

Clinical and functional evaluation of combined treatment in the prevention of diabetic retinopathy

Zhalalova D.Z., Odilova A., Khasanov Zh.

Samarkand State Medical University, Samarkand, Uzbekistan.

Resume. With the advent of methods of intravitreal administration of crystalline corticosteroids and vascular endothelial growth factor inhibitors, they began to be combined with various variants of laser interventions. Having failed to meet the expectations (in terms of isolated therapy), the introduction of crystalline corticosteroids or angiogenesis inhibitors into the vitreous body is currently actively used as a method of combined treatment together with laser coagulation, which has significantly greater effectiveness .

Key words: dyslipidemia, fenofibrate, diabetic retinopathy, macular edema, laser coagulation

Purpose of the work

To evaluate the effectiveness of fenofibrate therapy in terms of preventing clinically significant retinal changes in patients with type 2 diabetes mellitus.

Material and methods

Patients were observed for a year. When included in the study (visit 1), after 6 and 12 months, all of them underwent a complete ophthalmological examination with mandatory seven-field stereophotography of standard retinal fields and optical coherence tomography. Fluorescence angiography was performed to determine the area of macular edema and in case of suspicion of the presence of newly formed vessels.

The study included 60 patients with type 2 diabetes mellitus (35 people — 70 eyes — the main group, 25-50 eyes — the control group). Patients in the main group received fenofibrate at a dosage of 200 mg / day, once a day during one of the main meals. The patients of the control group were under observation. All patients (main and control groups) were recommended to follow a diet.

In the main group, there was an approximately equal distribution by gender — 48.6% (17) of men and 51.4% (18) of women, in the control group women prevailed: 76.0% (19) and 24.0% (6) respectively. The duration of diabetes mellitus was approximately the same — 14.13 ± 7.78 years in the main group and 14.57 ± 7.3 years in the control group.

A fairly uniform distribution was also observed for the treatment option of the underlying disease — in the main group, 42.8% (15) of patients took tableted hypoglycemic drugs and 57.2% (20) of patients received insulin, in the control group — 52.0% (13) and 48.0% (12), respectively. The average lipid metabolism was moderately elevated in patients of both groups.

Results and discussion

When analyzing the main biochemical parameters after 6 and 12 months, there was a slight decrease in the level of glycated hemoglobin HbA1 in both the main and control groups, but the shifts were statistically unreliable. When assessing the lipid profile indicators, there was a significant positive dynamics in the reduction of the average level of total cholesterol, triglycerides, LDL and VLDL in the main group. Progression of diabetic retinopathy after 12 months of follow—up in the sleep group was observed in 9 eyes - in 12.8% of cases (why 2 eyes for two steps on the ETDRS scale). The appearance of retinal neovascularization was not registered in the main group. Focal (lattice-type) retinal laser coagulation for macular edema was required in 2 eyes (one person) in the main group (2.9%). Regression of retinopathy (a decrease in the ETDRS level) was observed in 5 eyes (7.1%). In the control group, the progression of diabetic retinopathy over 12 months of follow—up was detected in 14 eyes - in 28.0% of cases (and in 2 eyes by two steps on the ETDRS scale, and in 1 by three steps on the ETDRS scale). Focal (lattice-type) retinal laser coagulation for macular edema was required in 5 eyes (3 patients) in the control group (10.0%).

When assessing changes in the thickness and volume of the macular retina during the study period in the main and control groups, no significant differences were obtained, except for the dynamics of the volume of the macular retina in the main group ($p = 0.03$). However, in the control group there was a tendency to increase these indicators

Thus, the data obtained during the study indicate that fenofibrate therapy can be effective in terms of both normalization of lipid metabolism and prevention of the development of clinically significant retinal changes (secondary prophylaxis) in patients with type 2 diabetes mellitus. The use of fenofibrate significantly reduces the risk of progression of diabetic retinal changes from 28.0% to 12.8% ($p = 0.04$) and the need for laser treatment from 16.0% to 2.9% ($p = 0.02$).

Conclusion. Significant risk factors for the progression of diabetic retinopathy to clinically significant changes requiring laser retinal coagulation were: high blood pressure and high average triglyceride levels.

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