VITAMIN D STATUS IN PATIENTS WITH LATENT AUTOIMMUNE DIABETES IN ADULTS AND CHRONIC KIDNEY DISEASE

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Introduction. Vitamin D deficiency is recognized as a global problem worldwide. Today, there is information about the relationship between vitamin D levels and the pathogenetic links in the development of classic forms of diabetes mellitus (DM). In particular, vitamin D deficiency has been shown to cause insulin deficiency, progression of insulin resistance, and β-cell dysfunction (Nakashima A., 2016; Savastio S., 2018). There is growing evidence that vitamin D deficiency may be a risk factor for diabetes. At the same time, the role of vitamin D deficiency in the development of latent adult autoimmune diabetes (LADA) needs further study.

The aim of our study was to determine the relationship between the level of vitamin D with carbohydrate metabolism and the level of antibodies to glutamic acid decarboxylase in patients with latent autoimmune diabetes in adults and chronic kidney disease (CKD).

Materials and methods. A study of 90 patients with diabetes and CKD, including 26 patients with type 1 diabetes mellitus (T1DM), 28 patients with type 2 diabetes mellitus (T2DM) and 36 patients with LADA, as well as 25 members of the control group. Diagnosis of diabetes was established according to the recommendations of the American Diabetes Association (ADA, 2021), LADA - according to the recommendations of the Immunology of Diabetes Society (IDS, 2005). Evaluated complaints, history, objective examination, carbohydrate metabolism (blood glucose, glycated hemoglobin (HbA1C), C-peptide), levels of antiGAD and vitamin D. Vitamin D <10 ng / ml was regarded as a deficiency, 10-30 ng / ml as a risk of insufficient consumption,> 30 ng / ml as the optimal level. Patients with LADA were divided into two groups depending on the level of antibodies to glutamic acid decarboxylase (antiGAD): LADA 1 and LADA 2 (Lin Yang, 2019). We studied the relationship between vitamin D levels and carbohydrate metabolism in the study groups.

Results. Vitamin D deficiency was found in most patients: T1DM - 62%, T2DM - 75%, LADA - 67%, and 12% of healthy individuals. Insufficient consumption was registered in 34% of patients with T1DM, 25% of patients with T2DM, 25% of patients with LADA and 40% of the control group. In the remaining patients of the experimental group and in 28% of the control group, this indicator was registered at the lower limit of normal. 20% of the surveyed control groups had the optimal level of vitamin D. Patients with LADA have the highest frequency (71%) and the degree of deficiency of this vitamin in a subgroup with the LADA 2 phenotype (with LADA1 - 63%). In patients with LADA, there was a negative correlation between vitamin D levels and antiGAD titers ($p < 0.05$), as well as HbA1C levels ($p < 0.05$), and a positive correlation between vitamin D and C-peptide levels ($p < 0.05$).

Conclusion. Most patients with latent autoimmune diabetes in adults have vitamin D deficiency, which is associated with a higher degree of autoimmunity, loss of beta-cell function and poorer compensation of the disease, which may indicate its role in the development and progression of this variant of diabetes.

PREVALENCE OF THE COMPONENTS OF METABOLIC SYNDROME IN PATIENTS WITH DIFFERENT PHENOTYPES OF LATENT AUTOIMMUNE DIABETES IN ADULTS

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Introduction. Latent autoimmune diabetes in adults (LADA) is a specific type of diabetes mellitus (DM), the prevalence of which varies from 4% to 14%. Although LADA combines the pathogenetic and clinical features of both type 1 (T1DM) and type 2 diabetes mellitus (T2DM), the latest recommendations of the American Diabetes Association refer it to T1DM (ADA, 2021). Given that this variant of diabetes is also similar to type 2 diabetes mellitus, the risk of metabolic syndrome (MS) in this category of patients is particularly relevant. At the same time, the existing results of research in this area are quite contradictory, which is obviously due to population differences, different methodological approaches and significant heterogeneity of LADA.

The aim of this study was to determine the prevalence of metabolic syndrome and its components in LADA depending on the phenotype of the underlying disease.

Materials and methods. 45 patients with LADA were examined, the comparison group consisted of patients with T1DM (26 patients) and T2DM (35 patients). The average age was 46.2 years. Patients with LADA according to the main phenotypes were divided into 2 groups: LADA 1 (22 individuals) with high antibody titers (≥180 U / ml) to glutamic acid decarboxylase (antiGAD) and LADA 2 (23 individuals) with low antibody titers (18 -180 U / ml). The phenotypic features of the prevalence of MS and its components in LADA were studied in accordance with the criteria of the International Diabetes Federation (IDF, 2009). In establishing LADA, we were guided by the recommendations of the Immunology of Diabetes Society (IDS, 2005).

Results. The prevalence of MS in LADA was 55.6% and exceeded that in T1DM (19%), but was lower compared with T2DM (71.4%). In addition to hyperglycemia, abdominal obesity (62.2% of patients), hypertension (77.8%), and dyslipidemia (55.6%) were the most common components of MS in LADA. The highest prevalence of MS was found in patients with LADA 2 phenotype (69.6%), which was close to that in T2DM. At the same time, it was lower (40.9%) in LADA 1, but twice as high as in T1DM. Negative correlations were found between body mass index, waist circumference and antiGAD titers in patients with LADA ($p < 0.05$).