Evaluating the Need for Surgical Intervention Following 360 Degree Trabeculotomy

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Purpose: The goal of this retrospective study was to evaluate how long, on average, after a 360 trabeculotomy procedure was secondary surgery needed for patients with congenital and secondary glaucoma.

Methods: IRB approval was received from the Indiana University School of Medicine to access digital patient charts from Riley Children's Hospital's department of ophthalmology. The Kruska-Wallis test was utilized to evaluate the average number of days between the initial 360 trabeculotomy and secondary glaucoma surgery. The chi-squared test was performed to evaluate surgical success rates. Surgical failure was defined by the patient needing additional surgical intervention or having more than two eye exams that demonstrated an intraocular pressure greater than 21. A 5% significance level was used for each test.

Results: The surgical success rates for 360 trabeculectomies in patients with congenital and secondary glaucoma were 64.70% and 25%, respectively (p =.0002). The average values for the number of days after which secondary surgery was needed were 818.20 and 259.00 days for patients with congenital and secondary glaucoma, respectively (p =.28). The average values for the number of days after which an intraocular pressure lowering drop was needed for patients following the initial procedure were 311.83 and 51.56 for patients with congenital glaucoma and secondary glaucoma, respectively (p =.06).

Conclusion: The rate of single surgical success was much higher for patients with congenital glaucoma than secondary glaucoma. This could be attributed to the anatomic variability, inflammatory processes, and pathophysiological mechanisms that contribute to secondary glaucoma. The small number of cases presents a limitation to this study. Although the data for the number of days between initial and secondary surgical intervention is not statistically significant, this study still demonstrates that a significant number of patients achieve intraocular pressure control following a 360 degree trabeculotomy.