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

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1 INTRODUCTION

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

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

The Health Surveillance Secretariat (SVS) of the Ministry of Health has the objective of planning and monitoring actions and programs that reduce the occurrence and severity of these diseases, thus improving the health of the population. It was observed in the period between 2006 and 2019, the prevalence of diabetes increased from 5.5% to 7.4%; regarding diabetes, the profile with the highest prevalence is that of adults aged 65 years or older (NILSON, 2018).

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

According to Brasil (2006), the increase in the life expectancy of the population has been occurring differently between countries. In developed countries, the process of population aging is mainly because they have an effective health system and control of diseases typical of aging.

However, among underdeveloped nations, the phenomenon is mainly due to the sharp drop in the number of births. The Brazilian case presents 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 grew much less than the elderly population and it is estimated that by 2050 the number of people aged over 65 will increase 26 times, while the number of young people will only double (MOREIRA, 2002).

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

However, 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 higher costs of hospitalization and treatment for public health, as they require equipment and medication more expensive (ALMEIDA et al., 2019).

Many organizations and institutions around the world have been discussing amputations caused by diabetic neuropathy and foot ulcerations, emphasizing an adequate treatment, to achieve a reduction by half in the number of amputations performed worldwide, setting goals for controlling the disease, reducing its main complications, including the diabetic foot and consequently amputations, seeking to reduce the expected 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 with other diseases such as hypertension, heart failure, and dyslipidemia; consumption of alcohol, and 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 to select the sample, which included patients with type I or II diabetes mellitus diagnosed in the laboratory, residing in the city of Campina Grande-PB, and surrounding regions, aged 60 years or older, who have necrotic and/or infectious lesions on the lower limbs, whether primary or relapsing or who have already undergone limb amputation regardless of sex, race, color, origin, and profession.

However, those who did not agree to participate, diabetic patients who did not have lesions on the lower limbs, patients with necrotic and/or infectious lesions who did not have type I or II diabetes mellitus, mentally disabled, and pregnant women were excluded from the study.

Primary variables included patients' origin, mentioning place of residence (rural or urban), socioeconomic and cultural level, considering family income and education level, sex, and age group.

Secondary variables include associated co-morbidities and specialized primary care performed before the approach in the referred institutions. Level of amputation, number of hospitalizations, time of diagnosed disease; lifestyle (smoking, alcoholism, and sedentary lifestyle).

For data analysis, we used a form (suitable for investigation and storage of information). Said patients or their legal representatives were duly informed about the importance of the study in the context of public health.

The form was exposed and clarified, and participation was free will. The prior consent document was displayed and the patients' authorization will remain expressed in that document.

The analysis of medical records and the interview with the referred patients were carried out in the period between May 2009 and June 2009.

The data obtained were introduced in the study's form and filed in a database using the epi info version 3.4.1 program. Being all data displayed in percentages, and illustrated in graphs (LAKATOS and MARCONI, 1994).

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

3 RESULTS AND DISCUSSION:

Concerning the distribution by education, it showed that more than 90% of diabetic patients with infectious and/or necrotic foot and leg ulcers or who had already suffered amputations were illiterate or with a much lower level of education, the vast majority having completed only the 1st primary grade. 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 E COLABORADORES, 2007).

After data collection, a total of 30 patients were obtained as a universe. Of these, 56.7% (95%CI 37.4%-74.5%) were female, and 43.3% (95%CI 25.5%-62.6%) were male. About the age range, most of the respondents, 93.3% (95%CI 77.9-99.2) were aged between 60 and 79 years, correlating with the study by Pinto and Moretto, which claims to be in this age range. higher incidence of complications in diabetics. Regarding origin, 53.3% (95%CI 34.4%-71.7%) of these live in rural areas, and the other part lives in urban

areas, but in underdeveloped cities that often do not have trained professionals or who have a commitment to the diabetic population.

