



Elderly people with diabetes: an analysis of the factors that are associated with lower limb amputation

  10.56238/homeinternationalanais-028

Clebiana Alves e silva Diniz

University Hospital Professor Alberto Antunes - HUPAA

Poliana Silva de Brito

Clinical Hospital - UFPE

Tainan de Andrade Rocha

University Hospital Professor Alberto Antunes - HUPAA

Suzana Maria de Oliveira Costa Menezes

University Hospital Professor Alberto Antunes - HUPAA

Julia Maria Pacheco Lins Magalhães

University Hospital Professor Alberto Antunes – HUPAA

1 INTRODUCTION

Population aging has been occurring extremely rapidly in developing countries, implying a higher prevalence of chronic-degenerative diseases (NCDs). Among these, diabetes mellitus stands out, a syndrome characterized by a chronic state of hyperglycemia and disorders in the metabolism of carbohydrates, lipids and proteins, associated with absolute or relative insulin deficiency and/or its action in the body.

The ministry has created a plan to address the SDCNTs, of the four main diseases addressed in this plan is Diabetes Mellitus (DM), which has as modifiable risk factors: smoking, alcohol, physical inactivity, unhealthy eating, obesity and excessive consumption of ultra process foods, sodium, fats and sugar have direct relativity to NCDs. This epidemic of NCDs ends up directly harming low-income people because they are more exposed to risk factors, because resources for basic needs, such as housing, housing and education, are reduced (MALTA, 2011).

The Health Surveillance Secretariat (SVS) of the Ministry of Health aims to plan, monitor the actions and programs that reduce the occurrence and severity of these diseases, improving, yes, the health of the population. It was observed in the period between 2006 and 2019, the prevalence of diabetes went from 5.5% to 7.4%; in relation to diabetes, the most prevalent profile is that of adults aged 65 years or older (NILSON, 2018).

The prevalence of diabetes has been increasing in epidemic proportions, especially among the elderly, and its complications are highly disabling and costly for both the Health System and the individual.



According to Brazil (2006), the increase in the population's life perspective has been occurring differently between countries. In developed countries, the aging process is mainly due to the fact that they have an effective health system and control of diseases typical of aging.

However, among the underdeveloped nations, the phenomenon is mainly due to the sharp drop in the number of births. The Brazilian case has some peculiarities. From 1950 to 2000, Brazil's population more than tripled, from 54 million to 170 million. In the same period, the population of young people under 15 years of age grew much less than the elderly population and it is estimated that by 2050 the number of people over 65 years of age increased 26 times, while the number of young people is doubled (MOREIRA, 2002).

According to Brazil (2006), the population in general has the right to health, being universal and integral, considering that health is quality of life and well-being, being interdependent, correlating with other rights.

In the meantime, changes in the distribution of age groups in Brazil modify the profile of demands for public policies and health, thus highlighting the increase in chronic diseases, which implies a higher cost of hospitalization and treatment for public health, because they require more expensive equipment and medications (ALMEIDA et al., 2019).

Many organizations and institutions around the world have been discussing amputations caused by diabetic neuropathy and foot ulcerations, emphasizing proper treatment in order to achieve a halving in the number of real amputations worldwide, setting goals to control the disease, reducing its main complications among them diabetic foot and consequently amputations, seeking to reduce the predicted impact of the disease through health promotion, through preventive medicine and better quality care (MALTA et al., 2017).

The development of neuropathy and vasculopathy is associated with poor control of blood sugar levels; long time of diabetes; association of other diseases with hypertension, heart failure, dyslipidemia; alcohol consumption, smoking and lack of specific preventive care for these complications (MALTA et al., 2017).

2 METHODOLOGY

The research is a descriptive, quantitative and cross-sectional study of a group of 30 patients treated at the huac outpatient unit, from May 2009 to June 2009.

