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Analysis of the Relative Efficacy of Micropulse Laser Trabeculoplasty and Selective Laser Trabeculoplasty

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Purpose

To evaluate the relative and combined effect of micropulse laser trabeculoplasty (MLT) and selective laser trabeculoplasty (SLT) on intraocular pressure (IOP) in open angle glaucoma (OAG).

Methods

A retrospective review of change in IOP after MLT, SLT, and a joint SLT-MLT treatment regimen in patients with OAG. Patient age, characteristics of glaucoma, central corneal thickness (CCT), pre-operative and post-operative glaucoma medication, and average pre-operative and post-operative IOP were evaluated. All patients had undergone a standardized treatment regimen consisting of 50 spots per 180 degree treatment.

Results

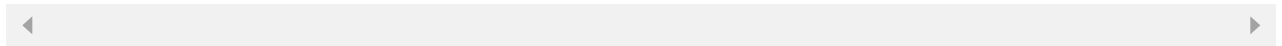
32 eyes from 22 patients underwent MLT. Median age was 69 years (range 56–91). Average CCT was 552±53. Mean pre-operative IOP was 19.6±4.9 mmHg and mean glaucoma medications were 1.9±1.2. Mean post-operative IOP was 15.4±2.4 mmHg, an 18% reduction in IOP from baseline ($p = 0.0006$). Subgroup analysis revealed 60% of patients underwent a 180 degree treatment with 14.5% reduction in IOP ($p = 0.00015$). 40% of patients underwent a 360 degree treatment with a 23.6% reduction in IOP ($p = 0.0126$). 31 eyes from 20 patients underwent SLT. Median age was 70 years (range 53 – 91). Average CCT was 530±28. Mean pre-operative IOP was 20.3±4.7 mmHg with 2.3±1.7 medications. Mean post-operative IOP was 16.3±2.6 mmHg, representing a 17.6% reduction from baseline IOP ($p=0.00007$). Subgroup analysis demonstrated that 56% of patients underwent a 180 degree treatment with a mean post-operative IOP reduction of 17% ($p= 0.06$) while 44% of patients underwent a 360 degree treatment with a mean IOP reduction of 17.8% ($p = 0.00004$). 16 eyes from 10 patients underwent 180 degree MLT and 180 degree SLT. Median age was 73 (range 60 – 83). Average CCT was 526±27. Mean pre-operative IOP was 20.0±4.6 and topical medications was 1.7±1.1. Mean post-operative IOP was 14.9±2.6 mmHg, or a 22.3% reduction in IOP ($p = 0.00045$). There were no statistically significant differences between the MLT, SLT, or joint MLT-SLT treatment regimen on IOP lowering or on topical medication use.

Conclusions

Laser trabeculoplasty, whether MLT, SLT, or a combination thereof, allows for effective lowering of

intraocular pressure from baseline.

Layman Abstract (optional): Provide a 50-200 word description of your work that non-scientists can understand. Describe the big picture and the implications of your findings, not the study itself and the associated details.

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