TYPE 2 DIABETES MELLITUS IN OLDER ADULTS: A LITERATURE REVIEW ON RISK FACTORS, COMPLICATIONS, AND CHALLENGES IN TREATMENT

DIABETES MELLITUS TIPO 2 EM IDOSOS: UMA REVISÃO DE LITERATURA SOBRE FATORES DE RISCO, COMPLICAÇÕES E DESAFIOS NO TRATAMENTO

DIABETES MELLITUS TIPO 2 EN ADULTOS MAYORES: UNA REVISIÓN DE LA LITERATURA SOBRE FACTORES DE RIESGO, COMPLICACIONES Y DESAFÍOS EN EL TRATAMIENTO

https://doi.org/10.56238/sevened2026.009-051

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ABSTRACT

Type 2 diabetes mellitus (T2DM) is a highly prevalent chronic condition globally, disproportionately affecting the elderly population due to physiological changes of aging and the accumulation of comorbidities. This article presents a literature review aiming to analyze the magnitude of T2DM in the elderly, its risk factors, the main associated complications, and the challenges faced in treatment. The methodology consisted of a narrative literature review, using official guidelines and recent studies. The results indicate that aging, associated with socioeconomic factors and lifestyle habits, significantly increases the risk of developing the disease. Micro and macrovascular complications compromise the autonomy and quality of life of the elderly, increasing hospitalization rates. It is concluded that the management of T2DM in this population requires a multifaceted approach, considering not only glycemic control but also the preservation of functionality, the adaptation of treatment to socioeconomic conditions, and health education.

Keywords: Type 2 Diabetes Mellitus. Elderly. Aging. Diabetes Complications.

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RESUMO

O diabetes mellitus tipo 2 (DM2) é uma condição crônica de alta prevalência global, afetando de forma desproporcional a população idosa devido a alterações fisiológicas do envelhecimento e acúmulo de comorbidades. Este artigo apresenta uma revisão de literatura com o objetivo de analisar a magnitude do DM2 em idosos, seus fatores de risco, as principais complicações associadas e os desafios enfrentados no tratamento. A metodologia consistiu em uma revisão narrativa de literatura, utilizando diretrizes oficiais e estudos recentes. Os resultados apontam que o envelhecimento, associado a fatores socioeconômicos e hábitos de vida, eleva significativamente o risco de desenvolvimento da doença. As complicações micro e macrovasculares comprometem a autonomia e a qualidade de vida dos idosos, aumentando as taxas de hospitalização. Conclui-se que o manejo do DM2 nessa população exige uma abordagem multifacetada, que considere não apenas o controle glicêmico, mas também a preservação da funcionalidade, a adequação do tratamento às condições socioeconômicas e a educação em saúde.

Palavras-chave: Diabetes Mellitus Tipo 2. Idosos. Envelhecimento. Complicações do Diabetes.

RESUMEN

La Diabetes Mellitus Tipo 2 (DM2) es una condición crónica de alta prevalencia global que afecta de manera desproporcionada a la población adulta mayor debido a los cambios fisiológicos del envejecimiento y a la acumulación de comorbilidades. Este artículo presenta una revisión de la literatura con el objetivo de analizar la magnitud de la DM2 en los adultos mayores, sus factores de riesgo, las principales complicaciones asociadas y los desafíos enfrentados en el tratamiento. La metodología consistió en una revisión narrativa de la literatura utilizando directrices oficiales y estudios recientes. Los resultados indican que el envejecimiento, asociado a factores socioeconómicos y hábitos de vida, aumenta significativamente el riesgo de desarrollar la enfermedad. Las complicaciones micro y macrovasculares comprometen la autonomía y la calidad de vida de los adultos mayores, incrementando las tasas de hospitalización. Se concluye que el manejo de la DM2 en esta población requiere un enfoque multifacético que considere no solo el control glucémico, sino también la preservación de la funcionalidad, la adecuación del tratamiento a las condiciones socioeconómicas y la educación en salud.

Palabras clave: Diabetes Mellitus Tipo 2. Adultos Mayores. Envejecimiento. Complicaciones de la Diabetes.

