Clinical outcome of the combination of phacoemulsification and trabeculotomy

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Purpose:
In the elderly population a combination of cataract and glaucoma is very common. In this situation, several surgical options are available to combine cataract with intraocular lens implantation and trabeculotomy1,2. Trabeculotomy effectively reduces intraocular pressure (IOP) in adult patients with primary open-angle glaucoma3,4 and is associated with a lower rate of postoperative complications including flat anterior chambers or serious choroidal detachment than trabeculectomy3,4. The aim of the study was to analyze the effect of axis length (AL) anterior chamber angle (ACA) and depth of the anterior chamber (DAC) on the postoperative visual outcome and intraocular pressure decrease (ΔIOP).

Patients and Methods:
In this retrospective single-center study, 54 eyes of 35 cataract patients with primary open-angle or chronic angle-closure glaucoma were included. All of them underwent phacoemulsification with IOL implantation in combination with trabeculotomy by the same surgeon. Preoperatively AL, ACA and DAC were measured. Pre- and postoperative best corrected visual acuity (BCVA) and intraocular pressure (IOP) were assessed. The median follow-up period was more than 6 months. For statistical analysis, SPSS software (SPSS, Inc.) was used. Correlations were tested by means of Pearson’s rank correlation coefficient.

Results:
Mean age was 77.4±6.2 years (Fig. 1). Mean best-corrected visual acuity (BCVA) raised from 0.4±0.27 preoperatively to 0.6±0.36 postoperatively (Fig. 2). Postoperative BCVA ranged between 0.1 and 1.0. Mean preoperative IOP was 17.8±5.1 mmHg and could be reduced to 12.5±2.3 mm Hg at the end of follow-up (at least 6 months after surgery, Fig. 3), which indicated an IOP decrease in 88% of eyes. An increase of IOP was observed in 5% of eyes. Mean ACA was 33.3±8.6°; DCA 3.1±0.5; AL was 23.2±2. There was no statistically significant correlation between ΔIOP and ACA or AL (Fig. 4 and 5). In contrast, a significant correlation was found between ΔIOP and DAC (r² = 0.154, p < 0.05) (Fig. 6).

Conclusions:
Combined phacoemulsification with trabeculotomy is a safe and effective surgery for elderly patients in terms of IOP regulation. The preoperative depth of the anterior chamber but not the width of the anterior chamber angle and axial length seem to have a significant effect on the outcome of IOP.

References: