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Evaluation of the foot in melitus diabetes

ABSTRACT | Objective: To evaluate the foot of individuals with Diabetes Melitus assisted in primary care in a city in the interior of São Paulo. Method: This is a quantitative study. One hundred feet of people with diabetes were examined, between the 1st and 31st of July, 2019, users of health services in the municipality (Family Health Strategy (ESF) and Basic Health Units (UBS)). Results: There was a predominance of females, 56% declared that they had incomplete primary education. Hypertension was the most cited comorbidity. In the evaluation of the clinical history associated with foot care, 87% of the interviewees stated that they had never had any type of foot ulceration. Upon inspection and assessment of the respondents' feet, it was found that 94% did not have any type of foot injury. Conclusion: The study reinforced the importance of the participation of health professionals working in the prevention of diabetic foot. **Keywords:** Diabetic foot; Diabetes mellitus; Self-care of the feet.

RESUMEN | Objetivo: Evaluar el pie de personas con Diabetes Melitus atendidas en atención primaria en una ciudad del interior de São Paulo. Método: Este es un estudio cuantitativo. Se examinaron cien pies de personas con diabetes, del 1 al 31 de julio de 2019, usuarios de los servicios de salud del municipio (Estrategia Salud de la Familia (ESF) y Unidades Básicas de Salud (UBS)). Resultados: Predominó el sexo femenino, el 56% declaró tener educación primaria incompleta. La hipertensión fue la comorbilidad más citada. En la evaluación de la historia clínica asociada al cuidado de los pies, el 87% de los entrevistados afirmó no haber tenido nunca ningún tipo de ulceración del pie. Tras la inspección y evaluación de los pies de los encuestados, se encontró que el 94% no tenía ningún tipo de lesión en el pie. Conclusión: El estudio reforzó la importancia de la participación de los profesionales sanitarios que trabajan en la prevención del pie diabético.

Palabras claves: Pie diabético; Complicaciones de la diabetes; Autocuidado.

RESUMO | Objetivo: Avaliar o pé dos indivíduos portadores de Diabetes Melitus atendidos na atenção básica de um município do interior paulista. Método: Trata-se de um estudo quantitativo. Foram examinados 100 pés dos portadores de diabetes, no período de 1 a 31 de julho de 2019, aos usuários dos serviços de saúde do município (Estratégia Saúde da Família (ESF) e Unidade Básicas de Saúde (UBS)). Resultados: Houve predominância do sexo feminino, 56% declararam que continham ensino fundamental incompleto. A hipertensão arterial foi a comorbidade mais citada. Na avaliação da história clínica associada aos cuidados com os pés, 87% dos entrevistados, declararam que nunca tiveram nenhum tipo de ulceração nos pés. Na inspeção e avaliação dos pés dos entrevistados, constatou-se que 94% não tinham nenhum tipo de lesões nos pés. Conclusão: O estudo reforçou a importância da participação dos profissionais de saúde atuando na prevenção do pé diabético.

Palavras-chaves: Pé diabético; Diabetes mellitus; Autocuidado com os pés.

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INTRODUCTION

Diabetes mellitus is characterized by a syndrome of carbohydrate, lipid and protein metabolism caused both by the absence of insulin secretion and by the decrease in tissue sensitivity to insulin. ⁽¹⁾ It can be classified into 2 types: type 1, or dependent on insulin caused by the absence of insulin secretion; and type 2, also called non-insulin dependent diabetes mellitus (NIDDM), caused by the decreased sensitivity of target tissues to the metabolic effect of insulin. ⁽²⁾

It entails several consequences in the patient's life, including the diabetic foot or neuropathy. This complication can cause tingling, pain, infection and ulceration. In diabetic peripheral

neuropathy, all fibers, sensory, motor, autonomic, may have reduced sensitivity due to the damage that the lack of glucose control causes to the nerves. This condition becomes a vulnerability to ulcers and infections that can lead to amputation. ⁽³⁾

Amputations represent one of the most devastating problems associated with the disease as it causes a great impact on personal life, in the family and socioeconomic context, in addition to the compromise of self-image and loss of productive capacity, contextualizing the importance of the implementation of preventive measures for this complication in patients with diabetes. ⁽⁴⁾

METHOD

This is a quantitative study, carried out in the city of Lins, located in the central-west region of the state of São Paulo. One hundred feet of people with diabetes

were examined, between the 1st and 31st of July, 2019, users of health services in the municipality (Family Health Strategy (ESF) and Basic Health Units (UBS).