1 INTRODUCTION

Diabetes mellitus encompasses a set of disorders that affect carbohydrate metabolism, resulting in an abnormal increase in blood glucose levels. This condition occurs when the body does not properly utilize glucose as an energy source, in addition to producing excess glucose through pathways such as gluconeogenesis and glycogenolysis, which leads to persistent hyperglycemia [1].

In recent years, diabetes mellitus has experienced alarming growth, contributing to a significant increase in the total number of people affected by this condition. Recent studies indicate a significant growth in the incidence of diabetes mellitus (DM) at a global level, with an estimated total of 536.6 million people living with the disease and may reach 783.2 million people affected in 2045, being more frequent in people aged between 75 and 79 years [2].

In Brazil, projections indicate that approximately 20 million people are affected by diabetes, which represents about 10.2% of the country's population, with about 90% of cases of type 2 diabetes mellitus, the most common form in adults and the elderly [3]. Population aging is one of the main factors driving the increase in the incidence of diabetes mellitus, especially among the elderly. As the world's population ages, so does the number of people vulnerable to developing type 2 diabetes, due to changes in metabolism, increased insulin resistance, and a greater tendency to sedentary lifestyle [4].

In view of this scenario, the present study aims to review the literature on type 2 diabetes mellitus in the elderly, addressing its definition, magnitude, risk factors, the impact of aging on the incidence of the disease, the associated complications and the challenges in the treatment of this vulnerable population.

2 METHODOLOGY

This is a narrative literature review, structured to gather and synthesize current scientific knowledge on type 2 diabetes mellitus in the elderly population. The bibliographic search was carried out considering official guidelines from the Brazilian Ministry of Health, the Brazilian Diabetes Society (SBD), the American Diabetes Association (ADA) and the International Diabetes Federation (IDF), in addition to scientific articles published in indexed journals in recent years. Studies that addressed the magnitude of the disease, risk factors, complications, and treatment strategies focused specifically on the elderly population were selected.

3 RESULTS AND DISCUSSION

3.1 DIABETES MELLITUS II: DEFINITION, MAGNITUDE, AND RISK FACTORS

According to the guidelines of the Ministry of Health, Diabetes Mellitus is a complex metabolic condition that arises from insufficient production of insulin by the body, characterizing type I of the disease, or resistance to the action of insulin, being characteristic of type II of the comorbidity. Insulin, a hormone secreted by the pancreas, plays a crucial role in glucose metabolism, facilitating its entry into cells to be used as an energy source. When insulin production or action is compromised, blood glucose levels rise, leading to a number of metabolic and vascular complications [5].

According to data released by the tenth edition of the diabetes atlas, of the International Diabetes Federation, there are 537 million adults (aged between 20 and 79 years) living with diabetes globally. In the national context, Brazil stands out as the fifth country with the highest number of diabetes cases on a global scale, covering approximately 17 million people impacted by this chronic condition in 2021 [6]. In addition, it was found that more than half of these individuals are unaware of their condition, given that diabetes often presents asymptomatically, progressing silently over time [2].

Established risk factors for the development of Diabetes Mellitus (DM) include population aging, pre-existing diseases such as obesity, and unhealthy lifestyle habits, such as physical inactivity, smoking, inadequate sleep, and unbalanced diet. In addition, socioeconomic status, especially low income, also plays a significant role in the onset and worsening of DM, since adherence to treatment requires financial conditions that support a good diet and regular physical activity, which are of substantial importance in the prevention and treatment of this pathology [7].

3.2 IMPACT OF AGING AND ASSOCIATED COMPLICATIONS

Aging is one of the main risk factors for the development of diabetes mellitus, characterized by changes in metabolism that promote greater insulin resistance and higher blood glucose levels. This phenomenon is aggravated by the decrease in physical activity and the changes in body composition that occur with advancing age. Studies suggest that, among the elderly, type 2 diabetes is the most common form, and the impacts of the disease in this age group can be particularly severe due to the accumulation of comorbidities, which increase the risk of complications [4].

