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EPIDEMIOLOGICAL PROFILE AND TREATMENT EVALUATION OF PATIENTS WITH TYPE II DIABETES MELLITUS AT A BASIC HEALTH UNIT IN JARAGUÁ DO SUL/SC

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Abstract: Diabetes mellitus is a frequent pathology in our society, affecting around 8-10% of our population and is associated with greater cardiovascular risk, such as acute myocardial infarction and stroke. The aim of this retrospective study was to evaluate the epidemiological profile of patients with type II diabetes mellitus at a UBS in Jaraguá do Sul and to assess whether they met the therapeutic targets established by the Brazilian Society of Cardiology, using data analysis of electronic medical records. We found that the population served at this UBS has a high cardiovascular risk (89% high or high risk), with a high prevalence of comorbidities hypertension (90.8%) and dyslipidemia (65.3%). However, only 13% of the individuals met all the therapeutic targets (HbA1c, LDL-c, controlled blood pressure), according to their risk stratification. Part of this therapeutic failure can be explained by the low use of hypoglycemic medications with cardiovascular benefits, such as iSGLT2 and/or aGLP1 in only 4.2% of the population.

Keywords: diabetes mellitus, cardiovascular disease, treatment

INTRODUCTION

Type II diabetes mellitus (DM2) is a prevalent chronic condition (REIS; DUNCAN; MALTA; ISER *et al.*, 2022) that represents a significant challenge for the health system, with a growing impact on morbidity and mortality rates, especially due to the complications associated with cardiovascular diseases (DAL CANTO; CERIELLO; RYDEN; FERRINI *et al.*, 2019), which are among the leading causes of death (BOCHEN CAO, 2020).

Adequate control of risk factors such as glycemia, dyslipidemia, hypertension and a sedentary lifestyle are fundamental to successful treatment. In addition, some drugs have been shown, independently and for specific patients, to help reduce cardiovascular events,

such as statins, SGLT2 inhibitors (iSGLT2), GLP1 analogues (aGLP1) and antiaggregants.

Cardiovascular risk stratification is a fundamental stage in the assessment of this patient, as it allows for the individualization of treatment, with specific targets for the main comorbidities (BERTOLUCI; MOREIRA; FALUDI; IZAR *et al.*, 2017), as well as the indication of cardioprotective medications for those with greater susceptibility to cardiovascular events.

However, despite the evidence and established medical guidelines, the effective implementation of these strategies in clinical practice is not always achieved. A global multicenter study demonstrates the difficulty in achieving the targets recommended in medical guidelines VENCIO, S.; VIANNA, A. G. D.; DA SILVA, M.; PRECOMA, D. B. Contemporary (2019) prevalence of cardiovascular disease in adults with type 2 diabetes in Brazil: the cross-sectional CAPTURE study. *Diabetol Metab Syndr*, 14, n. 1, p. 5, Jan 10 2022.

The main objective of this study is to evaluate the treatment of patients with type II diabetes mellitus seen at a basic health unit in Jaraguá do Sul/SC. By analyzing the epidemiological profile, stratifying cardiovascular risk and comparing treatment with current medical guidelines, the aim is to improve clinical practice and clinical outcomes for patients with DM2.

METHODOLOGY

We selected the Vila Lenzi BHU, which has the largest number of patients with diabetes mellitus registered in its database. There are a total of 722 patients and we calculated an ideal sample size of 150 patients in order to have a 90% confidence level and a 6% margin of error when analyzing the data.

This is a retrospective study, analyzing data from electronic medical records in compliance with the General Personal Data Protection

Act (LGPD), Law No. 13,709/2018. We randomly analyzed patients' electronic medical records, including only those with type II diabetes mellitus who were over 18 years old and who had a registered appointment in the last 12 months (between January 2023 and January 2024).

We used the electronic medical records system of the Jaraguá do Sul municipal office to access the information of interest (Appendix 1), which was compiled into an extraction table for later analysis.

