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Slezavit as a Component of Neuroprotective Therapy for Primary Open-Angle Glaucoma

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ABSTRACT

The term "glaucoma" unites a large group of eye diseases of various origins with a progradient, chronic course. As a rule, glaucoma occurs with an increase in the level of intraocular pressure (IOP; with the exception of glaucoma with the so-called low (pseudo-normal) pressure), the development of optic neuropathy, which is manifested by characteristic changes in the retinal fibers of the retina of the optic nerve head, and progressively worsening visual functions with the appearance of typical visual field defects.

Keywords:

Glaucoma, eye

Primary open-angle glaucoma (POAG) is a chronic disease that affects the working population and older age groups. POAG leads in the number of cases among all types of glaucoma and reaches 80% of the total number of patients.

Every year, 1 in 1,000 people in the 40 to 45 age group develop glaucoma again. Currently, there are about 67-70 million people worldwide who lose their sight from glaucoma, and one in ten of them is already blind.

In the pathogenesis of the development of glaucomatous lesions, the main stages of development are distinguished:

1. violation and deterioration of the outflow of aqueous humor from the cavity of the eyeball;
2. increase in IOP above the level tolerable for this eye;
3. deterioration of blood circulation in the tissues of the eye;
4. hypoxia and ischemia in the area of the exit of the optic nerve and, as a result, activation of lipid peroxidation;
5. activation of microglia and synthesis of extremely aggressive substances, such as free radicals (superoxide anion, nitric oxide) and

glutamate, which have a damaging effect on the nervous tissue;

6. compression of nerve fibers in the area of their exit from the eyeball, which leads to disruption of their function and death;

7. dystrophy and atrophy of the visual fibers, the disintegration of their maternal retinal ganglion cells;

8. development of glaucomatous optic atrophy and subsequent atrophy of the optic nerve.

Depending on the development of the glaucomatous process, some of the nerve fibers of the optic nerve atrophy, and some are in a state of parabiosis, which makes it possible to restore their function under the influence of treatment (medication or surgery).

One important postulate follows from the above. Treatment of glaucoma is aimed primarily at normalizing the level of IOP and bringing it to an individual tolerant level - i.e. values carried by the optic nerve of a particular patient (usually 16–18 mmHg when measured with a standard Maklakov tonometer). This is the so-called. target pressure - the level of IOP that the ophthalmologist prescribing drops and the surgeon performing anti-glaucoma surgery

strive for. The effect of treatment primarily depends on the preservation of the nervous tissue.

Currently, medical treatment of glaucoma is carried out in three main areas:

- therapy aimed at lowering IOP (ophthalmohypotensive therapy);
- therapy that improves the blood supply to the inner membranes of the eye and the intraocular part of the optic nerve;
- therapy aimed at normalizing metabolic processes (metabolism) in the tissues of the eye in order to influence the degenerative processes characteristic of glaucoma (neuroprotective therapy).

The essence of neuroprotective treatment is to prevent the cascade of reactions that cause damage to neurons, mainly due to ischemia. It should be emphasized that we are talking about sequentially developing reactions, when more and more new neurons are involved in the pathological process, and the affected tissues surrounding them themselves become a source of pathological phenomena. In this regard, neuroprotective treatment should be carried out within the framework of the so-called. therapeutic window, when the damage to the nervous tissue has not yet become irreversible. Vitamins are traditionally used in the treatment of glaucoma optical therapy.

Vitamin E (α-tocopherol) proved to be the most positive, which protects the retina from light damage, and neurons from the pathological effects of reperfusion, and the drug is especially effective in combination with B vitamins.

The beneficial properties of vitamin C have long been known, which, along with antioxidant effects, can reduce IOP and, like vitamin E, suppress the proliferation of fibroblasts in the Tenon's capsule of the eye.

Slezavit is a complex of vitamins, minerals, plant carotenoids and anthocyanosides. It has a powerful antioxidant effect, acting on lipid peroxidation products due to its constituent vitamins: C, E and selenium, protective (lutein, vitamin A) and metabolic action (zinc and vitamin B12).

The drug is used in capsules for visual fatigue syndrome, myopia, central and peripheral retinal dystrophies, diabetic retinopathy, in

violation of the mechanism of adaptation of vision to darkness.

Considering all of the above, we at our Bukhara branch of RSSPMCMG used this drug in the complex neuroprotective treatment of POAG with stabilization of hydrodynamic parameters (reduction of IOP to tolerant values).

Materials and methods

25 patients were examined (including 15 women and 10 men), average age 55-60 years with a confirmed diagnosis of "Primary open-angle glaucoma".

Patient Inclusion Criteria

1. Patients with an established diagnosis of POAG.
2. Voluntary consent of patients to participate in the study.

Patient Exclusion Criteria

1. Patients with established other types of glaucoma.
2. Violation of refraction, which prevents the necessary set of diagnostic measures.
3. Refusal of the patient to participate in the study.

Research methods used:

- Visometry (sign projector Topcon-ACP-7 (Japan);
- optical coherence tomography -
- computer perimetry on the perimeter of Humphrey (USA).

The drug was prescribed 1 capsule 1 time per day, in the morning after meals for 3 months.

The first study was conducted before the start of treatment. All patients underwent the planned examinations, for each an outpatient card was entered, in which the patient's passport data, ophthalmological examination data and examination results were entered.

Research results

1. Significant improvement in the subjective state.
2. Increase in visual acuity from 0.829 ± 0.183 to 0.839 ± 0.175 ($n > 0.05$).
3. Expanding the boundaries of the field of view.
4. Increase in overall light sensitivity from 2002.7 ± 131.31 dB to 2094 ± 208.2 dB ($n < 0.05$).

Conclusions

1. Against the background of the use of Slezavit, an improvement in the subjective state was noted.
2. The inclusion of this vitamin complex in the neuroprotective treatment of POAG leads to the stabilization of visual functions.
3. This drug can be recommended as background neuroprotective therapy.

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