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Analysis of selective laser trabeculoplasty (SLT) in reducing the intraocular pressure (IOP) at week 6th

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ABSTRACT

BACKGROUND: Different treatments have been studied to manage patients with raised intraocular pressure (IOP). One of them is selective laser trabeculoplasty (SLT), which is advocated for managing patients with primary open -angle glaucoma (POAG) and ocular hypertenion (OHT). The aim was to study the lowering of IOP with SLT.
MATERIAL AND METHODS: We conducted a retrospective analysis of 24 eyes treated with SLT in the settings of Northern Care Alliance, United Kingdom.
RESULTS: Selective laser trabeculoplasty was carried out on seven males and eight females with 11 procedures on the right eye and 13 procedureson the left eye. Eleven of the patients had POAG and four patients had OHT. An average reduction of IOP was 3.5 mm Hg.
CONCLUSIONS: Our study showed that SLT lowered IOP by 20–22% from the baseline at 6 weeks and this is important for patients with raised IOPs.

KEY WORDS: selective laser trabeculopasty; glaucoma; ocular hypertension; Latina Gonio Lens

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INTRODUCTION

Glaucoma has been recognized as one of the commonest causes of blindness worldwide. Approximately 2.1% of adults over the age of 40 have glaucoma [1]. There are different treatments available to treat raised intraocular pressures (IOP). Selective laser trabeculoplasty (SLT) has the advantage of being able to perform in clinic settings. It also has the advantage of decreasing tissue damage and scarring compared to Argon laser trabeculoplasty (ALT) [2].

Selective laser trabeculoplasty has been offered as the first line of treatment for glaucoma in the past few years by various institutions [3]. The success rate on reducing IOP by SLT ranged from 6.9–35.9% [4, 5]. This study analyses IOP reduction at a 6-week follow-up when SLT was carried out in glaucoma patients.

MATERIAL AND METHODS

Study design

We performed a retrospective analysis on glaucoma patients who underwent SLT. Patients included were those with primary open-angle glaucoma (POAG) and ocular hypertension (OHT), pigmentary glaucoma or pseudoexfoliation, age ≥ 18 years

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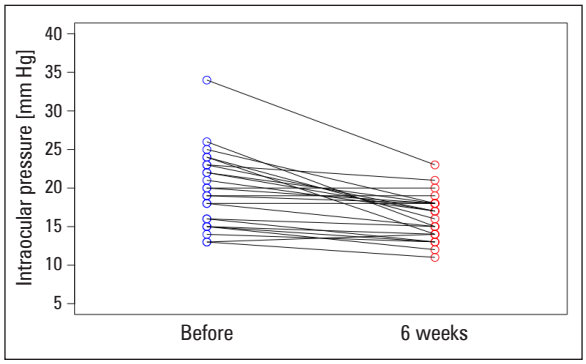

FIGURE 1. The range of intraocular pressure (IOP) pre-procedure and IOP 6 weeks post selective laser trabeculoplasty (SLT)

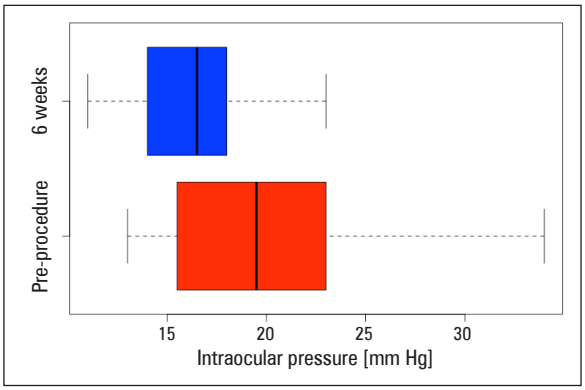

FIGURE 2. Dot Plot data showing decreased intraocular pressure (IOP) post treatment at week 6th

old, with raised IOP despite maximum antiglaucoma medications. Patients excluded were those with previous laser treatment or surgery. Intraocular pressures, visual aquity (VA), and usage of antiglaucoma medications were recorded before and after SLT treatment at week 6. Paired T-tests were used for statistical analysis [6]. We adhered to good clinical practice guidelines. As this is a retrospective study, ethics approval was not needed.

Technique

The SLT has a spot size of 400 microns and a pulse width of 3 ns. Pretreatment medication included pilocarpine eye drops 2% to visualize the angles and apraclonidine solution 1.0% to prevent a pressure spike. The laser was carried out after applying topical anesthesia with Latina SLT Gonio Lens. We usually applied 100 laser spots over 360 degrees of trabecular meshwork with approximately 25 spots per quadrant per session. The energy level used ranged from 0.3 to 1.4 mJ titrated by 0.1 mJ increments. We aimed for tiny bubbles in at least 50% of the laser shots. We did not prescribe corticosteroids or non-steroidal anti-inflammatory drugs (NSAID) pre- or post-SLT treatment.

RESULTS

We carried out SLT treatment on 24 eyes of 15 patients in which 7 were males, eight females with 11 procedures on the right eyes, and 13 procedures on the left. Eleven patients have POAG, and four patients have OHT. An average reduction of 3.5 mm Hg was found with pre-treatment average IOP 19.7 ± 1.01 mm Hg and post-treatment IOP 16.2 ± 0.61 mm Hg. The results were statistically significant. All antiglaucoma medications were continued after SLT treatments. Visual acuities remained unchanged at follow-up at week 6.

Figure 1 shows the range of IOP pre-procedure and six weeks post-SLT. Figure 2 shows the Dot Plot data of reduction in IOP post SLT.

DISCUSSION AND CONCLUSIONS

Selective laser trabeculoplasty has been proven to reduce IOP and the need for antiglaucoma medications in severe glaucoma patients. The safety profile and costs involved in SLT are excellent compared to other treatment modalities.

Comparisons were made between SLT and topical medications in the LiGHT study as first-line treatment in glaucoma and OHT patients. The SLT group was found to have more optimum IOPs at follow-up appointments (93% *vs.* 91.3%), not requiring further glaucoma surgery and more economical. It was also found from the LiGHT study that the Laser group are more cost-effective than the Medicine group [3].

Results from our study showed a reduction of IOP 20–22% from baseline, similar to other studies [7, 8]. A single SLT treatment was found to reduce the need for antiglaucoma medications at 36 months and a lower reduction of IOP at two months [9]. Reported predictors of SLT success included raised IOP at baseline with other factors not predictive [10, 11].

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