For the development of the research, we analyzed the medical records for selection of the sample in which patients with diabetes and type I or II diagnosed in laboratory, living in the city of Campina Grande-PB, and surrounding regions, aged 60 years or older, who present necrotic and/or infectious lesions in the lower limbs are primary or recidivants, or who have already performed the amputation of the independent member of sex, race, color, origin and profession.



However, those who did not agree with participation, diabetic patients who did not have lesions in the lower limbs, patients with necrotic and/or infectious lesions not with type I or II diabetes, mental lydisabled and pregnant women were excluded from the study.

The primary variables included the origin of the patients, mentioning the locality of residence whether rural or urban, socioeconomic and cultural level, considering family income and education level, gender and age group.

Secondary variables include associated comorbidities, specialized primary care performed before the approach into these institutions. Amputation level, number of hospitalization, time of diagnosed disease; lifestyle (smoking, alcohol consumption and sedentary lifestyle).

For data analysis we use form (proper for investigation and storage of information). These patients or their legal representatives were duly informed about the importance of the study in the field of public health.

The form was exposed and clarified, being the participation of free will. The prior consent document has been displayed and the patient authorization will remain expressed in that document.

Medical records analysis and interviews with these patients were conducted between May 2009 and June 2009.

The data obtained were introduced in the study form itself and filed in a database through the PPE info program version 3.4.1. All data are exposed in percentages, and illustrated in graphs (LAKATOS and MARCONI, 1994).

Therefore, at first, we collected bibliographies of monograph articles and books, in which some conclusions were drawn about the problem in question and confronted with the results collected in the field research. The present study was appreciated by the ethics committee of the Hospital Universitário Alcides Carneiro (HUAC) of the state of Paraíba, under number 20091902 (certificate of presentation for ethical assessment-CAAE) and was duly approved

3 RESULTS AND DISCUSSION

Regarding the distribution by schooling showed that more than 90% of patients with diabetes with infectious and/or necrotic ulcers of foot and leg or who have already suffered amputations were literate or with a much lower level of education since the vast majority completed only the 1st primary series. Regarding family income, it was quite evident that the incidence of diabetics who underwent amputation of lower extremities received on average only one minimum wage (ROSA AND COLABORADORES, 2007).

After data collection, a total of 30 patients were obtained as a universe. Of this 56.7% (95%CI 37.4%-74.5%) were female, and 43.3% (95%CI 25.5%-62.6%) were male. Regarding the age group, 93.3% (95%CI 77.9-99.2) of the interviewees were aged between 60 and 79 years, correlating with the study by Pinto and Moretto, which states that this age group has the highest incidence of complications in diabetics.



Regarding origin, 53.3% (95%CI 34.4%-71.7%) of them live in rural areas, and the other part lives in an urban area, but in underdeveloped cities that often do not have trained professionals or who are committed to the diabetic population.

The distribution by schooling showed that 43.3% (95%CI 25.5%-62.6%) were unilliterate, and 26.6% (95%CI 12.3%-45.9%) had not completed even the 2nd primary grade. Regarding family income, 86.7% (95%CI 69.3%-96.2%) received between 1 and 2 minimum wages per month, in the case of adequate primary care and/or specialized care 66.7% (95%CI 47.2%-82.7%) had not received adequate primary care. Regarding the amputation level, 40% (95%CI 22.7%-59.4%) had undergone lower amputation, and only 6.7% (95%CI 0.8%-22.1%) suffered higher amputation, but 100% of the patients who participated in the study had ulcers, and 70% of the ulcers were recidivante (95%CI 50.6%-85.3%). Many of those who underwent the surgical process had already performed from 1 to 3 amputations and still had other lesions that were treated at the outpatient level.

Regarding the time of diagnosis of the disease, 46.7% (95%CI 28.3%-65.7%) of the patients had an evolution between 1st and 19 years and 43.3% (95%CI 25.5%-62.6%) had a time of more than 20 years of diagnosis; in the number of hospital admissions 93.4% had already been hospitalized with decompensated diabetes between 1 and 10 times. Regarding metabolic glucose control, it was shown that the vast majority 66.6% did not perform balanced feeding as a method to maintain adequate glucose control, being done only with the use of drug therapy, which often does not have the desired effect, because we observed among the interviewees that the last glycemic level was quite high, further delaying the healing process and moving towards amputation.

