Long-term Efficacy of Micropulse Diode Transscleral Cyclophotocoagulation in the Treatment of Refractory Glaucoma

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Purpose
The objective of this study is to evaluate and present the long-term efficacy of micropulse diode transscleral cyclophotocoagulation (MPCPC) in subjects with refractory glaucoma treated from a prior prospective study.

Study Design
Retrospective Case Series

Study Population
All patients with refractory, end-stage glaucoma, unresponsive to alternative treatment.

Methods
This is a retrospective review of the cases treated with micropulse cyclophotocoagulation in a previous randomized exploratory study. Patients with advanced glaucoma having IOP of >21 mmHg on maximal, tolerated medical therapy with or without previous surgical intervention and visual acuity of 6/60 or worse were included. Micropulse diode transscleral cyclophotocoagulation (MPCPC) was delivered with laser power set at 2Watts, 100s pulse envelop with 0.5ms duration in 100% mode. Early works of Tan, Chew et al. evaluated and presented the long-term efficacy of micropulse diode transscleral cyclophotocoagulation in refractory glaucoma. Treatment of refractory glaucoma was effective in the long term IOP control of refractory glaucoma.

Results
No significant difference in the number of anti-glaucoma eye drops was presented in Table 2 and IOP was recorded at all time points compared to pre-treatment IOP. About 67% of the 14 patients had 39% (range 31-68%) IOP reduction. Frezzaoti et al. reported a 38.7% IOP reduction after 42 months of continuous wave transscleral CPC without a change in the number of glaucoma medications. This retrospective review was limited by the small number of sample size and the attrition rate after many years of follow-up.

Discussion
Micropulse diode transscleral cyclophotocoagulation has emerged as a new treatment option for glaucoma. Instead of the conventional, continuous train of high intensity energy application, a series of repetitive short pulses of energy with rest period in between is delivered in a micropulse mode. Early works of Tan, Chew et al. found it effective & safe in lowering IOP by ≥30% with consequent reduction in medications. In a prior randomized comparison study, MPCPC treated eyes resulted to 45% IOP reduction from baseline but with similar number of medications after 18 months.

Conclusion
Micropulse diode transscleral cyclophotocoagulation was effective in the long term IOP control of refractory glaucoma.

References