# SLT AS FIRST-LINE THERAPY

Exploring the foundation of the LIGHT study and the clinical applications of its outcomes.

WITH IQBAL IKE K. AHMED, MD, FRCSC; ARSHAM SHEYBANI, MD; AND GUS GAZZARD, MA(CANTAB), MD, MBBCHIR, FRCOPHTH

**Iqbal Ike K. Ahmed, MD, FRCSC:** Gus, you published one of the most consequential articles recently, the Laser in Glaucoma and Ocular Hypertension (LIGHT) trial.[1] What prompted you to embark on this study?

**Gus Gazzard, MA(Cantab), MD, MBBChir, FRCOphth:** I had recently become a consultant at Moorfields Eye Hospital, and I was looking around to see where I might make an impact. The frequency-doubled Nd:YAG laser had been available for some time, and there were data showing that selective laser trabeculoplasty (SLT) could successfully lower IOP; however, there was this resistance to taking it up as an intervention. I decided to focus on that and see if I could help not only show that we *could* use this laser in glaucoma but also determine whether we *should*.

**Arsham Sheybani, MD:** What did you expect to find initially when randomizing laser to medication?

**Dr. Gazzard:** I thought we would find that laser was essentially as good as medication. I was hoping that a patient-related outcome measure would show better results with laser, to support getting patients off medication. That did not pan out. The primary outcome measure, health-related quality of life, was not sensitive enough to show a difference between the two treatment arms. The benefit of the study came from the IOP-related findings, with successful IOP lowering for greater cost-effectiveness in the SLT-first patients.

**Dr. Ahmed:** We would think that the patient-reported outcomes would be quite different for someone on drops and someone not on drops. Do we just not have the right instruments to measure those on glaucoma therapy today?

**Dr. Gazzard:** In the LIGHT trial, we had some glaucoma-specific instruments, some broader health-related quality-of-life instruments, and some glaucoma symptom scale instruments. None of these showed a difference. Every measure got slightly worse over 6 years. Patients were less happy at the end of the study, but there was no difference between the treatment arms. I think the instruments are simply too crude to show subtle differences between drops and no drops.

**Dr. Sheybani:** How do you suggest ophthalmologists apply these results?

**Dr. Gazzard:** I think the real strength of SLT is in newly diagnosed patients and in those with early disease, maybe those controlled on one medication. We now have some crossover data as well. I tell patients, "If we start with this, we can potentially buy you some years without medication." In the LIGHT trial, up to 70% of patients at 6 years were controlled on laser—that's both eye pressure *and* disease control. People value that—they like not having to take something every day that reminds them that they are sick.

**Dr. Sheybani:** Can you tell us more about the crossover data?

**Dr. Gazzard:** I had promised all patients in the LIGHT trial that, if we showed that the laser worked, they could undergo SLT at 3 years. So, at 3 years, we asked patients whether they wanted to continue with medication or receive laser. A proportion were happy and stable on medication. Another proportion was not happy on medication and wanted to try laser, so they crossed over. After SLT, a significant number of them were then medication-free over the next 3 years. That is one of the newer (not-yet-published) findings; we are analyzing the data now and trying to identify the predictors for that second group of patients who were previously treated with prostaglandin analogues.

**Dr. Sheybani:** Do you think that the crossover group is a big enough cohort to show differences in visual field data or secondary surgical interventions?

**Dr. Gazzard:** I do not think that crossover group will be big enough to do independent visual field analysis because all these patients had IOP lowering. The fact that we showed visual field differences between the laser-first


and medication-first groups, even though they had equal pressures, that surprised even us. We were not necessarily expecting that. Because they are all treated with their own individualized targets, they all had lowered pressures. The difference between the two treatment groups is very small, so you would need a large sample size.

**Dr. Ahmed:** The study makes a compelling argument to consider SLT as a first-line option. However, some perspectives I hear are: (1) my results are not as good as the LIGHT trial, (2) the LIGHT trial was basically ocular hypertension and not real glaucoma, (3) the outcomes were not clinically relevant in terms of the differences in visual fields and secondary surgical interventions, and (4) practically, it is a hassle to offer SLT. How would you respond?

**Dr. Gazzard:** Those are all concerns that I hear as well. It seems that often people's personal experience with laser is less positive than the LIGHT trial results because they are taking a broader sample. They are not looking at newly diagnosed patients, of whom we all have a steady trickle but who are smaller in number. They are not comparing apples to apples but instead looking at patients who are on one, two, or three medications and doing laser and then not seeing a big IOP reduction. With any treatment you provide to someone on three medications, you will not see a big pressure reduction unless you do surgery. I think often there is a difference in the sample of patients that people compare against the LIGHT trial. Some of the real-world data also compare differently in that these are all patients who are already on multiple medications after many years.

As far as visual field results, the LIGHT trial showed interesting differences in pressure control and optic nerve preservation. Although probably not big clinically, these differences in principle showed the effect of medication-free pressure control that is independent of patient compliance versus medication pressure control that relies on patient cooperation. That has been supported by Hydrus (Alcon) data as well. If you take away the element of patient compliance and perhaps also reduce IOP fluctuations (which may be greater with medical therapy), better visual field preservation can be achieved.

Patients are still being medicated when I would be offering them laser, likely because of clinician inertia. For a lot of clinicians, it is easier to write a script than to discuss laser treatment. There is great uptake in the United States and increasing uptake in the United Kingdom. I think the adoption is slower in mainland Europe, partly because of, again, inertia from comprehensive ophthalmologists who are used to prescribing medication.

**Dr. Sheybani:** Increasing awareness on the more comprehensive side as well as noncontact methods for SLT may help. Gonioscopy is sometimes difficult, and that could be a barrier to laser. We might see more of an uptick, maybe years down the line.

**Dr. Gazzard:** I predict that there will be a steady increase in the use of laser, both for first-line treatment and as an alternative to adding to the medication burden of patients who are already on one or two drops. ■

1. Gazzard G, Konstantakopoulou E, Garway-Heath D, et al; LiGHT Trial Study Group. Laser in Glaucoma and Ocular Hypertension (LiGHT) trial: six-year results of primary selective laser trabeculoplasty versus eye drops for the treatment of glaucoma and ocular hypertension. *Ophthalmology*. 2023;130(2):139-151.

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