

THE USE OF HIRUDOTHERAPY IN OPHTHALMOLOGY

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Introduction:In the modern world, hirudotherapy is becoming an increasingly popular procedure. With the increasing number of people who have tested the healing effect of leeches on themselves, the number of studies on this topic is also growing.

In ophthalmology, hirudotherapy has also found a fairly wide application. Direct indications for the diagnosis of leeches in ophthalmological diagnoses are increased intraocular pressure, eye injury, eye burns, as well as in the postoperative period. In an acute attack of glaucoma, hirudotherapy is one of the few ways to save the patient's eyesight. The urgency of solving the problem of glaucoma treatment has not weakened over the years. On the contrary, the number of people seeking help is only growing. And hirudotherapy occupies a special place in the treatment of the disease.

The successful treatment of glaucoma directly depends on the stabilization of local hemodynamics and microcirculation. Therefore, it is hirudotherapy that can positively affect the treatment process and should be chosen as the main method of treatment.

Keywords:Traditional medicine, hirudotherapy, glaucoma, treatment.

The urgency of the problem of glaucoma has not weakened over the years. Despite the success of hypotensive and surgical treatment, more than half of glaucoma patients with normalized intraocular pressure (IOP) experience progressive deterioration of visual functions. The stabilization of the glaucoma process directly depends on the state of blood supply to the optic nerve, general and local hemodynamics and microcirculation. Therefore, one of the priorities in

the treatment of glaucoma optic neuropathy (GON) is to improve the rheological properties of blood and intraocular microcirculation.

In recent years, as the mechanisms of the therapeutic effect of medical leeches on the human body have been studied, interest in hirudotherapy has increased. Anti-ischemic, antihypoxic, anticoagulant, thrombolytic, neurotrophic, reflexogenic - this is an incomplete list of effects caused by a medical leech.

The data obtained by I.P. Baskova and G.I. Nikonov when studying the action of a medical leech indicate a significant effect of hirudotherapy on hemostasis, transcapillary metabolism and neurohumoral status of a person. The effects of hirudotherapy are due to the more than 80 biologically active substances contained in the salivary glands of the medical leech. The main ones are:

1. Hirudin is an inhibitor of the thrombin enzyme;
2. Bdelins are trypsin and plasmin inhibitors;
3. Eglins are inhibitors of chymotrypsin, subtilisin, and cathepsin G.
4. The above components provide a blockade the hemostatic process.

5. Destabilase - carries out its fibrinolytic (thrombolytic) activity by hydrolysis of isopeptide bonds, as well as exhibits bactericidal activity.

6. Plasma kallikrein inhibitor blocks the activity of kinins.

7. Hyaluronidase, catalyzing the reactions of hydrolytic cleavage and depolymerization of hyaluronic acid and acidic mucopolysaccharides, changes the degree of tissue hydration, water and ion transport.

Neuritis-stimulating and neurotrophic activity of the components of the salivary gland secretion of a medical leech has been proven (growth has been detected nerve elements in the culture of spinal ganglia of chicken embryos). Stimulation of biologically active points (BAP) during blood sucking has an effect due to the physiological reflex activation of central brain structures and the involvement of endogenous neurohumoral factors regulating autonomic functions.

In turn, the two main mechanisms of glaucoma development (hydromechanical and metabolic) have identified the main tasks in its treatment. One of them is the reduction of IOP to the so-called "target pressure", the other is the correction of hemomicrocirculatory and metabolic disorders, as well as the implementation of neuroretinoprotection. Hirudotherapy, without excluding the need for hypotensive and/ or surgical treatment, fully meets the above requirements.

Materials and methods: Indications for treatment with leeches are operated and non-operated primary open-angle glaucoma of all stages, including those occurring against the background of concomitant diseases (hypertension, atherosclerosis of blood vessels, coronary heart disease, diabetes mellitus, etc.), an acute attack of angle-closure glaucoma, as well as all forms of secondary glaucoma. An absolute contraindication to hirudotherapy is hemophilia. Treatment methods (number of leeches per session and course, selection of reflexogenic zones and acupuncture points, as well as their combinations) It is based on the need to correct clinically significant pathological conditions of the patient. We use leech installations according

to the traditional "zonal" principle on the temporal, brow areas and biologically active points. The first principle implies setting the zones of Zakharin-Ged on the head and face - the temporal and brow regions, as well as the zones of cutaneous visceral venous anastomoses according to S.Z. Zaslavskaya on the head - the area of mastoid processes and the angle of the lower jaw. An adequate selection of irritation zones allows to achieve maximum results. Our experience shows that the most pronounced and persistent clinical effect is observed in patients who received complex hirudoreflexotherapy and zonal hirudotherapy. Treatment is carried out on an outpatient basis, the course is on average 20 leeches, productions are carried out in 1-2 days, 2-6 pieces per session with maximum exposure.

Hirudotherapy of glaucoma patients leads to improved vision, normalization and stabilization of blood pressure, positive changes in the emotional and personal sphere, increased physical and mental activity. It regresses asthenic syndrome, which often accompanies the underlying disease. The elimination of regional microcirculatory disorders makes it possible to eliminate the phenomena of facial prosopalgia of myogenic origin. In an acute attack of glaucoma or secondary glaucoma with pain syndrome, decongestion of the eyeball leads to a rapid and significant reduction in pain. We analyzed the results of treatment with leeches in 47 patients with primary open-angle glaucoma (POAG). Visual acuity, intraocular pressure (IOP), hydrodynamic, hemodynamic (rheophthalmoencephalographic and rheoencephalographic) and electrophysiological changes (in

particular, the dynamics of retinal contrast sensitivity) were studied before treatment, immediately after completion and three months after hirudotherapy.

Statistical processing of the material was carried out using the "Biostat" program.

Results and discussion. The decrease in ophthalmotonus noted as a result of treatment was mainly due to a decrease in the production of intraocular fluid. On average, IOP decreased by 3.8 mmHg, but this indicator was unreliable ($p > 0.05$). We have revealed a significant increase in the contrast sensitivity of the retina in the high and medium frequencies (on average - from 194.4 to 248.8 db, $p < 0.001$), in that range, which is most affected by glaucoma. According to computer perimetry data, the retinal photosensitivity deficit decreased by 1.01 db (from 4.18 to 3.17, $p < 0.05$), the average value of deviations from normal retinal photosensitivity MD decreased by an average of 0.34 db (from -2.56 to -2.22, $p < 0.05$).

As a result of hirudotherapy, hemodynamic parameters improved. Thus, rheophthalmography showed a decrease in the asymmetry of the blood flow of the two eyes by an average of two times, an increase in pulse volume (according to Kedrov) from an average of 13.62 to 16.28 cu ($p < 0.01$); an increase in the rheographic coefficient (according to Yantch) from an average of 1.88 to 2.25% ($p < 0.05$). We believe that the described effects are due to improved microcirculation and lymph circulation, as well as changes in coagulation hemostasis. Improvement of blood circulation in the optic nerve, the effect of neurotrophic factors and neuritis-stimulating activity of the components of the salivary gland secretion of the medical leech contribute to the reversibility of parabiosis processes, maintaining the life of neurons and preserving visual functions in patients with glaucoma.

Subjectively, leech treatment is well tolerated by patients. Complications occur only in 2% of cases and manifest themselves in the form of a local allergic reaction – hyperemia and local edema.

Conclusion: Thus, hirudotherapy gives positive clinical results, has a polyvalent effect on the patient's body and is well tolerated, which makes it possible to recommend its widespread introduction into the practice of conservative treatment of glaucoma.

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