

Selective Laser Trabeculoplasty in Primary Angle Closure Glaucoma (PACG)

Primary angle closure glaucoma (PACG) occurs when the outer part of the iris bulges forward and touches the back of the cornea, inhibiting the outflow of fluid. With PACG immediate treatment is required in order to save the optic nerve, and consists of creating a hole in the iris periphery to allow the outflow of fluid. Recent studies have shown that selective laser trabeculoplasty (SLT) is an effective treatment option in PACG cases where iridotomy has not sufficiently reduced intraocular pressure (IOP).

Epidemiology of Angle Closure Glaucoma

The worldwide prevalence of PACG in those aged 40 years and older is estimated to be 0.69%, with China having the highest prevalence at 1.26%.¹ Recent reports suggest that the total number of people with PACG worldwide is over 15 million, and that this figure is expected to increase to over 21 million by 2020.¹ Primary angle closure glaucoma is the leading cause of glaucoma-related blindness in Asian populations, with two thirds of patients with PACG are blind in at least one eye.

Treatment of PACG

Laser peripheral iridotomy (LPI), performed with a Nd:YAG laser, a photocoagulator, or a combination of both modalities, is the most common method of treatment.³ Various studies have shown, however, that further treatment – by medications, laser or surgery – is almost always required to control IOP following LPI in patients with PACG.³

PACG often affects patients with limited access to medication. Furthermore, patient compliance with medication has repeatedly been shown to be minimal, with the prescription refill rate reaching as low as 12% after three years.⁴ ALT is difficult to perform in these patients due to the narrowness of the angle and the difficulty of correctly aiming and focusing the small spot. Address surgery?

SLT for PACG

SLT was first shown to be safe and effective for the treatment of PACG in 2009 by Ho et al on a series of 60 patients with chronic PACG, elevated IOP and a patent iridotomy, where at least 90° of the angle was visible.⁵ 67% of eyes showed a reduction in pressure of at least 3 mmHg with the same or fewer medications than used at the final study visit. The results from this pilot study were considered promising, despite the non-controlled nature and the limited six-month follow-up period.

At ARVO 2012, a team from Singapore, Indonesia and Hong Kong, under the guidance of Tin Aung, Professor and Head of the Glaucoma Service at Singapore Eye Center, will present the preliminary results of a randomized controlled trial comparing the pressure-lowering effect of SLT with that of prostaglandins over six months in eyes with PAC [Primary Angle Closure] and PACG.⁶ 83.3% of the SLT-treated eyes showed an average reduction in pressure of 4.8 mmHg, compared with 90% of the prostaglandin-treated eyes, which reached an average pressure reduction of 4.1 mmHg. It should also be noted that patients enrolled in clinical studies are known to be more compliant in taking their medication than patients in real life situations.

The authors conclude that at six months the IOP lowering efficacy of SLT for PAC and PACG is similar to that of prostaglandins in eyes with at least 180° of visible trabecular meshwork (TM). The only recorded complication was one case of IOP spike in the SLT group.

SLT can be considered to be a viable, safe and effective alternative to medications for lowering the IOP in patients with PAC and PACG after iridotomy. In addition to its effectiveness, lack of permanent side effects and ease of application, SLT eliminates the problem of drug availability and patient non-compliance.

References

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