Distribution by the level of education showed that 43.3% (95%CI25.5%-62.6%) were illiterate, with 26.6% (95%CI12.3%-45.9%) having not completed even the 2nd primary grade. Concerning family income, 86.7% (95%CI69.3%-96.2%) received between 1 and 2 minimum wages per month, in the case of adequate and/or specialized primary care 66.7% (95%CI 47.2%-82.7%) had not received adequate primary care. As for the level of amputation, 40% (95%CI 22.7%-59.4%) had undergone a minor amputation, and only 6.7% (95%CI 0.8%-22.1%) had undergone a major amputation, but 100% of the patients who participated in the research had ulcers, and 70% of the ulcers were recurrent (95%CI 50.6%-85.3%). Many of those who underwent the surgical process had already performed 1 to 3 amputations and still had other injuries that were treated on an outpatient basis.

Regarding the time of diagnosis of the disease, 46.7% (95%CI28.3%-65.7%) of the patients presented evolution between 1 and 19 years and 43.3% (95%CI25.5%-62.6%) had more than 20 years of diagnosis; in terms of the number of hospitalizations, 93.4% had already been hospitalized with decompensated diabetes between 1 and 10 times. As for the metabolic control of glucose, it was shown that the vast majority 66.6% did not carry out a balanced diet as a method to maintain adequate glycemic control, being done only with the use of drug therapy, which often does not have the desired effect. , as we observed among the interviewees that the last glycemic level was quite high, further delaying the healing process and leading to amputation

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

About smoking, it was found that 53.3% (95%CI 34.3%-71.1%) of the patients are smokers. Studies indicate 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 to chronic complications of diabetes mellitus. It is also mentioned that smoking can cause both independent damages and be associated with other risk factors. All smokers stated that they smoked or smoked between 2 or more packs per day over a period of 10 to 40 years.

Of the total sample, 33.3% (95%CI 17.3-52.8%) of the patients interviewed stated that they consume alcoholic beverages or that they have already consumed them, the vast majority consumed one or more bottles of alcoholic beverages 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 resulting from chronic pancreatitis, and there was a finding of 7.2% of cases of diabetes in a study carried out by Jorge et al. (1999).

Concerning a sedentary lifestyle, it was found that 73.3% (CI95%54.2%-87.7%) of patients were sedentary, which Paiva (2001) and other authors claim to be an environmental factor that favors the development of diabetes mellitus and its complications over time. Pinto and Moretto (2004) found in their

studies a sedentary lifestyle was 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 - the habit of being an alcoholic and/or smoker for a prolonged period and is enhanced when the user is unable to change his/her lifestyle habits during the course of the disease and also sedentary lifestyle, which is observed in almost 80% of patients.

We observed in the study carried out that the major factors associated with the process of injuries and amputations of limbs in diabetics are the origin in which the vast majority is found in underdeveloped cities or places where they do not have adequate assistance, or it is difficult to access health care centers. health potentializing the disease even more, we observe the low level of schooling, unfavorable family income, and profession by which they are exposed to the risk of suffering skin lesions, among the lifestyle habits the most accentuated and which is a great risk factor associated with the smoking and alcoholism is the sedentary lifestyle found in almost 75% of all interviewed patients.

The co-morbidities of great extension among the diabetic population is hypertension, which had 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 diabetics.

Metabolic control is not performed even in those patients who are being followed up by the outpatient clinic where the diabetic foot is treated, as we interviewed a patient who had a glycemic level of 444mg/dl.

4 CONCLUSION

The study carried out at 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 the rural area, being the lifestyle, in the first place sedentary lifestyle and smoking, which was found 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 in the places of origin consisted of minor and major amputations, with no other type of intervention such as vascular restoration, leaving only the surgical procedure for the removal of the affected limb.

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

Within this perspective, the result of the study can be used as an alert regarding the need for preventive measures adopted by competent bodies such as SBD (Brazilian Association of Diabetes) and a homogeneous systematization in the primary care of this population, through programs that focus on and

intensify care necessary to maintain adequate control, preventing the evolution of chronic complications in diabetics.

Because of this, the study shows that the factors that are associated with the amputation process are simple and at the same time complex, as it requires a multidisciplinary team involved to interfere in the educational process of patients, showing the benefits that change in lifestyle may bring to prevention.

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