Incidence of hypotony after cyclophotocoagulation following trabeculectomy (TE) with mitomycin C (MMC)
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Introduction: Transscleral diode laser cyclophotocoagulation (TSCPC) has been established as a safe and effective intervention technique for glaucoma resistant to conventional management. Potential risk factors and the efficacy of the procedure after filtering surgery are not fully understood. The aim of this study was to evaluate predictive factors for the development of hypotonia after TSCPC in patients after TE and MMC in comparison with a control group.

Patients and methods: In this retrospective study we evaluated 131 eyes of 113 patients who underwent TSCPC with a diode laser OcuLightâSLx between 2009 and 2012. We included patients with therapy resistant glaucoma, defined as intraocular pressure (IOP) > 21 mmHg with a maximum topical therapy with or without glaucoma surgery in the past. In all patients a manifest primary open angle glaucoma (PCOWG) or pseudoexfoliation glaucoma (PEXG) was documented. Group 1 included patients with TSCPC following TE and MMC. The control group (group 2) included patients without history of glaucoma surgery. We performed data analysis using SPSS (version 197.0).

Results: The preoperative IOP in group 1 was 22.2 ± 9.2 / 18.1 ± 7.7 mmHg and in group 2 it was 25.8 ± 12.7 / 30.5 ± 14 mmHg, respectively. The cumulative energy after TSCPC in group 1 was 88.9 ± 27.8 / 102 ± 23.1 J and in group 2 it was 92.7 ± 24.7 / 101.3 ± 24.5 J, respectively. The mean number of laser pulses was 17.2 ± 4 / 18.3 ± 3.5 in group 1 and 17.8 ± 4.4 / 18.3 ± 4.7 in group 2. The IOP in group 1: 1 day/1 week/6 months after surgery was 14.6 ± 4.5 / 14.9 ± 7.5 / 12.9 ± 4.6 with PCOWG and 14.5 ± 7.4 / 12.9 ± 4.4 / 10.7 ± 2.3 mmHg with PEXG. In group 2 the respective values were 15.1 ± 6.2 / 15.5 ± 6.3 / 15.6 ± 8.0 for PCOWG and 17.3 ± 9.5 / 11.8 ± 6.5 / 19.3 ± 17.9 for PEXG. Five eyes with PCOWG in group 1 developed a hypotony (< 5 mmHg) which recovered after a 6 months follow-up. But no eye with PEXG developed hypotony.

Conclusion: The effectiveness of the dosis-effect-relation is depended on individual factors that are still not fully explained. Patients who are scheduled for a TSCPC following TE should be informed about the potential risk of hypotonia after surgery.