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## TACTICS OF SURGICAL TREATMENT OF PATIENTS WITH OPEN-ANGLE GLAUCOMA AND CATARACTS

**Resume:** Surgical treatment of glaucoma is one of the most urgent problems of ophthalmic surgery. A set of measures to optimize the choice of surgical tactics in combination of glaucoma and cataract has been introduced into clinical practice, the possibility of combining neuroprotective therapy and anti-glaucoma surgery has been established, which makes a significant contribution to solving the problem of medical and social rehabilitation of patients with an actual combination of diseases.

Certain categories of glaucoma patients in need of surgical treatment require special attention.

*Key words:* cataract; open-angle glaucoma; pseudoexfoliation syndrome; phacoemulsification; facotrabecular ectomy; sinusotomy; viscocanalodilation.

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## ТАКТИКА ХИРУРГИЧЕСКОГО ЛЕЧЕНИЯ БОЛЬНЫХ ОТКРЫТОУГОЛЬНОЙ ГЛАУКОМЫ И КАТАРАКТЫ

**Резюме:** Хирургическое лечение глаукомы - одна из наиболее актуальных проблем офтальмохирургии. В клиническую практику внедрен комплекс мер по оптимизации выбора хирургической тактики при сочетании глаукомы и катаракты, установлена возможность совмещения нейропротекторной терапии и антиглаукомной операции, что вносит

существенный вклад в решение проблемы медико-социальной реабилитации больных с актуальным сочетанием болезней.

Определенные категории больных глаукомой, нуждающихся в хирургическом лечении, требуют особо пристального внимания.

*Ключевые слова:* катаракта; открытоугольная глаукома; псевдоэксфолиативный синдром; факоэмульсификация; факотрабекулэктомия; синусотомия; вискоканалодилатация.

**Relevance.** According to the literature, cataracts occur almost three times more often in patients with primary glaucoma older than 50 years than in the same age group of people who do not suffer from glaucoma: 4% and 1.4%, respectively, and progress faster. Within 1-2 years, cataract passes from the initial stage to the mature stage on average in 25% of patients with glaucoma and only in 11% of patients with age-related cataract[2,5,7].

Currently, there are 3 main approaches to the problem of surgical treatment of patients with a combination of cataract and primary glaucoma: 1) only cataract extraction (EC) with implantation of an intraocular lens (IOL), 2) combined simultaneous intervention with implantation of IOL ("triple procedure"), 3) two-stage treatment. Only cataract extraction without antiglaucoma intervention, popularized by a number of foreign authors, is possible only if the patient has normalized intraocular pressure (IOP) with minimal use of medications, as well as the absence of pronounced changes in the visual field and the optic nerve disc. The hypotensive effect of one EC is especially pronounced in patients with round-angle glaucoma and pseudoexfoliative syndrome[4,6,8].

With simultaneous intervention, anti-glaucoma surgery (AGO) and EC are combined. With regard to the anti-glaucoma component, some authors prefer

trabeculectomy, others - non-penetrating deep sclerectomy, trabeculectomy with intrascleral micro-drainage, deep sclerectomy, viscocanalostomy.

According to foreign authors, trabeculectomy remains the gold standard in glaucoma surgery.

Two-stage intervention involves the first stage of hypotensive surgery, and the second - cataract extraction. It is noted that if a patient needs a more significant reduction in IOP after surgery (for example, with advanced or advanced stage of glaucoma), a primary trabeculectomy performed before cataract extraction will be more preferable. The probable causes of failures in two-stage surgery are discussed and substantiated in the literature. Many works are also devoted to the comparison of combined and two-stage surgery. It should be noted that works comparing three main surgical approaches to the problem of surgical treatment of glaucoma and cataract are found only in foreign literature [1,2,3].

In recent years, the question of the expediency of implantation of an intraocular lens (IOL) with a combination of glaucoma and cataract is most often decided in favor of intraocular correction. This type of correction of aphakia is the most effective in patients with the advanced stage of glaucoma, in which defects in the central field of vision are aggravated by a significant narrowing of the peripheral boundaries. The fact of the possibility of obtaining favorable results of cataract surgery on a single eye with concomitant glaucoma has been established. Adequate ophthalmotonus is extremely important to ensure the uncomplicated conduct of the main stages of the operation and the preservation of the capsule bag. There are few reports of combined intervention on single eyes, most often they are regarded as an unjustified risk of increased complications.