After collecting all the information, we stratified each patient's cardiovascular risk based on the current guidelines (BERTOLUCI; MOREIRA; FALUDI; IZAR *et al.*, 2017), so that we could assess whether the treatment goals had been achieved and the drug treatment recommendations had been respected.

RESULTS

A total of 186 medical records were analyzed and 154 patients were included, after excluding 25 patients who had not been seen in the last 12 months, 6 patients who had died in the last 12 months and 1 patient with type I DM.

There was no significant variation between the genders of those assessed, with 51% women and 48.7% were men and the majority were over 65 years old (54% of patients).

It can also be seen that the majority of individuals (57.8%) are obese, with 8.9% of all patients being morbidly obese (grade III). In addition, more than 70% were sedentary and almost a third were active smokers or former smokers.

A significant proportion of the population had other comorbidities in addition to IBD, such as hypertension (90.8%), dyslipidemia (65.3%), hypertriglyceridemia (50.5%) and established kidney disease (9.2%). The high cardiovascular risk of this sample is proven both by the history of previous established

atherosclerotic disease found in 41.6% of the individuals, and by the risk stratification carried out, where we detected that 89% of them were classified as being at high or very high cardiovascular risk.

When we evaluate the recommended treatment targets, according to the risk classification, we see that although the majority are controlling their blood glucose (53% with HbA1c < 7.0mg/dL), the minority were adequately treating other comorbidities such as hypertension (45%) and dyslipidemia (35%). If we consider all the goals on target, only 13% of individuals are well treated according to the criteria of the most current medical guideline (BERTOLUCI; MOREIRA; FALUDI; IZAR *et al.*, 2017).

Despite the lack of adequate treatment for DMII, hypertension and dyslipidemia, only 2.1% of patients were taking iSGLT2 and a-GLP1. These medications are suggested for patients with DMII and a history of established atherosclerotic disease or high cardiovascular risk, which in our population was 41.6% and 89%, respectively.

DISCUSSION

It's important to note that this study only assessed the population treated at one UBS in Jaraguá do Sul, so we can't extrapolate this data to the entire population of this municipality. This is a group of individuals with type II diabetes mellitus and various associated comorbidities. We found that the majority of these patients are elderly and have comorbidities, with 41.6% already having established clinical atherosclerotic disease (CAD). Therefore, the population studied is more serious when compared to the population evaluated in a global multicenter study with 9823 individuals, where it was observed that 36.5% of patients with DMII had established CAD (VENCIO, S.; VIANNA, A. G. D.; DA SILVA, M.; PRECOMA, D. B. Contemporary

(2019) prevalence of cardiovascular disease in adults with type 2 diabetes in Brazil: the cross-sectional CAPTURE study. *Diabetol Metab Syndr*, 14, n. 1, p. 5, Jan 10 2022).

Thus, the individuals in the study have a higher risk of suffering cardiovascular events, such as heart attacks, strokes or death, which can be proven after risk stratification according to medical guidelines. 89% of these patients are at high or very high risk, requiring stricter therapeutic targets, as well as the use of specific medications to reduce this risk.

This reveals a significant gap between the targets set by the Brazilian Diabetes Society Guidelines and the reality of the treatment of diabetic patients in the Jaraguá do Sul health unit. In fact, only 13% of patients managed to achieve all the proposed targets, pointing to substantial challenges in managing the disease in this community. Almost half of the patients are still hyperglycemic (47%), and the majority of individuals are unable to control LDL-c (65%) or systemic blood pressure (55%).

One factor that may contribute to the failure to meet targets is the low use/prescription of medication. Comparing the data with the CAPTURE study (VENCIO, S.; VIANNA, A. G. D.; DA SILVA, M.; PRECOMA, D. B. Contemporary (2019) prevalence of cardiovascular disease in adults with type 2 diabetes in Brazil: the cross-sectional CAPTURE study. *Diabetol Metab Syndr*, 14, n. 1, p. 5, Jan 10 2022), we observed a significant difference in medication use rates between the two populations, with ISGLT2 use being substantially lower in Jaraguá do Sul, with a percentage of only 2.1%, compared to the study where this rate was 16%. Furthermore, the rates of use of other drugs, such as aGLP1 (10.1%), ACEI/BRA (52.2%), beta-blockers (22.9%), statins (51%), anti-aggregants (33.5%) also differ significantly.

