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Predictive factors for $\geq 20\%$ IOP reduction in glaucomatous eyes undergoing ab-interno canaloplasty

Purpose: To evaluate whether preoperative intraocular pressure (IOP) and medication burden can predict the 20% IOP reduction success rate.

Setting: Data extracted from the International Glaucoma Surgery Registry—a prospective multicenter database of glaucoma surgeries that is globally available.

Methods: Glaucoma eyes which underwent ab-interno canaloplasty with iTrack devices (Nova Eye Medical, Fremont (USA)) were included. Data was entered from the United States (n=255), Canada (n=39), Australia (n=96), and Europe (n=5). Endpoints were the identification of correlations between the preoperative IOP and medication burden and achievement of a glaucoma standard 20% reduction following canaloplasty. Eyes were grouped according to postop IOP reduction: “yes20%” and “no20%”, respectively, based on whether they achieved at least a 20% IOP reduction at 12M postop.



Results: 395 eyes were included (mean age 72.6 years); 141 eyes completed the 12M follow-up. IOP of eyes in the yes20% (n=78) and no20% (n=63) group was significantly different at baseline: 20.4 ± 6.8 vs 15.5 ± 4.0 ($p < 0.001$). A significant but opposite result was observed at 12M postop: 12.2 ± 3.3 (yes20%) vs 16.0 ± 4.3 (no20%) ($p < 0.001$). Number of medications was significantly reduced in both groups: 2.0 ± 1.2 to 0.86 ± 1.2 in the yes20% and 2.14 ± 1.0 to 1.0 ± 1.4 in the no20% group at baseline and 12M postop, respectively ($p < 0.001$). Preop IOP was highly correlated with IOP reduction ($r = 0.768$; $p < 0.001$). There was no significant difference between the 2 groups based on number of meds at preop and postop.

Conclusion: Eyes with a higher preoperative IOP tend to more frequently achieve at least a 20% IOP reduction following ab-interno canaloplasty. Some eyes seem to respond particularly well to canaloplasty and achieve a lower preoperative IOP—a larger sample of eyes is necessary to stratify the groups and understand the baseline correlation factors.

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