr>
<td>42 - 52</td>
<td>21</td>
<td>19.0</td>
</tr>
<tr>
<td>53 - 63</td>
<td>26</td>
<td>24.0</td>
</tr>
<tr>
<td>64 - 74</td>
<td>25</td>
<td>23.0</td>
</tr>
<tr>
<td>75 - 85</td>
<td>21</td>
<td>19.0</td>
</tr>
<tr>
<td>+ 86</td>
<td>06</td>
<td>6.00</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>20</td>
<td>18.0</td>
</tr>
<tr>
<td>Married</td>
<td>59</td>
<td>54.0</td>
</tr>
<tr>
<td>Divorced</td>
<td>06</td>
<td>6.00</td>
</tr>
<tr>
<td>Widow</td>
<td>20</td>
<td>18.0</td>
</tr>
<tr>
<td>Other</td>
<td>04</td>
<td>4.00</td>
</tr>
<tr>
<td><strong>Children</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>12</td>
<td>11.0</td>
</tr>
<tr>
<td>Two</td>
<td>28</td>
<td>26.0</td>
</tr>
<tr>
<td>Three</td>
<td>13</td>
<td>12.0</td>
</tr>
<tr>
<td>Four or more</td>
<td>14</td>
<td>40.0</td>
</tr>
<tr>
<td>None</td>
<td>12</td>
<td>11.0</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>22</td>
<td>20.0</td>
</tr>
<tr>
<td>Complete Elementary school</td>
<td>06</td>
<td>6.00</td>
</tr>
<tr>
<td>Incomplete Elementary school</td>
<td>65</td>
<td>60.0</td>
</tr>
<tr>
<td>Complete High school</td>
<td>09</td>
<td>8.00</td>
</tr>
<tr>
<td>Incomplete High school</td>
<td>03</td>
<td>3.00</td>
</tr>
<tr>
<td>Higher education</td>
<td>04</td>
<td>4.00</td>
</tr>
<tr>
<td><strong>Housing conditions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic sanitation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>61</td>
<td>56.0</td>
</tr>
<tr>
<td>No</td>
<td>48</td>
<td>44.0</td>
</tr>
<tr>
<td>Own house</td>
<td>91</td>
<td>83.0</td>
</tr>
<tr>
<td>Rented house</td>
<td>14</td>
<td>13.0</td>
</tr>
<tr>
<td>Support House</td>
<td>04</td>
<td>4.00</td>
</tr>
<tr>
<td><strong>Profession</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farmer</td>
<td>68</td>
<td>62.3</td>
</tr>
<tr>
<td>Housewife</td>
<td>07</td>
<td>6.42</td>
</tr>
<tr>
<td>General service assistant</td>
<td>06</td>
<td>5.50</td>
</tr>
<tr>
<td>Driver</td>
<td>05</td>
<td>4.58</td>
</tr>
<tr>
<td>Granger</td>
<td>04</td>
<td>3.66</td>
</tr>
<tr>
<td>Teacher</td>
<td>04</td>
<td>3.66</td>
</tr>
<tr>
<td>Street-sweeper</td>
<td>03</td>
<td>2.75</td>
</tr>
<tr>
<td>Mason Helper</td>
<td>03</td>
<td>2.75</td>
</tr>
<tr>
<td>Self-employed</td>
<td>02</td>
<td>1.83</td>
</tr>
<tr>
<td>Lawyer</td>
<td>01</td>
<td>0.91</td>
</tr>
<tr>
<td>Administrative</td>
<td>01</td>
<td>0.91</td>
</tr>
<tr>
<td>Bus ticket collector</td>
<td>01</td>
<td>0.91</td>
</tr>
<tr>
<td>Diarist</td>
<td>01</td>
<td>0.91</td>
</tr>
<tr>
<td>Lunch ladies</td>
<td>01</td>
<td>0.91</td>
</tr>
<tr>
<td>Mechanic</td>
<td>01</td>
<td>0.91</td>
</tr>
<tr>
<td>Nursing Technician</td>
<td>01</td>
<td>0.91</td>
</tr>
<tr>
<td><strong>Currently working</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>33</td>
<td>30.2</td>
</tr>
<tr>
<td>No</td>
<td>76</td>
<td>69.7</td>
</tr>
<tr>
<td><strong>Family income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than one minimum wage</td>
<td>16</td>
<td>14.6</td>
</tr>
<tr>
<td>One minimum wage</td>
<td>76</td>
<td>69.7</td>
</tr>
<tr>
<td>Two minimum wage</td>
<td>14</td>
<td>12.8</td>
</tr>
<tr>
<td>Three minimum wage</td>
<td>03</td>
<td>2.75</td>
</tr>
</tbody>
</table>

