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COMPARATIVE ANALYSIS OF THE DYNAMICS OF THE HYPOTENSIVE EFFICIENCY OF SINUS-TRABECULECTOMY WITH AUTOSCLERAL DRAINAGE AND STANDARD SINUS-TRABECULECTOMY IN THE TREATMENT OF PRIMARY OPEN-ANGLE GLAUCOMA

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ABSTRACT — **BACKGROUND.** The method of modified sinus-trabeculectomy with autoscleral drainage of the anterior chamber and suprachoroidal space was developed at the Department of Ophthalmology in the Peoples' Friendship University of Russia. To assess the antihypertensive efficacy, a comparative analysis of the results with the method of standard sinus-trabeculectomy was carried out.

AIM. To compare the dynamics of the results of hypotensive efficiency of the method of modified sinus-trabeculectomy with autoscleral drainage and standard sinus-trabeculectomy in the surgical treatment of Primary open-angle glaucoma (POAG).

MATERIAL AND METHODS. The results of surgical treatment in 75 patients (75 eyes) with primary open-angle glaucoma were studied. Patients were divided into two groups: the first group of 37 patients who were operated by modified sinus-trabeculectomy with autoscleral drainage of the anterior chamber and suprachoroidal space of autosclerosis, the second group (control) of 38 patients who underwent standard sinus-trabeculectomy. The follow-up period was 18 months.

FINDINGS. In the remote postoperative period (after 18 months.) in the first group, 36 patients had normalization and stabilization of ophthalmo-tonus (IOP P (0) averaged 14.6 ± 1.4 mm Hg in one (1) case, there was a moderate increase in the level of IOP, for which hypotensive therapy (beta-blockers) was prescribed. In the second group, IOP P (0) averaged 18.1 ± 1.1 mmHg, the normalization of IOP was observed in 35 patients, in three (3) cases there was an increase in the level of IOP, for which hypotensive therapy (beta-blockers) was also prescribed.

CONCLUSION. The highest and persistent hypotensive effect and fewer failures were achieved after the modified sinus-trabeculectomy technique using autoscleral drainage.

KEYWORDS — glaucoma, sinus-trabeculectomy, drainage surgery of glaucoma.

INTRODUCTION

On the basis of numerous studies, it has been proved that the main reason for reducing the duration of the hypotensive effect after filter surgery of glaucoma is the scarring process [1,2,3]. Since 2008 to the present day, the Russian University of peoples' friendship conducts research in this direction [4,5]. Thus, to combat this problem and to prolong the hypotensive effect of standard sinus-trabeculectomy, in 2017 at the Department of eye diseases of the peoples' friendship University Of Russia, it was decided to include basal iridectomy, deep sclerectomy, drainage of the anterior chamber and suprachoroidal space via autoscleral in the scope of the operation.

AIM OF THE RESEARCH

The aim is to compare the dynamics of the results of the hypotensive efficiency of the method of modified sinus-trabeculectomy with autoscleral drainage and standard sinus-trabeculectomy in the surgical treatment of POAG.

MATERIAL AND METHODS

The Protocol of the study was approved by the local ethics Committee (No. 24 of 21.09.2017) and written informed consent was obtained from each patient. 75 patients (75 eyes) with uncompensated b-c II-III-IV stages of primary open-angle glaucoma (POAG) were observed at the maximum hypotensive mode of instillation of drugs in the form of non-selective blockers-2-adrenoreceptors, analogues of prostaglandins F2a and inhibitors of carbonic anhydrase, previously unoperated for glaucoma. Of these, 41 (54.7%) are female, 34 (45.3%) are male. The age ranged from 57 to 94 years. All patients were divided into two groups: 37 patients of the main group (37 eyes) underwent modified sinus-trabeculectomy with autoscleral drainage (received Russian patent for invention No. 2674088 dated 04.12.2018), 38 patients of the control group (38 eyes) — standard sinus-trabeculectomy. The follow-up

period was 18 months. Duration of glaucoma — 4 to 15 years. Patients were examined according to generally accepted standards in the following scope: visometry, biomicroscopy, gonioscopy, ophthalmoscopy, perimetry. To calculate IOP, patients underwent electronic tonography with glaucom 60 eye tonograph on the day before surgery and every 3 months thereafter, inclusive, and at the 18th month of follow-up. The mean intraocular pressure (IOP) before surgery in the main group was $P_0 27.2 \pm 3.8$ mm Hg for example, the coefficient of ease of outflow on average $C = 0.06 \pm 0.03$ mm³ (min. mm Hg), in the control — 26.9 ± 3.5 mm Hg, the coefficient of ease of outflow on average $C = 0.06 \pm 0.04$ mm³ (min. mm Hg). The criteria for evaluating the results in both groups were: the level of IOP (P₀), the coefficient of ease of outflow of IOP (C), the need for additional hypotensive therapy, the presence of early and long-term postoperative complications.

RESEARCH RESULTS

Intraoperative and early postoperative periods were without complications. In the first day after surgery, all patients were visualized filtration pad (AF), and there was a mild inflammatory reaction of the first (I) degree, according to the classification of S.N. Fedorov–E. V. Egorova (1992). In the postoperative period (Fig.1) (18 months) after electron tonog-

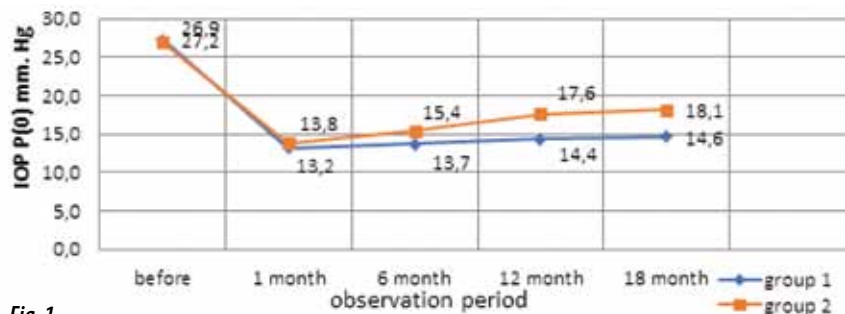


Fig. 1

raphy, in the first group 36 (97.3%) patients showed normalization of IOP, mean P₀ (14.6 ± 1.4 mm Hg (0.35 ± 0.08 mm³ (min. mm Hg)), increased outflow of HG_V and in one case (2.7%) there was an increase in IOP (P₀) 22 mmHg, $C = 0.12$ mm³ (min. mmHg); in the second group, normalization of IOP was achieved in 35 cases (92.1%), which required the addition of drug therapy (Beta 1,2 – blockers), the level of IOP was on average P₀ (18.1 ± 1.1 mm Hg), C (0.21 ± 0.05 mm³ (min. mm Hg) and in 3 cases (7.9%) it was noted ophthalmic hypertension max. to (P₀) 24 mm Hg, $C = 0.10$ mm³ (min. mmHg)), which also required the addition of Beta 1,2-blockers in all 3 cases.

CONCLUSION

The results of comparative evaluation of surgical treatment of POAG showed that the highest and persistent hypotensive effect and a more pronounced coefficient of ease of outflow as well as a lower incidence of ophthalmic hypertension were achieved after the operation of modified sinus-trabeculectomy with autoscleral drainage, the lowest effect — after the sinus-trabeculectomy by standard technique.

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