In this study, it was found that life habits such as smoking, alcohol consumption and the practice of physical exercises are important to determine the evolution of diabetes.

Regarding smoking, it was found that 53.3% (95%CI 34.3%-71.1%) of the patients are smokers. Studies report that smoking is often associated with the population with type 2 diabetes *mellitus*, which is the most common type (OLIVEIRA et al., 2008). This study also emphasizes that smoking is a predisposing factor for chronic complications of diabetes *mellitus*. It is also reported that smoking can cause both independent and associated harm to other risk factors. All smokers stated that they smoke or smoke between 2 or more cigarettes per day over a period of 10 to 40 years.

Of the total sample 33.3% (95%CI 17.3-52.8%) of the interviewed patients stated that they consume alcoholic beverages or that they have already consumed, the vast majority consumed one or more bottles of alcoholic beverage per day on weekends or during the week, in a period between 9 and 30 years, which may be a determining factor of diabetes mellitus due to chronic pancreatitis, and there was a finding of 7.2% of diabetes cases in a study conducted by Jorge et al. (1999).

Regarding sedentary lifestyle, 73.3% (95%CI 54.2%-87.7%) of the patients were sedentary, which Paiva (2001) and other authors claim is an environmental factor that favors the development of diabetes mellitus and its complications over time. Pinto and Moretto (2004) found in their studies the



sedentary lifestyle present in 50% of the male sample and 70% of the female sample of patients with diabetes mellitus.

It was also observed that the number of amputations or ulcerations of legs and feet in diabetics is closely linked to the lifestyle habit of being an etilist and/or smoker for a prolonged and potentiated time when the user cannot change his or her life habits during the course of the disease and is also sedentary lifestyle, observed in almost 80% of patients.

We observed in the study developed that the major factors associated with the process of lesions and amputations of limbs in diabetics is the origin in which the vast majority is in underdeveloped cities or places where they do not have adequate care, or is difficult to access health centers, further enhancing the disease, we observed the low level of education, unfavorable family income, a profession for which it is exposed to the risk of suffering skin lesions, among the most pronounced lifestyle habits and what is a great risk factor associated with smoking and alcohol consumption is sedentary lifestyle that is found in almost 75% of all patients interviewed.

The comorbidities of great extension among the diabetic population is hypertension, which observed a prevalence of 90% among the interviewees, showing that it is one of the diseases that is closely associated with the process of complications in the diabetic.

Metabolic control is not done even in those patients who are being followed by the outpatient clinic where they perform the diabetic foot dressing, because we interviewed a patient who had a glycemic level of 444mg/dl.

4 CONCLUSION

The study developed in the outpatient clinic of the University Hospital Alcides Carneiro-HUAC, with elderly people with type II diabetes, where it was found that the higher prevalence among females, from rural areas, being lifestyle, first of all sedentary lifestyle and smoking that is caught in a very high percentage showing its correlation between the chronic complications of diabetes.

From the clinical point of view, mixed, ischemic and infectious skin changes were observed. Where the predominant treatment at the sites of origin consisted of smaller and larger amputations, with no other type of intervention such as vascular restoration, leaving only the surgical procedure for removal of the affected limb.

This fact demonstrates the need for educational actions and campaigns with the teams of basic health units in order to prevent chronic complications that can develop over time in diabetics.

Within this perspective, the results of the study can be used as a warning regarding the need for preventive measures adopted by competent agencies such as BdS (Brazilian Diabetes Association) and a homogenous systematization in the primary care of this population, through programs that focus and instep the necessary care to maintain adequate control avoiding the evolution of chronic complications of diabetics.



Therefore, the study shows that the factors that are associated with the amputation process are simple and at the same time complex, because it requires a multiprofessional team involved to interfere in the educational process of patients showing the benefits that changes in lifestyle can bring for prevention.



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