Regarding the socio-demographic data, it can be observed that there was a predominance of the female population, with the representation of 64 (59%) women in the risk or appearance of the diabetic foot. Regarding age, it was observed that 26 (24%) were aged 53-63 years old. Regarding marital status, 59 (54%) participants were married.

As regards to the number of children, 44 (40%) reported having four or more children.

Regarding education of the participants, 65 (60%) reported that they had incomplete
elementary education highlighted among other education segments. Concerning to housing, 61 (56%) participants showed that housing was in the area with basic sanitation, 44 (40%) said that the street was no sidewalk and 91 (83%) reported that they had their home.

Concerning the profession, 68 (62.3%) were farmers. As regards the working years, 76 (69.7%) reported they do not currently work. Concerning family income, 76 (69.7%) reported receiving a minimum wage.

Table 2 highlights the distribution of risk factors and clinical data of people at risk for diabetic foot and with diabetic foot in the city of Cuité - PB 2015.

<table>
<thead>
<tr>
<th>Risk Factors and Clinical Data</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk factors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoking</td>
<td>54</td>
<td>49.9</td>
</tr>
<tr>
<td>Alcohol intake</td>
<td>34</td>
<td>31.2</td>
</tr>
<tr>
<td>Hipertension</td>
<td>70</td>
<td>64.2</td>
</tr>
<tr>
<td>Obesity</td>
<td>16</td>
<td>14.6</td>
</tr>
<tr>
<td>Walking barefoot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>12</td>
<td>11.0</td>
</tr>
<tr>
<td>No</td>
<td>97</td>
<td>88.9</td>
</tr>
<tr>
<td>Callus presence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>15</td>
<td>13.7</td>
</tr>
<tr>
<td>No</td>
<td>94</td>
<td>86.2</td>
</tr>
<tr>
<td>Time of the lesion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More than 3 weeks</td>
<td>12</td>
<td>11.0</td>
</tr>
<tr>
<td>Three weeks and three months</td>
<td>01</td>
<td>0.91</td>
</tr>
<tr>
<td>Six months or more</td>
<td>07</td>
<td>6.42</td>
</tr>
<tr>
<td>Stages of the Diabetic Foot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 0 (zero)</td>
<td>95</td>
<td>87.1</td>
</tr>
<tr>
<td>Stage I</td>
<td>10</td>
<td>9.17</td>
</tr>
<tr>
<td>Stage II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage III</td>
<td>04</td>
<td>3.66</td>
</tr>
<tr>
<td>Location of the diabetic foot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right lower limb</td>
<td>11</td>
<td>10.9</td>
</tr>
<tr>
<td>Left lower limb</td>
<td>09</td>
<td>8.25</td>
</tr>
<tr>
<td>Amputation of the limbs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>98</td>
<td>89.9</td>
</tr>
<tr>
<td>Partial</td>
<td>11</td>
<td>10.1</td>
</tr>
</tbody>
</table>

Regarding risk factors, 70 (64.2%) participants had physician-diagnosed hypertension, 54 (49.5%) were using tobacco habits and 34 (31.2%) had habits of drinking alcohol.

Concerning ambulation, 97 (88.9%) participants reported that they have a habit of walking barefoot and 94 (86.2%) reported not having calluses on the lower limbs.

Regarding the diabetic foot appearance time, 12 (11%) participants mentioned that the first injury began more than three weeks ago.

