Relationship between Diabetes Mellitus and Diabetic Retinopathy

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ABSTRACT

INTRODUCTION: Diabetes Mellitus (DM) is a chronic disease with a high global prevalence, affecting millions of people. One of the most serious complications is Diabetic Retinopathy (DR), which affects 34.6% of diabetics worldwide, with about 10.2% of cases leading to significant visual loss. In addition, in Brazil, the prevalence of DR among type 2 diabetics is 34%, while 44% of those with type 1 DM have some degree of DR. Thus, hyperglycemia is the main agent for the development of microangiopathy and DR is the most specific. In addition, it is estimated that almost 100% of patients with type 1 DM develop DR within 15 years. Early diagnosis and treatment are essential to reduce the risk of irreversible visual damage, but Brazil still lacks a specific screening program for DR. In addition to compromising quality of life, the complications of DM have a significant economic impact, with estimates indicating that the disease can consume 5 to 14% of the state's health expenditures.

METHODS: The present study conducted a comprehensive evaluation of the existing literature on the relationship between diabetes mellitus and diabetic retinopathy. The research used scientific publications and literature reviews as the main sources of information. These sources were accessed through renowned databases, such as Pubmed, Scielo, LILACS, and MedLine. The search was performed using the descriptors "Diabetes Mellitus" and "Diabetic Retinopathy". In addition, a total of ten articles were selected within the period 2014 to 2024.

DISCUSSION: Diabetic retinopathy (DR) is a more frequent microvascular complication, highly specific to type 1 and 2 diabetes mellitus, and can be classified as nonproliferative DR or proliferative DR. Diabetes is highly prevalent and may vary according to the region and the conditions of access to treatment and monitoring of the disease, its incidence is significant among patients with type 1 and type 2 diabetes, especially if glycemic control is not adequate. Diabetic retinopathy, by itself, is not usually the direct cause of death. However, it can lead to severe complications such as vision loss, which can affect the patient's quality of life and ability to manage their overall health. Its diagnosis can be made by ophthalmoscopy (direct and indirect), retinal biomicroscopy under mydriasis medicamentosa, staging of retinopathy, photographic documentation (retinography), or retinal mapping. Diabetes mellitus (DM) is a disease with a great impact on public health. The increase in its prevalence brings with it an increase in the incidence of diabetic retinopathy (DR), which is the most common complication caused by poorly controlled DM over time. Thus, it is important to detect DR early to not only prevent the progression of the disease, but also to have better therapeutic results and, thus, prevent complications that drastically impact the socioeconomic well-being of those affected. The gradual advancement of DR can cause diabetic macular edema, fibrovascular proliferation, and the formation of new and delicate retinal blood vessels that can result in retinal detachment, retinal hemorrhages, and decreased visual acuity, resulting in extreme and very serious complications such as loss of central vision or even blindness. By detecting DR early, the chances of therapeutic efficacy and preserving the patient's vision are better. Currently, argon laser photocoagulation is the most common treatment used, coagulating specifically affected retinal areas. In even more severe cases, vitrectomy is indicated.

Therefore, continuous clinical monitoring is essential for the effective management of diabetic retinopathy, and glycemic and blood pressure controls and regular ophthalmological follow-up and evaluation from the moment of diagnosis of DR are crucial so that retinal changes are noticed early and with this, the patient maintains his independence and functionality as much as

possible and the health system has significant savings.

CONCLUSION: The management of diabetic retinopathy (DR) should follow clear guidelines to ensure early detection and treatment. It is recommended that adults with type 1 diabetes (T1D) start screening after five years of diagnosis, while children and adolescents with T1D should be evaluated from the age of 11 years. For those with type 2 diabetes (T2D), screening should be done at the time of diagnosis. Comprehensive eye exams, including retinography and biomicroscopy, are essential, and the use of technologies such as retinal photography can facilitate access to diagnosis. Strict control of blood glucose, blood pressure, and dyslipidemia is essential to slow the progression of DR. In cases of moderate to severe DR, referral to ophthalmologists and interventions such as laser photocoagulation are recommended. Surveillance during pregnancy and appropriate counseling for pregnant women with diabetes are crucial to prevent complications. In summary, the adoption of these recommendations is vital to preserve vision and improve the quality of life of diabetic patients, highlighting the importance of continuous screening and proper management of diabetic retinopathy.