In addition to drug-related issues, several other factors can influence patients' ability

to achieve their treatment goals. Indeed difficulty in accessing medical consultations in the SUS can limit supervision and the proper adjustment of treatment over time. Similarly, the lack of training and updating of the health team can result in underuse of effective therapeutic interventions and financial difficulty in purchasing medications. In short, the data indicates the need for more comprehensive and integrated approaches to caring for diabetic patients in Jaraguá do Sul. This includes not only optimizing the use of medication according to the latest guidelines, but also implementing strategies to improve access to health services and to train health staff in the effective management of the disease.

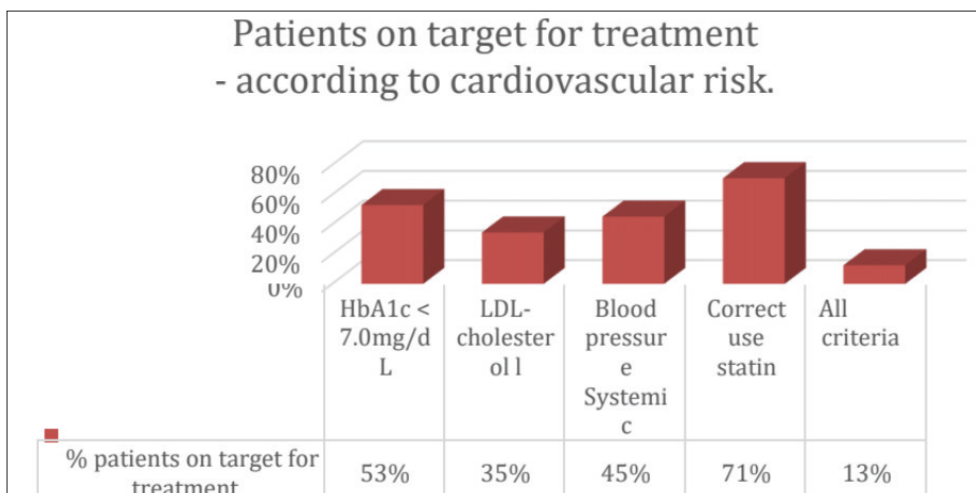
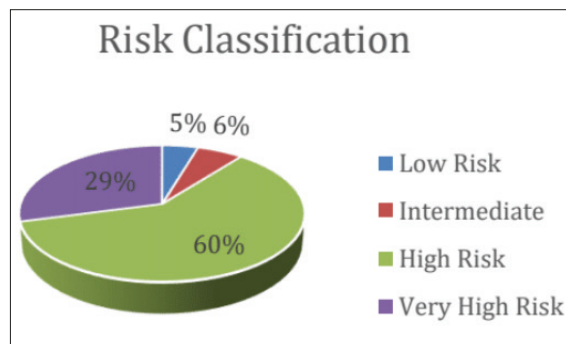
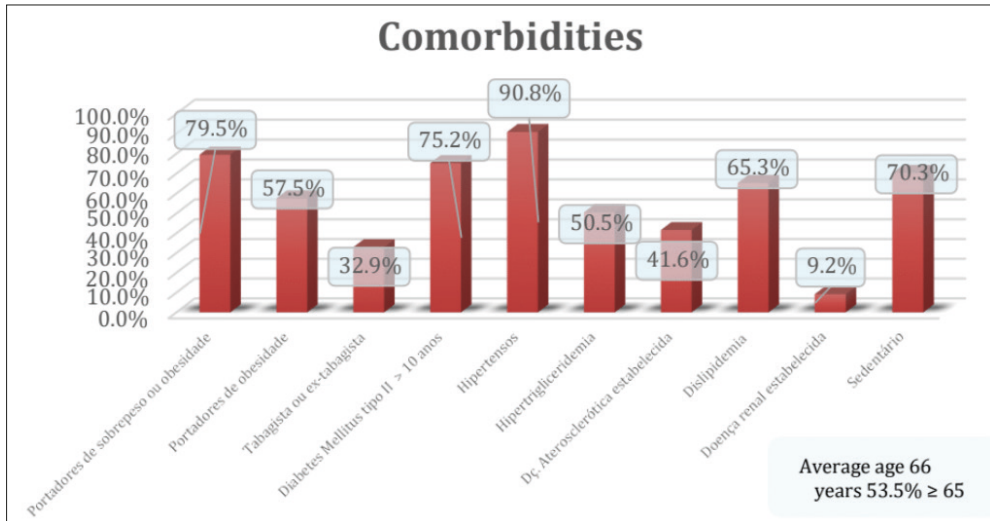
We can't say whether the underuse of medications is due to a lack of prescriptions or to other issues that make it difficult for patients to use them: financial issues, lack of understanding, among others. Other limiting factors in this study were the lack of proper completion of medical records - around 1/3 of patients did not have complete information on comorbidities such as dyslipidemia or simple laboratory tests such as fasting glucose, which can affect data analysis. In addition, we didn't follow up patients over time, so we can't say whether there were any effective changes in the team's conduct at the last consultation evaluated.

