Debate continues over relative merits of SLT and ALT

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in Fort Lauderdale

W ILL selective laser trabeculoplasty (SLT) take the place of argon laser trabeculoplasty (ALT) for the treatment of glaucoma? If studies presented at the recent Annual Meeting of the Association for Research in Vision and Ophthalmology (ARVO) are correct, then there is no big reason for ALT to vanish from the clinic. In fact, there’s room for both.

One of the studies, which involved a retrospective chart review of 57 eyes of 57 patients, indicated that SLT is indeed safe and effective, but the catch was that it seemed to be more effective in patients who had a prior history of treatment with ALT, said Andrew Hammer MD, University of Maryland, US.

The data reviewed were from all patients who underwent SLT from the years 2002 to 2004 who had at least a one-year follow-up. Overall, the mean IOP decrease was 2.3 mmHg at three-month follow-up, 2.2 at six months, and 3.6 mmHg between nine to 12 months.

In the nine, and 12 month follow-ups, in the 28 patients who underwent SLT and also had a history of previous ALT the IOP reduction was greater than that of those who underwent ALT alone.

In the SLT plus ALT patients, IOP reductions were 2.3 mmHg at three months, 2.6 mmHg at six months, and 4.2 mmHg at nine to 12 months. However, the difference between the SLT only and SLT plus ALT did not reach statistical difference and was more of a trend.

That is, although the absolute IOP change was the same in both groups after three months, the percent decrease in the group with both ALT and SLT was greater (p<0.29). By 12 months the difference in percent decrease of IOP between the two groups had increased substantially (p<0.15).

"Initially at three months there’s not much difference, but at six and 12 months there is a difference of over 1.0 mmHg, a difference of over 8.0 % or 9.0 %. It’s not huge, but it’s something worth investigating further," he said.

Time to treatment failure

The results of a large Canadian study which involved 176 patients showed that there was a statistically significant difference between the time to treatment failure for SLT and ALT. The study was part of a large randomised clinical trial comparing the safety and efficacy of SLT to ALT, the results of which will be published in the British Journal of Ophthalmology later this year.

“The larger study showed that the two treatment modalities were equivalent, that SLT is at least as good as ALT at reducing pressure at different time points,” said William Hodge MD.

Both procedures equally effective in phakic and pseudophakic eyes

A further analysis of the Canadian study indicated that there was no significant difference between the IOP reductions in phakic vs pseudophakic patients, whether treated with SLT or ALT, said Amy Bovell COMT, also from the University of Ottawa Eye Institute, Ottawa, Ontario, Canada.

In their analysis of the study’s findings Dr Hodge and his associates found that the failure rate at one year was 32% in the SLT group and 36% in the ALT group. There was no statistically significant difference between the two groups, he said.

“The time to failure was almost identical. We’re finding almost every outcome we look at is identical between the two treatment groups. It’s amazing how close they are,” Dr Hodge said.

A total of 87 ALT and 89 SLT patients were included in the study. Of the 176 patients follow-up data were available for 153 eyes.

Treatment failure was defined as IOP drop of less than 20% from baseline, a need for additional glaucoma procedures, or an increase in the number of glaucoma medications pre-treatment levels.

“One little disadvantage of SLT that has been found is that the one hour postoperative spike is a little bit more extensive with SLT. It’s more frequent, and could be a problem in patients with more severe disease,” he said.

The history of ALT and SLT

Argon laser trabeculoplasty (ALT) was introduced about 25 years ago and involves the use of a blue/green argon laser to disrupt cells in the trabecular meshwork and thereby improve aqueous outflow. Researchers initially hoped that ALT would postpone or eliminate the need for incisional or cyclodestructive surgical intervention. However, longer term data showed that the effect of ALT diminished over time and that repeat ALT causes damage and scarring to the trabecular meshwork and Schlemm’s Canal, which can in turn lead to increased IOP.

Selective laser trabeculoplasty (SLT) was introduced about eight years ago. It involves using a 532-nm frequency-doubled q-switched nd:YAG laser to selectively target the pigmented cells of the trabecular meshwork without causing thermal or collateral damage to the surrounding structures.

Most research published to date indicates that as a primary treatment SLT is no more effective than ALT. Its theoretical advantage of being more safely repeatable than ALT has yet to be proved in clinical trials.

W hen it comes to predicting which patients on maximal medical therapy will respond to ALT, the jury is still out. A study by US researchers found that a cohort of patients with primary open angle glaucoma had a lower response rate to SLT than has been reported in the medical literature.

Researchers reviewed the charts of 108 consecutive patients who had been treated with SLT. None of the initial treatment of one eye from each patient was analysed.'