Regarding the stages of diabetic foot, 95 (87.1%) people with DM presented stage zero (0) during the sensitivity test; 10 (9.17%) had stage I and four (3.66%) in stage III. Wagner scale for any injury was used to determine these stages of the diabetic foot. The scale ranges from 0 to 5, where the first degrees (0,1,2,3) are based on the depth of the injury and impairment of underlying tissues and the last degrees (4,5) relate to the infusion of the foot.10

Regarding the location of the diabetic foot, 11 (10.9%) people had the injury in the right lower limb. In the limb amputation, 98 (89.9%) said they did not have any, and 11 (10.1%) have experienced minor amputation procedure, those that reach toes, tarsus and metatarsus and forefoot.

Table 3 shows the therapeutic data of people at risk for diabetic foot and with diabetic foot in the city of Cuité - PB:
Table 3. Distribution of preventive and therapeutic data of people at risk for diabetic foot and diabetic foot care in the city of Cuité-PB, 2015.

<table>
<thead>
<tr>
<th>Preventive and therapeutic data</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injury treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium Alginate</td>
<td>02</td>
<td>1,83</td>
</tr>
<tr>
<td>Ampicillin</td>
<td>01</td>
<td>0,91</td>
</tr>
<tr>
<td>Essential Fatty Acids</td>
<td>12</td>
<td>11,0</td>
</tr>
<tr>
<td>Fibrase</td>
<td>02</td>
<td>1,83</td>
</tr>
<tr>
<td>Collagenase</td>
<td>01</td>
<td>0,91</td>
</tr>
<tr>
<td>Prevention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using prostheses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>02</td>
<td>1,83</td>
</tr>
<tr>
<td>No</td>
<td>107</td>
<td>98,1</td>
</tr>
<tr>
<td>Examine their feet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>70</td>
<td>64,2</td>
</tr>
<tr>
<td>No</td>
<td>39</td>
<td>35,7</td>
</tr>
<tr>
<td>Dry between their toes after bathing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>50</td>
<td>45,8</td>
</tr>
<tr>
<td>No</td>
<td>59</td>
<td>54,1</td>
</tr>
<tr>
<td>Moisturize their feet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>70</td>
<td>64,2</td>
</tr>
<tr>
<td>No</td>
<td>39</td>
<td>35,7</td>
</tr>
<tr>
<td>Using adequate shoes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>37</td>
<td>33,9</td>
</tr>
<tr>
<td>No</td>
<td>72</td>
<td>66,0</td>
</tr>
</tbody>
</table>

As regards the prevention of diabetic foot, 107 (98.1%) participants mentioned that they did not use prostheses; 70 (64.2%) people with DM examined the feet after bathing. In drying of the feet, there was a slight difference between those feet dried after a bath (45.8%), and those (54.1%) who were not taking this attitude; only 37 (33.9%) used appropriate footwear and 70 (64.2%) reported they moisture their feet.

For products used for the treatment of diabetic foot, 12 (11%) use essential fatty acids (EFA); 2 (1.83%) use calcium alginate and 2 (1.83%) use Fibrase.

DISCUSSION

About gender, the literature showed differences due to homogeneity among males (51.4%) and female (48.6%). In another study found the predominance of the female audience (88.1%), confirming the results found in this study.

From the 90s, the incidence of DM started to be higher in women due to changes in lifestyle such as increased smoking, physical inactivity, obesity, alcohol, and drugs. The increased demand of women for health services causes 2.2 times more likely to be diagnosed with diabetes, compared with men. The International Diabetes Federation estimates the number of women 10% higher that the men affected by the disease for 2025.

The predominant part of the diabetic population is between 51 and 60 years old, and the incidence of this disease increases proportionally with the age. DM affects the elderly due to the physiological senescence process, resulting from physio-metabolic changes in body structure, condition triggered by several factors, among them, the bad eating habits.

Marital status also relates to the favorable health condition in a survey conducted in Itapipoca of Basic Health Units in Ceará, which found that the majority of respondents (60.4%) with DM was represented by couples. According to the World Health Organization (WHO), the status of people influences on family dynamics and self-care. For the elderly, the family composition can be a decisive factor for the lack of stimulus to self-care and institutionalization.

In a research conducted in a public hospital in Recife/PE, the authors report that most of the sample had two or more children (91.6%) and the number of people in the household involved in the control of the socially disease. The high number of people without income living in the same household negatively influences the purchase of healthy foods such as fruits and vegetables, as they are costly for that family group, being products of the basic basket more accessible.

