SCIENCE AND INNOVATION IN THE XXI CENTURY: CRUCIAL ISSUES, DISCOVERIES AND ACHIEVEMENTS

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Features Of The Lipid Spectrum In Patients With Type 2 Diabetes Mellitus With Peripheral Sensorimotor Neuropathy

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ABSTRACT

The study of the state of lipid metabolism in patients with type 2 diabetes mellitus (DM) with peripheral sensorimotor neuropathy was carried out. Correlation interactions were established between the severity of neuropathy and indicators of lipid status.

KEYWORDS

Peripheral sensorimotor neuropathy; diabetes; lipid metabolism.

INTRODUCTION

The main causes of high mortality and early disability in patients with type 2 diabetes mellitus (DM-2) are vascular complications: diabetic microangiopathies: retinopathy, nephropathy, neuropathy and macroangiopathy: ischemic heart disease (IHD), cerebrovascular disease (CVD), chronic obliterating peripheral diseases [2.4].

These findings confirm the need for comprehensive control of glycemia, blood pressure, and blood lipids. To maintain the concentration of blood lipids at the desired level, statins are primarily used, the effectiveness of which has been repeatedly proven in large clinical studies. Currently, the possibilities of using statins are far from limited to hypercholesterolemia, which was the first indication for the appointment of statins. (1, 3, 5).

The most common complication of T2DM is distal neuropathy (DN). DN is characterized by the presence of symptoms and (or) signs of impaired function of peripheral nerves in patients with diabetes mellitus-2 after excluding other causes. The frequency of DN detection in the population of patients with diabetes mellitus-2 ranges from 10 to 90%, such a range of fluctuations is largely due to the lack of common diagnostic criteria and differences in the methods of its detection [2].

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The prevalence of diabetic neuropathy (DN) varies from 16 to 66% and directly depends on the duration of diabetes mellitus (DM) and the degree of its control [2].

The frequency of DN among hospitalized patients with newly diagnosed DM-2 reaches 43.1%, while true DN is diagnosed in 31.2% of those examined, and in 11.9% of patients, DN is of a mixed nature.

The basis for the prevention and treatment of complications of diabetes mellitus-2 is, first of all, a reliable compensation of carbohydrate metabolism. But even the observance of this condition does not prevent the development of diabetic lesions of the nervous system during a long course of the disease.

Purpose of the study

To assess the incidence of lipid metabolism disorders in patients with type 2 diabetes with peripheral sensorimotor neuropathy (PSN) and conduct a correlation analysis between the severity of neuropathy and indicators reflecting the state of lipid metabolism.

MATERIALS AND METHODS

A total of 54 patients with type 2 diabetes (target level of glycosylated hemoglobin <8%) with PSF were examined. As a hypoglycemic therapy, patients took metformin (average dose 965.7 ± 71.83 mg) and glibenclamide (average dose 6.9 ± 0.48 mg). The average age of the subjects was 64.3 ± 0.5 years the average duration of type 2 diabetes was 8.2 ± 0.3 years. All patients included in the study had clinical and instrumental manifestations of PSN, confirmed by the scales of Neuropathic Symptomatic Score (NSS) and Neuropathic Dysfunctional Score (NDS), followed by the division of patients into two groups: with severe symptoms of neuropathy (total score on the NSS scale> 14) and with moderately pronounced symptoms of neuropathy (overall score on the VAT scale 8-13). The subjects were tested for fasting blood glucose, glycosylated hemoglobin, total cholesterol (TC) and its fractions, triglycerides (TG). Statistical processing of the results was carried out by methods of parametric and nonparametric statistics and correlation analysis.

Results

All examined patients had lipid metabolism disorders manifested by highly atherogenic combined hyperlipoproteinemia with an increase in TC, low density lipoprotein and triglycerides, in combination with a decrease in the antiatherogenic fraction of high density lipoproteins. The TC was increased to 6.7 ± 0.14 mmol / L, low-density cholesterol to 3.7 ± 0.16 mmol / L, TG to 2.6 ± 0.13 mmol / L. The high-density cholesterol level was 0.85 ± 0.04 mmol / L. Fasting blood glucose - 6.7 ± 0.16 mmol / l, lycosylated hemoglobin 6.9 ± 0.12%. Hypercholesterolemia occurred in 97.3% of cases. In addition, an increase in the number of persons with hypertriglyceridemia was found to 54.4%. Along with this, a decrease in high-density cholesterol was noted in 17.1%, which indicates the presence of pronounced disorders of lipid metabolism. As a result of the performed correlation analysis, correlation interactions were established in patients with moderately severe symptoms of PSI: there was a significant direct relationship of moderate strength ($r = 0.37$, at $p < 0.05$) between the severity of neuropathy and the amount of total cholesterol, and a strong direct relationship ($r = 0.81$, at $p < 0.05$) with the amount of TG.

CONCLUSION

According to the results of the study, it was found that in patients with type 2 diabetes with peripheral sensorimotor neuropathy, in most cases there is hypercholesterolemia, which correlates with the severity of PSN.

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