



ORIGINAL ARTICLE

Evaluation of diabetic foot screening in Primary Care[☆]



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KEYWORDS

Diabetic foot;
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Abstract

Aim: To ascertain whether patients with type 2 diabetes are screened for diabetic foot, and to analyze the factors related to patients and centers associated with performance of such screening.

Materials and methods: A multicenter, epidemiological, cross-sectional study was conducted. The clinical records of 443 patients with type 2 diabetes monitored at Primary Care for at least 12 months were reviewed. Demographic and healthcare variables and characteristics of the Primary Care Center were recorded.

Results: In the previous year, 51.2% of the patients had been trained on foot self-care, 56.4% had undergone foot inspection, 39.5% had been examined with a monofilament, and palpation of peripheral pulses and measurement of the ankle-brachial index were performed in 45.8% and 10.1% of the patients, respectively. Diabetic foot screening (inspection, monofilament testing, and palpation of peripheral pulses) was performed in 37% of the study patients. Ulcer risk stratification was done in 12.4% of the patients. A significant association was found between diabetic foot screening and presence of foot deformities ($p < 0.001$), history of neuropathy ($p = 0.005$), and history of peripheral artery disease ($p < 0.05$). Screening was also associated to some characteristics of the center, such as reception of information about goal achievement ($p < 0.001$) and economic incentives for goal attainment ($p < 0.001$).

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¹ More information about the components of the Working Group Diabetes SEMERGEN is available in Annex.

PALABRAS CLAVE

Pie diabético;
Atención Primaria;
Diabetes

Conclusions: Compliance with diabetic foot screening and ulcer risk stratification in patients with type 2 diabetes in Primary Care was poor.

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Evaluación de la realización del cribado del pie diabético en Atención Primaria**Resumen**

Objetivo: Conocer si se realiza el cribado del pie diabético en pacientes con diabetes tipo 2 atendidos en Atención Primaria y analizar qué factores relacionados con el paciente y el centro de salud se asocian a la cumplimentación de dicho cribado.

Material y método: Estudio epidemiológico, transversal y multicéntrico. Se revisaron las historias clínicas de una muestra representativa (n=443) de pacientes con diabetes tipo 2 que habían sido seguidos en Atención Primaria como mínimo en los 12 meses previos. Se registraron variables demográficas, de proceso asistencial y características del centro.

Resultados: El 51,2% de los pacientes recibieron educación sanitaria sobre el autocuidado del pie, al 56,4% se le realizó inspección de los pies, el 39,5% fueron explorados con monofilamento, y en el 45,8 y 10,1% se realizó palpación de pulsos periféricos e índice tobillo-brazo, respectivamente. El cribado del pie diabético (inspección, exploración de sensibilidad con monofilamento y palpación de pulsos periféricos) fue efectuado al 37% de los pacientes estudiados, y la estratificación del riesgo de úlceras se determinó en el 12,4% de los casos. Existe asociación entre realización del cribado y presencia de deformidades en el pie ($p < 0,001$), antecedentes de neuropatía ($p = 0,005$) y arteriopatía periférica ($p < 0,05$). También se asocia a algunas características del centro: recibir información sobre consecución de objetivos ($p < 0,001$), y percepción de incentivos económicos por cumplimiento de los mismos ($p < 0,001$). *Conclusiones:* Se constata una deficiente atención a las personas con diabetes tipo 2 respecto a la prevención del pie diabético, pues no se realiza de forma rutinaria cribado y estratificación de riesgo.

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Introduction

The term diabetic foot encompasses any lesion in the feet: infection, ulcer, and destruction of deep tissues occurring as the result of diabetes and its complications.¹ Diabetic foot is the main cause of non-traumatic amputation in Western countries, may cause death or physical and psychological disability, has a great impact on quality of life, and represents a high cost for society.^{2,3}

In Spain, incidence of amputations related to type 2 diabetes mellitus (T2DM) has increased in recent years.⁴ It is estimated that approximately 15% of the patients with diabetes will develop ulcers in their lower limbs during their lifetime. Of these, 7–20% will require limb amputation.⁵

In order to decrease ulcer incidence, the American *Diabetes Association* (ADA) recommends that patients with diabetes receive general diabetes education in foot care and undergo careful examination to identify risk factors for ulcer and amputation.⁶ Examination should include inspection, measurement of peripheral pulses, and assessment of protective sensation with monofilament, as well as any other test such as examination of vibration sensitivity or achillean reflexes. Moreover, since peripheral artery disease (PAD) is asymptomatic in many patients, consideration of assessment of the ankle-brachial index (ABI) is advised. Clinical practice guidelines also recommend that foot screening is performed at the time T2DM is diagnosed and a risk category that will determine the frequency of subsequent examinations is assigned.^{7,8}

Structured programs for foot screening, management of the foot at risk, and control of risk factors are the most effective measures to prevent foot ulcers⁹; however, various studies conducted in Spain demonstrate that foot examination is one of the activities least complied with at the monitoring visits.^{10–13}

The primary objective of this study was to ascertain whether screening of the foot at risk is performed in patients with T2DM, and the secondary objective was to assess which factors related to the patient and the primary care team (PCT) are associated to this activity.

Patients and methods

This was a multicenter, descriptive, cross-sectional study where a review was conducted of a random, representative sample of clinical histories from patients with T2DM who attended 17 health care centers non-randomly distributed in 11 Spanish autonomous communities.

Inclusion criteria were prior diagnosis of T2DM and prior care in PC for this disease for at least the past 12 months. Major amputation of both lower limbs was an exclusion criterion. Patients with minor amputations or major amputations in a single limb were included in the study.

Once the listings of patients with diabetes (n=23,936) ascribed to the participating PCTs were obtained, sample size was calculated with a 95% confidence level and a 5% precision, and giving to the proportion of the tested parameter the value that maximized sample size ($p = 0.05$), which

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