

Summary

Postoperative care for patients after vitrectomy with focus on secondary glaucoma

The first part of the thesis discusses the relationship between the occurrence of secondary glaucoma (SG) after pars plana vitrectomy (PPV) and individual surgical techniques, taking into consideration functional outcomes of the treatment – visual acuity and intraocular pressure (IOP). SG after PPV occurred in 126 eyes, i.e. in 16,5%. In all patients with SG a meticulous ocular examination was carried out after 3, 6, 12 and 18 months, and a final examination after 43,6 months. Overall 69% of eyes with SG underwent a PPV because of retinal detachment and 19,8% because of vitreous hemorrhage. High viscosity silicon oil tamponade (SO) was employed in 75,4% of eyes, low viscosity tamponade in mere 1,6% of eyes, a tamponade by SF6 gas in 10,3% of eyes and by BSS solution in 12,7% of eyes.

Following are the functional outcomes of the treatment: a) visual acuity improved from 0,1 to 0,2, however, by the final examination we registered an increase of incerta caused by decompensation of eyes with secondary neovascular glaucoma (SNVG); b) after a year 74,6% of eyes showed a stabilized IOP of ≤ 22 mm Hg, after 18 months 76,7% and by the final examination 81,8%; c) by the final examination 26,4% of eyes did not require any treatment, while 73,6% demanded a pharmacological treatment.

The second part of the thesis assesses the influence of secondary neovascular glaucoma on the tissues of the anterior eye segment. Sixteen patients with SNVG after PPV were examined by means of the OCT Visante and ORA devices. Findings on the afflicted eye were compared to the patient's second eye. In all patients a photographic documentation was taken.

We clearly proved that SNVG has an influence on the anterior eye segment tissues. Eyes with SNVG display a significant increase of cornea thickness (594 μm) compared to the other eyes (535 μm). The chamber angle in eyes with SNVG is narrow and closed (3°) compared to the other eyes (24°), while the difference is statistically significant. The anterior chamber of SNVG eyes is more shallow (3,01 mm) than of the control eyes (3,04 mm), yet the difference is statistically insignificant due to heterogeneous nature of the examined group, as it can be in some eyes biased by an anterior chamber deepening after a cataract surgery.

As a result of diabetes and glaucoma the cornea changes its structure and therefore also its biomechanics features. IOP compensated by the cornea (IOPcc) was higher in the eyes with SNVG (36,2 mm Hg) than Goldmann's IOP (33,4 mm Hg) and the difference was statistically significant. In the group of control eyes the IOPcc also measured slightly higher (20,1 mm Hg) than IOPg (19,7 mm Hg), but the difference was statistically insignificant. The hysteresis values in eyes with SNVG turned out to be markedly lower (4.9 mm Hg) compared to the control eyes (10,0 mm Hg) and the difference is statistically significant. The corneal resistance factor (11,2 mm Hg) was in the eyes with SNVG almost equal as in the group of control eyes (11,3 mm Hg). The difference between CH and CRF in diseased eyes (6,3 mm Hg) proved to be remarkably higher than the stated norm of 2 mm Hg and is statistically significant. The low hysteresis indicates a distinctive progress of the glaucoma.