The fact that glaucoma continues to progress in at least one in five patients for 15 years after successfully performed filtering surgery and normalized IOP makes us seriously think about the need for neuroprotective

therapy much more widely than it happens in everyday ophthalmological practice. Some optimism in the treatment of glaucoma is due to the appearance of peptide bioregulators - cytomedins. Currently, the peptide bioregulator retinalamine has found widespread use in ophthalmology, which is sufficient to inject into the subtenon space of the eye 1 time every 6 months (Havinson V.H., 2000). In the literature, the question of ways to introduce drugs in the treatment of glaucoma is discussed. There are no reports of combining an antiglaucomatous operation with the introduction of a medicinal substance into the subtenon space in the available literature.

Glaucoma in the world, as in the whole world, is one of the main causes of visual impairment and incurable blindness. Most patients with primary openangle glaucoma (POAG) are traditionally on hypotensive therapy, but up to 40% of patients still need surgical treatment[2,3]. However, a significant number of complications remain a serious problem. Among the reasons for the reduction of the hypotensive effect, the leading place is occupied by excessive scarring of the formed outflow pathways of intraocular fluid (HCV)[4,6]. There are ways to reduce the possibility of its development, for example, improving the technique of surgical interventions[2,4].

The effectiveness of surgical treatment of secondary glaucoma in the long term remains the least successful. This form is the main indication for the use of drains, however, a number of serious complications and the high cost of some of them are a limitation for widespread use [2,6]. In neovascular glaucoma (NVH), the isolated use of cyclodestructive or fistulizing operations (FO) often does not provide an adequate result due to the large number of complications and the impossibility of affecting all links of pathogenesis, but their combined use makes it possible to increase the effectiveness of treatment. The results of the treatment of NVH with the preliminary use of a vasculoendothelial growth factor (VEGF) inhibitor are insufficiently studied. Of great importance is the

formation of an integrated approach to the treatment of NVH, which is based on a combined mechanism of action, [4].

The aim of the study is to evaluate the effectiveness of modern methods of surgical treatment of patients with a combination of cataract and open-angle glaucoma.

**Materials and methods.** This open prospective study was based on the results of examination and surgical treatment of patients with a combination of cataracts and various stages of open-angle glaucoma (200 eyes).

The results of the study. Depending on the type of surgical intervention, the patients were divided into three groups. Group 1 included 81 patients (100 eyes) with a combination of cataract and drug-stabilized glaucoma, who underwent only phacoemulsification with implantation of an intraocular lens. Group 2 included 44 patients (50 eyes) with a combination of cataract and openangle glaucoma, who underwent phacoemulsification with implantation of an intraocular lens and sinusotomy with viscocanalodilation. Group 3 is represented by 44 patients (50 eyes) with a combination of cataracts and glaucoma who underwent facotrabeculectomy. The majority of patients had advanced and advanced stages of glaucoma (81%). Also, the majority of patients (71.5%) had pseudoexfoliative syndrome.

It was found that facotrabeculectomy and phacoemulsification with viscocanalodilation have a pronounced hypotensive effect and lead to a significant improvement in visual functions in patients with a combination of cataract and glaucoma, regardless of the stage of glaucoma and the presence of pseudoexfoliative syndrome. At the same time, phacoemulsification with sinusotomy and viscocanalodilation provides earlier restoration of visual acuity with fewer early postoperative complications in comparison with hypotensive is facotrabeculectomy, and the effect comparable facotrabeculectomy after additional laser goniopuncture, which was required in 58% of cases in the postoperative period.

Phacoemulsification in patients with a combination of cataracts and glaucoma, as a smaller intervention, is accompanied by the least number of complications, however, the hypotensive effect can be provided only if drug therapy of glaucoma is continued in the postoperative age.

**Conclusions.** Facotrabeculectomy and phacoemulsification with viscocanalodilation have a pronounced hypotensive effect and lead to a significant improvement in visual functions in patients with a combination of cataract and glaucoma, regardless of the stage of glaucoma and the presence of pseudoexfoliative syndrome.

Phacoemulsification with sinusotomy and viscocanalodilation provides a hypotensive effect comparable to facotrabeculectomy after additional laser goniopuncture, which was required in 58% of cases in the postoperative period.

Phacoemulsification with sinusotomy and viscocanalodilation provides earlier restoration of visual acuity with fewer early postoperative complications in comparison with facotrabeculectomy.

After phacoemulsification, fewer early postoperative complications were noted in patients with a combination of cataracts and glaucoma, however, the hypotensive effect can be provided only if the drug therapy of glaucoma continues.

Phacoemulsification can be performed in patients with a combination of cataracts and glaucoma in the absence of pronounced changes in the visual field and the optic nerve disc, as well as compliance with the patients' regime of antihypertensive drug installations. In other cases, it is advisable to perform phacoemulsification in combination with sinusotomy and viscocanalodilation.

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