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RATIONALE FOR CORRECTION OF ENDOTHELYE DYSFUNCTION WITH QUERCETIN IN COMPLEX TREATMENT OF NON-ALCOHOLIC STEATOGEPATITIS AND DIABETIC KIDNEY DISEASE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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The aim of the study was to determine the probable effect of a complex of metformin, rosuvastatin, essential forte H and quercetin on the functional state of the endothelium, which is a factor in the progression of nonalcoholic steatohepatitis and diabetic kidney disease in patients with type 2 diabetes.

Material and methods. Studies in the dynamics of treatment in 60 patients with non-alcoholic steatohepatitis with type 2 diabetes mellitus and stage I-III diabetes mellitus. Depending on the prescribed treatment on a random basis, the examined patients were divided into 2 groups: (1 group - control: 28 people) received a low-calorie diet subject to dietary restrictions №9, essential phospholipids EPL (Essentiale forte H) 300 mg 2 caps. 3 times a day) 30 days for the treatment of non-alcoholic steatohepatitis, for the treatment of type 2 diabetes mellitus and hyperlipidemia prescribed metformin hydrochloride 1000 mg per day, rosuvastatin (5 mg 1 time per day) for 1 month. Group 2 consisted of patients (32 people) who, in addition to similar dietary recommendations, essential phospholipids, hypoglycemic and hypolipidemic therapy for a month, additionally received quercetin and povidone (Corvitin) 500 mg intravenously in 100 ml of isotonic sodium 10 mg . The mean age of patients was (53.8 ± 3.52) years. The comparison group consisted of 30 healthy individuals (30s) of the appropriate age. Studies of endothelial dysfunction (ED) were performed by a non-invasive method by determining the endothelium-dependent vasodilation (EDVD) of the brachial artery (BA), using a test with reactive hyperemia on the device ALOKA-4000 (Japan). Measurements were performed three times according to the standard method of Celermajer D.S. et al. in modification Kravchun PG et al., as well as the content in the blood of stable metabolites of NO (nitrites, nitrates) by the method of L.C. Green et al. by enzyme-linked immunosorbent assay (ELISA), the number of desquamated (exfoliated) endothelial cells (DEC).

Research results and their discussion. To check the degree of endothelium-protective effect of Quercetin on the background of the therapy recommended by the protocol, ED markers were determined in patients. Thus, significantly reduced (1.7

times) before treatment, the NO content in patients of the 1st group increased unlikely ($p > 0.05$), and in the 2nd group - 1.5 times ($p < 0.05$), which can be explained by the effect of Quercetin as an endothelioprotector, as well as due to metformin, which reduces insulin resistance and helps to reduce body weight, reduce hyperlipidemia and the likelihood of deposition of proatherogenic fractions subendothelial. Significantly reduced in patients of both groups before treatment of EDVD BA (1.7 times) after treatment increased 1.8 times ($p < 0.05$) only in patients of group 2 and reached the normative values, which is evidence of the restoration of vascular tone. Prior to treatment, the rate of DEC in patients of both groups exceeded the normative values by 1.9 times ($p < 0.05$). At the same time, DEC in response to treatment was significantly reduced: in patients of group 1 - by 14.4%, group 2 - by 38.2% ($p < 0.05$) with a probable intergroup difference ($p < 0.05$) and actual normalization of the indicator in patients of group 2. The results suggest that both statins, and EPL, and Quercetin have a probable endothelial protective effect, but the effect of Quercetin - decisive, and is achieved in a relatively short period of use.

Conclusion. Combination therapy of non-alcoholic steatohepatitis and type 2 diabetes mellitus with diabetic kidney disease with essential phospholipids, statins and metformin with the addition of quercetin is more effective than traditional therapy because it restores the functional state of the endothelium, that is, reduces the number of desquamated endothelial cells, growth of endothelium-dependent vasodilation of the brachial artery, the content of nitrogen monoxide in the blood.

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