Researchers studied this modality as an initial treatment for open-angle glaucoma and ocular hypertension and evaluated the procedure’s repeatability.

**STUDY IN BRIEF**

An international, longitudinal, multicenter, randomized controlled trial found no evidence that selective laser trabeculoplasty (SLT) is superior to medication for improving glaucoma-specific quality of life (QOL).

**WHY IT MATTERS**

A growing body of research attests to SLT’s suitability, efficacy, and repeatability as a first-line treatment for IOP reduction. Few studies to date, however, have compared the impact of first-line treatment with topical medications or SLT on patients’ QOL. This trial with sensitive, glaucoma-specific, and holistic QOL outcome measures was designed to evaluate the effectiveness of SLT and topical medication on glaucoma-related QOL, health-related QOL, the rate of IOP success, and the presence of ocular surface disease at 12 and 24 months.

**DISCUSSION**

What are the practical findings of this study?

Topical medications (eye drops) are often the first line of treatment for glaucoma, but the burden of this approach on patients can be significant in terms of cost and side effects. Few studies to date have compared the impact of first-line treatment with topical medications or SLT on patients’ glaucoma-specific QOL. The results of this study did not support the investigators’ hypothesis that patients undergoing SLT would report a better QOL at follow-up than those in the medication group. Patient-centered outcomes were largely comparable in both treatment arms, but medical therapy appeared to achieve the target IOP more efficaciously than SLT in this patient population.
hypertension (OHT) who required repeat treatment (within 18 months) for early to medium-term treatment failure. The reduction in IOP at 2 months after the initial SLT procedure and the duration of effect after initial and repeat SLT were the main outcome measures in this study. After SLT at baseline, investigators observed the patients for a minimum of 18 months after a second SLT procedure.

A total of 115 eyes of 90 patients underwent repeat SLT during the first 18 months of the trial. The IOP before the initial SLT procedure was significantly higher than the IOP before the repeat SLT procedure (mean difference, 3.4 mm Hg; 95% CI, 2.6–4.3 mm Hg; P < .001). The absolute IOP reduction was greater at 2 months after the initial SLT procedure than at 2 months after repeat SLT (mean difference, 1.0 mm Hg; 95% CI, 0.2–1.8 mm Hg; P = .02). The adjusted absolute IOP reduction (adjusting for IOP before initial or repeat SLT) was greater at 2 months after repeat SLT (adjusted mean difference, -1.1 mm Hg; 95% CI, -1.7 to -0.5 mm Hg; P = .001).

Treatment failed early (retreatment 2 months after the initial SLT procedure) in 34 eyes, and it failed later (retreatment more than 2 months after the initial SLT procedure) in 81 eyes. No significant difference in early absolute IOP reduction at 2 months after repeat SLT was noted between early and later failures (mean difference, 0.3 mm Hg; 95% CI, -1.1 to 1.8 mm Hg; P = .655). Repeat SLT maintained drop-free IOP control in 67% of 115 eyes at 18 months with no clinically relevant adverse events.

The investigators conclude that repeat SLT can maintain IOP at or below the target in medication-naive eyes with POAG and OHT that require retreatment and that the duration of effect is at least equivalent to that of the initial SLT procedure.

**DISCUSSION**

Is SLT an appropriate first-line treatment in medication-naive patients when the IOP-lowering effect of initial SLT wanes?

SLT is an increasingly well-established method of lowering IOP in patients with POAG and OHT, but its IOP-lowering effect decreases over time. The efficacy of SLT when used as a repeat treatment in truly medication-naive patients with POAG or OHT remains unclear.

In this analysis, mean IOP was clinically and statistically significantly lower at 2 months after both initial and repeat SLT compared to the corresponding pretreatment IOPs (P < .001). These findings show that repeat SLT is an effective means of achieving IOP control in POAG and OHT eyes requiring retreatment within 18 months of the initial SLT procedure.

How did the effects of initial and repeat SLT compare?

Although SLT would be said to have failed in eyes requiring lower target IOPs in this study, SLT contributed to lowering IOPs. After repeat SLT, the cumulative effect of the initial and repeat SLT procedures might have provided an equivalent or possibly longer duration of clinical benefit compared to a single SLT procedure. Repeat SLT was safe, with minimal laser-related side effects seen during the Laser in Glaucoma and Ocular Hypertension (LIGHT) trial.

**REFERENCES**


**JAMES C. TSAI, MD, MBA | SECTION EDITOR**
- President, New York Eye and Ear Infirmary of Mount Sinai, and System Chair of Ophthalmology, Mount Sinai Health System, New York
- Member, Glaucoma Today Editorial Advisory Board
- jtsai@nyee.edu
- Financial disclosure: Consultant (Eyenovia, ReNetX Bio, Smartlens)

**JASON BACHARACH, MD**
- Director, Glaucoma Division, California Pacific Medical Center, Department of Ophthalmology, San Francisco
- Director, North Bay Eye Associates with offices in Healdsburg, Petaluma, Santa Rosa, and Sonoma, California
- jbacharach@northbayeye.com
- Financial disclosure: Consultant (Aerie Pharmaceuticals, Allergan, Bausch + Lomb, Iridex); Investigator (Glaukos); Speakers bureau (Aerie Pharmaceuticals, Allergan, Bausch + Lomb)

**AHMADREZA MORADI, MD**
- Ophthalmology resident, California Pacific Medical Center, Department of Ophthalmology, San Francisco
- ahmadreza.moradi1@gmail.com; Twitter @ahmadrezamoradi6
- Financial disclosure: None