Patients of Type 2 Diabetes Mellitus having Anemia

Abstract

The objective of this study was to evaluate the prevalence of anemia in patients with diabetes 2 and its correlation with demographic, lifestyle, and laboratory variables. This is a descriptive and analytical study of the type of case study in the metropolitan area of the city of Ijuí, included in the programs of the Family Health Strategy, with a total sample of 146 patients with the disease. DM2. A semi-structured questionnaire with sociological and clinical variables and a biochemical test performed was applied. Of the DM2 patients studied, 50 were anemic and it was found that body mass factors, hypertension, and hematological variables were significantly associated with chronic anemia. Therefore, the prevalence of anemia is high in patients with DM2. The set of observed changes that characterize the anemia of chronic diseases, affect the quality of life of patients with diabetes, and are associated with progression, development, and comorbidities. Contribute significantly to the increased risk of cardiovascular diseases.

Keywords: Diabetes • Chronic diseases

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Introduction

Diabetes mellitus (DM) is a metabolic disorder with major worldwide impact. Epidemiological data show that in 2010 worldwide there were 285 million people with diabetes and it is estimated that by 2030 we will have about 440 million people with diabetes. Its global prevalence is increasing rapidly in developing countries. Type 2 diabetes affects about 7% of the population. The increasing prevalence of type 2 diabetes mellitus (DM2) has become a major public health problem. The number of patients with diabetes has increased due to population growth and urbanization, increased rates of obesity and physical inactivity, and longer life expectancy of diabetics. Diabetes is a seriously debilitating disease that can lead to blindness, amputation, kidney disease, anemia, cardiovascular and brain complications, among others, which impairs functioning, rights personal autonomy and quality of life. The disease can be classified into two main categories, as type 1 diabetes mellitus (DM1), which is defined by destruction of pancreatic β cells and the absence of endogenous insulin, and DM2, which is characterized by insulin resistance. by a frame, often associated with obesity. Both types are characterized by the aforementioned hyperglycemia. Insulin resistance impairs glucose tolerance, especially in muscle and adipocytes, where glucose uptake is dependent on insulin [1-3]. This causes accumulation of glucose in the circulation and thus hyperglycemia, creating a systemic and homeostatic imbalance. Diabetes is considered a major cause of premature death, due to an increased risk of developing cardiovascular disease, contributing to 50% to 80% of deaths in patients due to elevated cholesterol and triglyceride levels in the body. serous. Cardiovascular disease includes diseases of the circulatory system, including many clinical syndromes, the main cause of which is atherosclerosis, which also increases the risk of acute coronary syndromes. The incidence of cardiovascular disease reached 20% in diabetic patients after a period of about 7 years. Hyperglycemia has a direct relationship with the development of inflammation as demonstrated by increased expression of proinflammatory cytokines such as IL-6, TNF-α and NFκB. Thus, diabetes, as well as hyperglycemia by its very nature, is also a feature of inflammatory disease. Studies show that the longer the duration of the disease and the loss of glycemic control, the higher the inflammatory process [4].

Method

It is a descriptive and analytical study of the type of case study in patients with type 2

diabetes and under 75 years of age living in the metropolitan area of the city of Ijuí RS, enrolled in the programs of this city's family health strategy. The study was conducted from January 2010 to January 2013, after approval from the Research Ethics Committee of the Regional University of Rio Grande do Sul State Northwest (UNIJUÍ). All participants signed informed consent in this study. The sample size was calculated using the StatCalc EpiInfo 3.5.3 application, taking into account the prevalence of nonspecific outcomes of 50%, error of 5%, and confidence level of 95%, outcoming in a sample consisting of 269 patients. To anticipate possible losses, a 5% percentage of this number was added, to a total sample of 283 patients with DM2. The study excluded patients who had difficulty understanding the proposed procedures, those who were bedridden, and those who had difficulty walking [5,6]. Invitations to participate in the study were sent to patients during home visits, with follow-up by public health staff when possible. At the time of the visit, the objectives of the study were explained to the patients and an interview date was set with those who consented to participate, in addition to scheduling clinical and laboratory examinations, held accordingly.

Patient

Patients with at least two of the following criteria recommended by the National Cholesterol Education Program are classified as having metabolic syndrome: increased waist circumference; increased serum triglycerides or decreased HDL cholesterol; and hypertension diagnosed or confirmed through the use of antihypertensive drugs [7]. Renal function was assessed by serum creatinine value, obtained by biochemical tests. The glomerular filtration rate estimated by Cockcroft-Gault was calculated using a formula available on the National Kidney Foundation (SBN) websites of the National Kidney Foundation. We considered impaired renal function as serum creatinine values greater than 1.2 mg/dL and GFR less than 60 mL/min/1.73 m2 estimated by the Cockroft-Gault equation representing a reduction Approximately 50% of renal function is normal and, below this level, the incidence of chronic renal failure is increasing. For the use of the Cockcroft-Gault equation, the patient's ideal weight is calculated using the Lorenz formula, which sets the ideal body weight for the subject's height as a function of cm [8-10].

Discussion

Anemic diabetic patients showed increased expression of proinflammatory cytokines compared with diabetic patients alone. In anemic patients, an increase in IL-6 production, as well as B-cell activity, was confirmed, supporting a link between IL-6 and anti-erythropoietic activity. In addition, patients with diabetes and anemia have elevated levels of C-reactive protein and hypersensitive ferritin; however, these diabetic and anemic patients have low iron levels, suggesting that increased ferritin is associated with the chronic inflammatory process present in diabetes. In this study, the prevalence of obesity was higher and mean BMI and waist circumference were higher in anemic patients compared with non-anemic patients; however, there was a statistically significant difference between groups only for the body mass variable. Anemia in patients with diabetes is also associated with obesity, high BMI and waist circumference. Obesity or the accumulation of circulating fatty acids is associated with the development of inflammation leading to the development of insulin resistance. Insulin resistance reduces glucose tolerance, especially in fat and muscle cells, where glucose uptake is insulin. This causes a buildup of glucose in the circulation and thus hyperglycemia.

Conclusion

Patients with DM2 disease and anemia are those with high body mass, increased blood pressure, increased waist circumference, and longer disease duration. This set of changes characterizes anemia as a chronic disease, has a significant negative effect on the quality of life of patients with diabetes, and is associated with disease progression; The development of comorbidities contributes significantly to the increased risk of cardiovascular disease. However, contrary to what would be expected, glycemic outcomes were higher in non-anemic patients, which is contradictory because the anemia of these patients is associated with inflammation, which is characterized by normal red blood cell anemia. In-depth research on the issues raised throughout this work provides knowledge for implementing new glycemic control strategies, enhances

research, and links certain analytical parameters, such as HbA1c, I1-6, VHS and PCR.

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