Table 1 – Sociodemographic characterization of patients

Age group	%
30 to 39 years	2
40 to 49 years	10
50 to 59 years	14
60 to 69 years	40
>70 years	34
Marital Status	%
Single	14%
Married	50%
Divorced	6%
Stable union	5%
Widow/Widower	25%
Education	%
Illiterate	12%
Incomplete Elementary school	56%
Complete elementary school	8%
Incomplete High School	2%
Complete High School	12%
Incomplete Higher education	2%
Complete Higher education	8%
Comorbidities	%
Hypertension	83%
Dyslipidemia	10%
Depression	5%
Alzheimer's	4%
Others	21%

Source: Prepared by the author.

Table 2 – Characterization of foot care, Lins – 2020.

Variables	No (%)	Yes (%)
Have you ever had any kind of foot ulceration?	87	13
Do you have pain, especially at night, which improves when you walk?	74	26
Do you have muscle weakness in your feet or lower limbs?	56	44
Do you have stitches, pins and needles, tingling in the lower limbs?	48	52
Do you have pain when walking?	58	42
Do you have the habit of walking barefoot?	86	14
Do you have family support in relation to health?	10	90
Are you a smoker?	90	10

Source: Prepared by the author.

The total sample consisted of 1849 individuals, through sample calculation considering a 10% margin of error and 95% reliability, resulting in an estimated sample of 92 individuals.

All users of municipal health services, over 18 years old and diagnosed with diabetes were included in the survey.

The study included an instrument for sociodemographic characterization and assessment and inspection of the lower limbs. Thus, after positive consent to participate in the research and signing the Informed Consent Form (ICF), the respondent was submitted to evaluation. The study was approved by the Research Ethics Committee of the University of Marília - UNIMAR - Faculty of Medicine of Nursing, under No. CAAE: 09546619.9.0000.5496.

It is noteworthy that when possible neuropathic changes were detected, the respondent was instructed and also communicated to the reference unit.

Data were analyzed using Excel 2010 and organized into tables.

RESULTS

Among the 100 diabetic patients who constituted the sample, there was a predominance of females, with 75% of the sample, the average age group being patients over 70 years old. Of the respondents, 56% declared that they had incomplete primary education. Hypertension was the most cited comorbidity, 83% of respondents, as shown in Table 1.

In the evaluation of the clinical history associated with foot care, 87% of the interviewees declared that they had never had any type of foot ulceration, while 86% said they did not have the habit of walking barefoot, 52% declared that they felt twinges, needles and tingling in the feet, 42% reported the presence of pain in the feet when walking, 10% did not have family support in relation to health and 90% declared

they were not a smoker, as can be seen in Table 2.

Only 14% of respondents have received guidance related to foot care and 26% have had their feet examined by a professional. Upon inspection and assessment of the interviewees' feet, it was found that 94% did not have any type of foot injuries; 96% of patients say they wear proper shoes, that is, no shoes that squeeze the feet or cause injuries.

In the sensitivity assessment, it was found that 88% of respondents had satisfactory assessment on the right foot and 86% on the left foot. As for vascular tests, the presence of posterior tibial pulse in the right foot was observed in 77% of the patients. As for the pedal pulse, 77% of the patients had the pulse present. In the left foot, the presence of the posterior tibial pulse was observed in 75% of the patients, in the pedios pulse 77% of the patients had the pulse present.

DISCUSSION

The profile outlined in the current research corroborates what has been shown in other studies,⁽⁵⁻⁷⁾ highlighting that low education has an influence on foot care, given that these people have difficulties in accessing information, implying different risks of falling ill and dying.^(8,9)

Arterial hypertension reported by the participants confirms the scenario of other regions,⁽¹⁰⁾ in which it is cited as the most frequent comorbidity. In this context, we see the importance of instruction in changing diet, the correct use of medication and physical exercise practices, such as walking.

Regarding the patient's history, 87% did not present any type of foot ulceration, although it is still necessary to maintain prevention and care measures to avoid the appearance of ulcers.⁽¹¹⁾ In a study carried out in Minas Gerais⁽²²⁾ only 5,7% of the partici-



Of the sensory symptoms evaluated, 58% had no pain when walking, and 42% complained of pain, although the percentage is lower, the intensity of pain varies from moderate to severe pointing to the other symptoms analyzed as pang, pricks and tingling that obtained 52% of confirmation.



pants had foot ulcerations, while in our study 13% of the participants reported having or having had ulcers.

Of the sensory symptoms evaluated, 58% had no pain when walking, and 42% complained of pain, although the percentage is lower, the intensity of pain varies from moderate to severe⁽¹²⁾ pointing to the other symptoms analyzed as pang, pricks and tingling that obtained 52% of confirmation. Faced with preventive measures with diabetic feet, we emphasize the importance and need to perform the sensitivity test on the feet of patients with diabetes mellitus.

