

The Literature

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RESIDENT-PERFORMED SELECTIVE LASER TRABECULOPLASTY IN PATIENTS WITH OPEN-ANGLE GLAUCOMA

Greninger DA, Lowry EA, Porco TC, et al¹

ABSTRACT SUMMARY

This retrospective study evaluated the safety and effectiveness of resident-performed selective laser trabeculoplasty (SLT) in consecutive patients treated at the San Francisco Veterans Affairs Medical Center. One hundred ten eyes of 81 patients with open-angle glaucoma and 2 years of follow-up were included. SLT involved either 180° or 360° of treatment and was performed by first-year residents who did and did not have prior experience with the procedure. All cases were supervised by an attending surgeon.

Treatment success was defined as a 20% reduction in IOP from baseline, as previously reported for attending-performed SLT.² This study found comparable results in IOP reduction and safety profile with resident-performed SLT. The mean decrease in IOP at 3, 6, 12, and 24 months was 3.3, 2.8, 2.2, and 3.6 mm Hg, respectively. Mean success rates at the same intervals were 41%, 50%, 36%, and 39%. Higher baseline IOP was associated with higher rates of success. Additionally, the study found that the placement of a greater number of laser spots was not associated with better IOP control but rather correlated with a lower number of drops required after treatment. The most common complication was an IOP spike, which occurred in 7% of patients.

DISCUSSION

How effective is resident-performed SLT?

In the rapidly evolving field of ophthalmology, educators are faced with the challenge of staying current with emerging technologies and treatments. They must train residents in these new techniques and implement them in a safe and effective manner. This study evaluated the effectiveness of resident-performed SLT and found outcomes comparable to attending data, which suggests that educators are effectively teaching this skill. There was no difference in outcomes between residents' performance of their first SLT procedure compared with later cases, indicating that, with the guidance of attending surgeons, safety and effectiveness may be maintained even in the early cases.

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How can this information improve residents' education, and what tools are available for that purpose?

This article suggests that resident-performed SLT may be considered as a potential early therapy for patients with open-angle glaucoma and difficulty adhering to prescribed medical therapy, and it indicates that the efficacy may be similar to that of attending-performed SLT. Studies such as this one provide essential feedback on the effectiveness of current ophthalmology curricula and help guide oversight committees in maintaining appropriate operative minimums.

Today, many tools are available to enhance residents' education, including wet labs, simulators, video demonstrations, and conferences on morbidity and blindness. Additionally, there are evaluation rubrics that reduce subjective grading and provide objective measures of progress.³ Many of these tools, and the surgical simulator in particular, have been validated.⁴

LONG-TERM OUTCOMES OF RESIDENT-VERSUS ATTENDING-PERFORMED PRIMARY TRABECULECTOMY WITH MITOMYCIN C IN A UNITED STATES RESIDENCY PROGRAM

Kwong A, Law SK, Kule RR, et al⁵

ABSTRACT SUMMARY

This retrospective study evaluated the long-term outcomes of primary trabeculectomy with mitomycin C performed by ophthalmology residents. First, investigators assessed the effectiveness of 85 resident-performed primary trabeculectomies at the West Los Angeles Veterans Administration hospital. Then, a subgroup of these

patients ($n = 29$) was case matched to private patients who underwent attending-performed trabeculectomy. Qualified success was defined as an IOP that was 15 mm Hg or less but higher than 5 mm Hg with or without medication, without complications or additional glaucoma surgery, and without a loss of light perception vision. Complete success was defined similarly except that no glaucoma medications were required.

In the resident-performed trabeculectomy group, there was a significant reduction in IOP at all time points up to 5 years, but the number of glaucoma medications increased gradually over time after an initial postoperative reduction. The complication rate was 9.4%, and the cumulative survival rate was 69% at 3 years and 65% at 5 years. In the resident versus attending case-matched comparison, qualified success was 62.1% and 65.5% at 5 years ($P > .05$), respectively, and complete success was 27.6% and 44.8% ($P = .275$), respectively.

Although the mean preoperative IOPs of the resident group and attending group were similar, the former was using a higher mean number of glaucoma medications preoperatively than the attending group and also had more severe disease, as defined by a worse mean deviation. Postoperatively, residents were less likely to perform laser suture lysis, needling, or 5-fluorouracil procedures. Residents' patients required more glaucoma medications postoperatively than attendings' patients, and after 24 months, residents' patients had worse visual acuity compared to attending surgeons' patients.

DISCUSSION

Why did patients whose trabeculectomies were performed by residents have worse vision and need more drops?

A major difference between the attending and resident groups was the decline in postoperative visual acuity after 24 months in the latter. This could be attributed to either a lower rate of cataract surgery or more severe glaucoma in the resident group. The implication is that perhaps surgical intervention needs to occur sooner or that combined or perioperative cataract surgery should be considered. It also suggests that improved instruction in the postoperative management of trabeculectomy, including laser suture lysis, needling, and 5-fluorouracil injections, may enhance residents' surgical outcomes.

What are the implications of this study?

Educating residents on surgical procedures is more challenging and carries more risks than does teaching minor procedures. Few studies have reviewed the

outcomes of resident-performed glaucoma surgery.^{6,7} This study was unique in that it compared resident-performed cases to case-matched attending-performed cases and found similar outcomes.

This research indicates that, with appropriate supervision by attending surgeons, residents can achieve successful surgical outcomes. In addition, the study offers reassurance to both academic ophthalmologists and patients that resident-performed surgery is safe and effective with proper supervision.

Although the minimum requirement of five filtering/shunting procedures may not give residents the surgical proficiency necessary to independently perform trabeculectomy, this study's findings provide valuable feedback on the current Accreditation Council for Graduate Medical Education minimums for glaucoma surgery and its adequacy in preparing residents for positive surgical outcomes. The research also highlights surgically challenging steps (eg, dissection of the scleral flap and the placement of traction sutures) as educational areas in glaucoma that can be addressed through wet lab sessions and surgical simulators. ■

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