Diabetes Mellitus (DM) is often followed by a range of health complications, ranging from cardiovascular disease (CVD) to nephropathy and the development of diabetic foot. These complications, in addition to their direct implications on quality of life, entail additional

consequences of DM, resulting in additional costs for the health system with hospitalizations [8].

In the elderly, diabetes is associated with complications that severely affect quality of life and autonomy. The presence of multiple comorbidities increases hospitalization rates among older adults with diabetes, mainly due to cardiovascular events and infections, which represent the main causes of hospitalization, contributing to a situation of greater fragility in this vulnerable group. Diabetic neuropathy, for example, increases the risk of falls and injuries, while retinopathy compromises vision and contributes to the loss of functional independence. Studies show that the combination of micro and macrovascular complications worsens the prognosis in elderly people with diabetes, increasing mortality and the frequency of hospital readmissions [9].

3.3 TREATMENT OF TYPE II DIABETES MELLITUS AND CHALLENGES IN THE ELDERLY

The treatment of type 2 Diabetes Mellitus (DM2) in the elderly involves a multifaceted approach that seeks, in addition to controlling the symptoms of the disease, to promote quality of life and prevent long-term complications. This treatment encompasses lifestyle changes, dietary control, regular physical activity, constant monitoring of health parameters, and, in many cases, drug therapy. Diabetes education and awareness play a key role, enabling the patient to better understand their condition and to adopt behaviors that favor the control of the disease effectively [10].

One of the essential pillars of treatment is a balanced diet adapted to the needs of elderly patients with diabetes. Dietary control involves guidance for healthy food choices, portion adjustment, and monitoring blood glucose levels. Regular physical activity is also encouraged, because, in addition to helping to control blood glucose, it improves cardiovascular health and promotes general well-being. However, physical activity recommendations need to be adjusted to the functional capacity of each elderly person, taking into account possible physical limitations resulting from age [6].

Monitoring and personalized goal setting are key in the treatment of T2DM in the elderly. These goals should include not only glycemic control, but also factors such as blood pressure, lipid profile, and maintaining an adequate weight. Regular monitoring allows treatment to be adjusted as needed to prevent complications, prioritizing the preservation of the functionality and autonomy of the elderly. With regard to drug therapy, the treatment of T2DM in the elderly usually includes oral antidiabetic drugs, such as metformin and sulfonylureas. In cases where glycemic control is not achieved with oral medication alone,

the use of insulin or GLP-1 receptor agonists can be resorted to. The choice of therapeutic regimen takes into account individual tolerance and the risk of adverse effects, especially hypoglycemia, which are more dangerous for the elderly population [11].

In addition to these aspects, the treatment of DM2 in the elderly faces challenges related to socioeconomic and educational conditions. Access to adequate medical care, balanced diets, and medications may be limited in low-income populations. The financial insecurity and psychological stress experienced by this population make it difficult to adhere to treatment, making it less effective and increasing the risk of serious complications and mortality [12].

Another relevant factor is the educational level. Older adults with low education tend to have greater difficulties in understanding diabetes management, which can lead to low adherence to treatment and unfavorable outcomes. Studies show that people with lower education and more limited financial status have greater impairment in physical and mental functioning when compared to individuals with a higher level of education. This educational limitation directly impacts the ability to understand the disease and adherence to appropriate treatment, interfering with the prognosis [13].

4 CONCLUSION

The literature review shows that type 2 diabetes mellitus in the elderly is a growing public health challenge, driven by population aging and socioeconomic and behavioral factors. Complications associated with the disease severely affect the quality of life, autonomy, and functionality of this population, in addition to representing a significant burden on health systems due to high hospitalization rates. Proper management of T2DM in the elderly requires an individualized and multifaceted approach. Treatment should not focus exclusively on strict glycemic control, but rather on preventing complications, minimizing the risk of hypoglycemia, and preserving functional capacity. In addition, it is imperative to consider the social determinants of health, such as income and education, which directly impact treatment adherence. Health education strategies adapted to the reality of the elderly and public policies that ensure access to medicines and adequate care are essential to improve the prognosis and quality of life of this vulnerable population.

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