The participation of the family in the life of the diabetes mellitus patient is of great importance, for a better adequacy of care for the patient and the disease, increasing the prevention and delaying possible complications resulting from it. In the present study, 90% of participants reported having family support and 10% claimed not to have it. The act of caring is a difficult responsibility, monitoring and living with the illness causes negative reactions, which causes changes in family dynamics, which can lead to disqualification in care,⁽¹⁴⁾ that is, it is up to nursing to provide information about the disease and care, aiming at a strategy aimed at understanding and evolving these patients.⁽¹⁵⁾

Tobacco use is one of the factors that hinder healing and worsen the skin lesions associated with diabetes.⁽¹⁶⁾ In our survey 90% declared not to be a smoker, similar to data collected from a survey in Fortaleza where 76%⁽⁷⁾ of the participants also does not have this habit, demonstrating a decrease in tobacco use. Due to the problems that tobacco causes in the smoker's life, it is important to provide information about the harm that this addiction can cause to your health.

With regard to foot care, 86% of participants did not receive guidance on the forms of care by health pro-

professionals. This lack of guidance for these patients leads to serious and serious complications. A study carried out in the interior of São Paulo proved that the health team is responsible for expanding knowledge about foot care. ⁽¹⁰⁾

The inspection of diabetic feet should be done daily to check for the presence of calluses, fissures and dry skin, which can be performed by a health professional, by a family member and even the patient. In the current survey, 74% of the participants declared that they did not have their feet examined by a health professional, and in the study carried out in the Triângulo Mineiro, 94% said that they did not have their feet examined by health professionals once a year. ⁽¹⁷⁾ The inspection must be carried out by the nurse to detect the presence of edema, check the cut of the nails, ulcers, type of footwear, sensitivity, shape of the feet, which creams or ointments are being used, to avoid aggravation of complications, with the function of preventing and teaching.

As for the inspection of the feet and shoes, 94% did not present alterations in their feet, evolutionary data from the study carried out in Minas Gerais, where 52% did not present any type of deformity in their feet. ⁽¹⁸⁾ We can thus estimate it as an increase in ulceration prevention care. In a study carried out in Paraná ⁽¹⁹⁾ 60% of the participants used inappropriate shoes, while in our research 96% presented the proper use of shoes, constituting an element that was optimized due to the addition of information about the correct use of shoes.

The neurological tests performed brought us the following data: 12% of patients did not feel the pressure of the monofilament on the right foot, and 14% did not feel this pressure on the left foot, in a study carried out in Belo Horizonte with patients with diabetes mellitus 62,50% ⁽¹⁸⁾ he had no sensi-

tivity in both feet. It is observed that this difference points to the progress we have achieved in prevention during these 8 years, where 88% felt the pressure of the monofilament on the right foot and 86% on the left foot.



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With the completion of the tests vascular pedal pulse noticed that the right and left foot 77% of the participants had this pulse, contradicting another study Piauí which 40,7% was present in the right foot and the left foot 39,4%. ⁽²⁰⁾

As for the absence of the pedis pulse, in the right foot 11% was absent and in the left foot only 8%, better results than those found in another study in Minas Gerais where 41,6% were absent. ⁽²²⁾ The data obtained with the palpation of the posterior tibial pulse were similar to the pedal pulse, in which 77% had the pulse present in the right foot and 75% present in the left foot, in a study in Fortaleza 89% was present in the right foot and 88% was present on the left. ⁽⁷⁾ The posterior tibial pulse was 13% absent for both feet, while in the study in Belo Horizonte only 9,2% was absent. ⁽²⁰⁾ The tibial and pedis pulses may be absent without the individual having any blood supply deficit in the limbs. Therefore, this feature must be analyzed in the absence of palpation. ⁽²³⁾

CONCLUSION

Based on our study, a low level of education was observed by most patients for not having completed elementary school, and due to this factor there is a great loss of information regarding foot care. In addition to the failure in communication and guidance from health professionals, we had a large number of participants who declared that they had never received foot care guidance.

According to the data collected, we emphasize the importance of the participation of health professionals working to prevent diabetic foot and maintain communication. Given this scenario, we suggest some preventive measures for professionals with diabetes, such as: monthly home visits for the assessment and treatment of diabetic feet, moni-

toring of capillary blood glucose and guidance on the disease, distribution of oils or moisturizing creams, offering information leaflets on diabetes and the necessary care and conduct training

and qualifications with your team, to emphasize the need for guidance to patients with diabetes mellitus.

Finally, we remind you of the importance of creating walking groups,

as they increase disease prevention, encourage interaction between participants, thus increasing social interaction, help with body balance and weight loss. 🌱

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