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Treatment of Refractory Glaucoma by Transscleral Cyclophotocogulation in Micropulse Mode

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Relevance. Neovascular glaucoma (NVG) is one of the most severe forms of secondary glaucoma due to the severe general background and local changes in the form of newly formed vessels in the iris and the anterior chamber angle. A number of diseases can lead to the development of NVG.

One of the most effective cyclodestructive interventions in the treatment of NVG is the use of a new promising technology - contact micropulse transscleral laser cyclophotocoagulation .

The aim of the study was to evaluate the effectiveness of transscleral cyclophotocoagulation with a diode laser in micropulse mode and its effect on the clinical course of neovascular glaucoma.

Material and methods. Clinical studies were conducted on the basis of the eye diseases department of the multidisciplinary clinic of the Samarkand State Medical University and the Eye Center of OOO "A.A. Yusupov" in Samarkand on 30 patients with neovascular painful glaucoma. Of these, 21 were women and 9 were men. These patients had ischemic heart disease, hypertension, and diabetes mellitus.

To assess the state of the functions of the visual organ, the following were performed: examination of the anterior segment of the eye using biomicroscopy , determination of visual acuity, examination of the peripheral field of vision using a spheroperimeter , measurement of intraocular pressure (IOP) using a Maklakov tonometer , examination of the fundus using direct and reverse ophthalmoscopy, ultrasound examination, and gonioscopy .

The absence of visual functions and the presence of severe pain syndrome have long been an indication for the removal of eyes with terminal painful glaucoma. An attempt to preserve the eye as an organ formed the basis of laser cyclophotocoagulation .

At a distance of 4 mm from the limbus, laser photocoagulation of the ciliary body was performed in the projection of the flat part using a micropulse diode laser (SubCyclo Supra-810). The number of procedures for each patient was performed 2-3 times with intervals of 3-4 days. After the procedure, to relieve the inflammatory process, a 1% solution of pred-forte was prescribed, 1 drop 2 times, as well as a solution of kupen -forte, 1 drop 3 times a day. To dilate the pupil, we used a 2.5% solution of mydoptic , 1 drop 2 times a day for a week. In addition, to reduce IOP, a 0.5% solution of timolol was instilled , 1 drop 2 times a day.

Results and discussion. The effect of laser cyclophotocoagulation was studied according to the following criteria: corneal condition, pain syndrome and IOP level. Corneal edema before the procedure was observed in 24 eyes (80%). On the first day after laser photocoagulation of the ciliary body, the number of eyes with a transparent cornea reached 19 (63.33%), and a week later – 26 eyes (up to 86.6%).

Minor and severe pain before treatment was noted in 18 eyes (60%); immediately after the procedure, the number of eyes with pain syndrome, regardless of the level of IOP, decreased more than 4 times.

If before the operation the number of eyes with IOP of 50 mmHg and higher was observed in 21 eyes (70%), then already on the first postoperative day their number with IOP equal to 35 mmHg and lower reached 23 eyes (76.7%), by the end of the month – 24 eyes (80%), where IOP did not exceed 32 mmHg. The exception were 2 eyes (10%) of patients with IOP of 40-45 mmHg, which subsequently underwent trabeculectomy . We did not find a positive effect of this procedure on visual acuity, since before the operation the visual acuity in patients with neovascular glaucoma was 0 (zero).

Conclusions . Laser transscleral cyclophotocoagulation of the ciliary body in micropulse mode in neovascular painful glaucoma leads to a decrease in IOP, disappearance of pain syndrome, and is also a pathogenetically substantiated method of treatment and a preliminary stage for antiglaucoma surgery.

This method of technology is organ-preserving in nature, the main goal of which is to achieve an analgesic effect with a decrease in intraocular pressure and preservation of the eyeball as an organ.

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