

The Effects of the STREAMLINE™ Surgical System versus Endoscopic Cyclophotocoagulation in Primary and Secondary Glaucoma

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Introduction: Glaucoma is an optic neuropathy that is the second most common cause of blindness worldwide and affects over three million Americans. Currently, the only known modifiable risk factor to prevent glaucomatous damage is to decrease the intraocular pressure (IOP). The STREAMLINE™ Surgical System (SSS) is a microinvasive glaucoma (MIGs) device that can create a goniotomy and dilates the drainage system of the eye to reduce IOP.

Question & Significance: This study aims to compare the effects on intraocular pressure of patients that had cataract surgery combined the SSS, endoscopic cyclophotocoagulation (ECP), or ECP with SSS in patients with primary and secondary glaucoma's for 6 months post operatively.

Methods: This is a retrospective chart review of patients that had cataract surgery with either ECP, SSS, or SSS + ECP from April 1st, 2022 through April 1st, 2023. Primary endpoints were mean IOP reductions and medication reliance at 6 months compared to baseline. Secondary outcomes were best corrected visual acuity (BCVA), number of patients with $\geq 20\%$ decrease in IOP, number of patients with a decrease in IOP lower medications, and significant complications after treatment.

Results: Comparing 6-month post-operative mean IOPs in these treatment groups, a significant reduction was noted only in the ECP group at the 6-month visit ($p < 0.003$). No statistically significant reduction was found in either the SSS ($p = 0.333$) or SSS+ECP ($p = 0.134$) groups. The percent of patients having a $\geq 20\%$ decrease in IOP from baseline were 52%, 10%, and 38% for ECP, SSS, and SSS+ECP groups, respectively.

Conclusions: In the SSS only group, we found a significantly smaller proportion of patients able to achieve the $\geq 20\%$ IOP reduction at only 10% of patients compared to other previous studies. This difference is likely due no medication washout in our study. This study did find similar decrease in IOP lowering medications.