In research conducted, most of the sample studied by the elementary school (39.4%), so there is a reaffirmation of the data obtained in this study. Old age and low level of education can limit access to information since these factors influence the understanding of users across the guidelines provided by professionals from health, which impairs the self-management of care and therefore the control of the disease. The higher the educational level of the person, the greater the possibilities for access and use of information and health services, and in
many cases, protective factors against diabetes.19

Health promotion is a professional responsibility of nursing as a social practice, because they develop essential actions, from the simplest, such as guidance on the use of insulin, to the most complex, such as disease prevention and complications, with the more painful being the amputations with socio-economic repercussions, providing safety and well-being of the patient.8

The risk of these lesions increases with the years and favors the development of disabilities, which can prevent this population to continue performing their daily activities away from the job due to prolonged and recurrent hospitalizations.14

In research,19 42% of people with diabetes developed some work or occupation and were considered active. The income of a minimum wage hinders access to food, basic hygiene and footwear, as an income of up to one minimum wage, divided by 2 or more residents, regardless of age and health status, equivalent to the concept given by the World Bank, moderate poverty, that is, survive with 13 reais per day implies the lack of control of the disease.10

Regarding epidemiological risk factors, studies showed that hypertension is often associated with diabetic foot development increasing the risk of emerging changes in the feet due to vascular compromise and the difficulty of control of blood glucose levels and favorable effect for autonomic neuropathy.20

Regarding smokers, nicotine causes an adrenergic response that increases glucose values, suppressing the production of insulin. The vasospasm caused by nicotine increases the likelihood of thrombus formation and may cause peripheral vascular disease, more complicating factor in the arteries. Literature data found that smokers are more at risk of amputation of lower limbs.21

In the literature, there is still no accurate description of the mechanisms of action of alcohol on diabetes. However, studies have documented strong link between alcohol consumption and release of adipokines and inflammatory markers, which may be related to the pathogenesis of DM.6

As for obesity as a risk factor, it is clear that it has been highlighted as part of the group of non-communicable chronic diseases, which contributes to high blood pressure and diabetes, with percentages of prevalence on the rise in the country.22

In every country, people who are overweight are increasing as a result of the change process of the nutritional profile of the population associated with sedentary life. This increases the risk of developing DM associated with the risk of diabetic foot impairment due to excessive overload in the regions of the lower limbs that cause the appearance of injury due to plantar pressure increased, related to the use of improper footwear.23

Some authors report that in Brazil, 70.6% of DM in women are attributable to overweight, obesity and excess of weight. Among men, this percentage was 60.3%.24 According to these data, it can be compared the results obtained in this study according to the prevalence of women about the risk of the diabetic foot. Accordingly, the decrease of 5 to 10% of body weight would help control blood glucose levels and disease progression, reducing the needs for insulin and even allowing to remove the pharmacological treatment.25

In addition to the overweight, people with diabetes should not walk barefoot, because the increased pressure in patients with decreased plant protective sensitivity favors the occurrence of skin ulcers and Charcot arthropathy.22

Neuropathic diabetic ulcers include the perforating planter disease resulting from pressure points associated with decreased protective sensation, which is caused by a callus plant that ends up being traumatic.26

The ulcers arise due to loss of sensation in the foot caused by peripheral neuropathy and autonomic neuropathy, which are potentiated by reduced blood flow and reduced immunity. Once installed the injury, healing occurs slowly, which may incur losses in the patient’s life. The appearance of ulcers in the feet of people with diabetes who have protective loss of sensitivity related to the presence of contact areas where there is excessive pressure.27

Changing the sensitivity modifies the gait pattern of these patients because it reduces the transmission of proprioceptive information - neuroreceptors Plantar - essential to normal gait.26

Regarding the stages of diabetic foot, one author noted in his research that the majority of participants are in stage 0 (42.9%), followed by stage III (28.6%), II (16.1%) and I (12.4%), data that diverged the results related to this study.28

For the detection of possible neurological changes, it is necessary to test the protective
sensitivity according to the recommendations of the Group on the Diabetic Foot. With the person in the supine position, the monofilament Simms-Weinstein 10 g should be applied in the 1st, 3rd and 5th toes and head of the metatarsals.