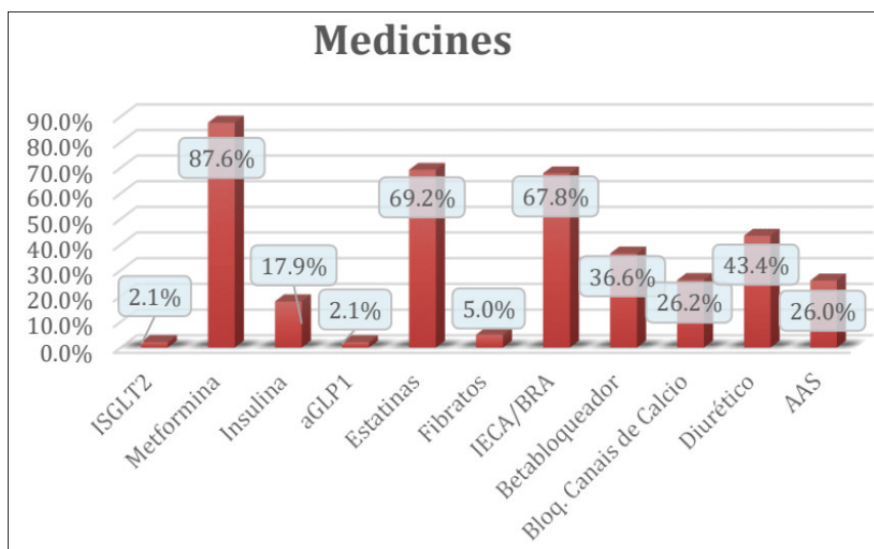
CONCLUSION

The IBD population studied has a higher cardiovascular risk than the average of individuals in global studies and a large proportion (87% of all individuals assessed) are outside the treatment targets according to the Brazilian Guidelines, in a one-off assessment between January 2023 and February 2024. It is known that the treatment of DMII is complex and must be individualized and managed by a multidisciplinary team. Thus, the findings of this study can serve as a basis for the de-

velopment of actions, and it is imperative that interventions are developed not only to strengthen the implementation of the guidelines, but also to address these challenges of adherence, changes in lifestyle habits and continuity of care, thus ensuring better health outcomes for patients. However, an electronic

medical record with an integrated cardiovascular risk calculator that alerts the attending physician to the goals recommended by the guidelines would be of great value, and could contribute to possible training/updating gaps, as well as reducing the therapeutic inertia of the health team.





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