Glimepiride in type 2 diabetes mellitus: effect on the fatty acids level

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Introduction

The appearance of sulfonylurea drugs in the list of sugar-reducing medicines is associated with the accidental opening of their hypoglycemic effect in the prescription of antibacterial sulfonamide terapy to the patients with infectious diseases. For today, three generations of these drugs are distinguished, among which the most used is glimepiride.

Aim of the study

To study possible effects of glimepiride on the palmitic acid level changes in patients with type 2 diabetes mellitus.

Materials and methods

The work involved 17 patients with type 2 diabetes in stage of subcompensation. The average age in main group was 51.2 ± 5.3 years, duration of illness was within 4-7 years. Complications of the disease corresponded to diabetic micro- and macroangiopathy. At the same time, patients with kidney disease and vascular events such as myocardial infarction or stroke were excluded from the study. The comparison group consisted of 10 healthy subjects of similar age and sex.

Results

Study of palmitic acid levels showed that indicators in patients of study group were almost twice lower than in the control group (24.2% ± 1.4, and 40.7% ± 0.9 respectively). Such a significant reduction in palmitic acid levels may lead to imbalance of the cell membrane structure, its instability, and instability to the action of the pathological agent. That is, there were conditions for the chronicity of the disease and increased apoptosis. All patients of the study group were given sugar-reducing drugs of sulfonylureas group – glimepiride in doze 4 mg per day. The second study of palmitic acid was conducted after 3 months of treatment. So, palmitic acid levels after treatment in the study group was 34.1% ± 1.5. That is, it was found that prescription of glimepiride in the treatment of type 2 diabetes mellitus had a positive effect on palmitic acid indicators. Such changes can provide improvement in the general condition of patients, prevention of complications of the disease and monitoring its progress.

Conclusions

Changes in the rates of palmitic acid in patients with type 2 diabetes, provokes the cell membrane damage and, thus, the progression of diabetes due to activation of lipid peroxidation and accelerated apoptosis. Using glimepiride in treatment contributes to positive changes in indicators, that points to a pathogenetic effect of this drug on the course of diabetes.