Initially, the monofilament should be applied in the patient’s elbow, so that he realizes the stimulus that will be tested and, without the patient observes the area to be assessed; after a monofilament pressure must be made against the foot, enough for it to make a bow. The application should be repeated twice at the same location, with alternating with at least one simulated application, in which the monofilament is not applied. There should be carried out three questions to the patient at the time the monofilament touch the application site. Protective sensation is considered present if the patient correctly answers two of the three applications.14

According to some authors, only changes in sensation of touch and proprioception determine an increased risk of ulceration by the advantages of high sensitivity, good specificity, simplicity, and low cost, but it is insufficient to characterize the diagnosis of diabetic foot.29

Amputations of lower limbs, besides the great socioeconomic impact, promote loss in quality of life of patients and loss of productive capacity, characterized as a devastating consequence of the diabetic foot. To reduce the high rates of amputations of lower limbs resulting from this complication due to the complexity of the conditions that influence this outcome, continuing education becomes necessary through the use of various preventive and therapeutic strategies.30

It was observed that most of the people use the AGE and Calcium Alginate in the care of diabetic foot lesions. The use of AGE has the active ingredient linoleic acid, whose action is anti-inflammatory and immune; in addition to these functions, the AGE stimulates the process of re-epithelialization tissue promotes chemotaxis and angiogenesis, keep the bed of wet injury, promotes hydration and facilitates autolytic debridement with bactericidal action for Staphylococcus aureus.31

Calcium Alginate contains alginic acid as an active ingredient and is indicated for exuding, bleeding, and infected wounds. Exerts chemotactic effect on macrophages, assists in autolytic debridement, exudate minimizes has bacteriostatic and hemostatic action, and can be used in cavitory lesions, infected or not.32

When the wounds are in granulation process, covers that promote cell growth and angiogenesis are used, so covers to stimulate the enzymatic debridement, such as Fibrase and Collagenase should not be used. Some authors emphasize that Fibrinolysin contains enzymes that act selectively stimulating the enzymatic debridement of devitalized tissue, so it should not be used in wounds that are in granulation and healing by the first intention, as it will damage the granulation tissue slowing so the dissipation of injury.32

It was observed in a study that 70.9% of survey participants performed drying feet after bathing and 60% used soft and comfortable shoes, demonstrating adoption of preventive practice for the diabetic foot.33 This study showed that drying of the feet and the use of comfortable shoes have not yet become a common habit among participants, diverging from the above survey data.

By practicing self-care, people with diabetes get more information and thereby gain autonomy over their health because through the knowledge they will develop daily activities that benefit. With simple steps such as to inspect their feet, be careful of injuries, starting nutritional education, the person avoid possible complications to their health.34

In recent studies, authors stated that often the need for change in lifestyle generates dissatisfaction and resistance, leading to a denial of the disease. In this way, the way people react to the diagnosis of DM interferes directly and indirectly in the performance of self-care practice, leaving nurses to mediate the conflict between emotions and self-care actions.18

In a study of diabetics, it was observed that 73.3% performed self-care actions as prevention of injury occurrence in the lower limbs and that diabetic people do not realize these actions are more likely to develop foot ulcers and amputations suffer, than those who follow the guidelines properly. The majority of respondents also had a habit of moisturizing after bathing (64.2%).35 These data are also confirmed in other studies, which found that 45% and 55% of the sample of studies, respectively, maintained the daily routine moisturizing their feet after bathing, confirming, therefore, the results presented in this study.16 7

**CONCLUSION**

This study showed the lack of access to information on the treatment, prevention, and self-care by the respondents, considering the education, and women had the higher offensive to risk and presence of diabetic foot. Thus, it becomes essential to carry out educational activities aimed at preventive...
care and changing habits to improve the quality of life of patients and reduce the risk of future complications such as non-traumatic amputations.

REFERENCES


Submission: 2015/11/20
Accepted: 2016/04/13
Publishing: 2016/06/01

Corresponding Address
Maria Vitória de Souza Medeiros
Rua Severino Coelho, 02
Bairro Centro
CEP 58640-000 – Junco do Seridó (PB), Brazil