



Efficacy and Safety of Micropulse Transscleral Diode Laser Cyclophotocoagulation in the Treatment of Refractory Glaucoma

Purpose

MicroPulse transscleral diode laser cyclophotocoagulation (MP-TSCPC) delivers a series of repetitive short pulses of energy with rest periods in between pulses which is different from the traditional CPC. This study is to evaluate the efficacy and safety of MP-TSCPC in the treatment of refractory glaucoma.

Methods

This is a prospective interventional case series study. Patients with refractory glaucoma who underwent MPTSCPC from Aug 2016 at Doheny Eye Institute UCLA were included in our study. Laser settings were 2000 mW of 810 nm infrared diode laser set on MicroPulse P3 Glaucoma Device (Iridex, Mountain View, CA, USA). The laser was delivered over 360° for 180-240 milliseconds, 90-140 milliseconds for each hemisphere. The duty cycle was 31.3 %, which translated to 0.5 ms of "on time" and 1.1 ms of "off time." Visual acuity (VA) and intraocular pressure (IOP) were measured preoperatively and post operatively. Post operative anterior chamber inflammation and complications were recorded.

Results

One-hundred and three eyes of one-hundred patients (46 male and 54 female) who underwent MP-TSCPC were enrolled. The mean age was 66.48 +/-17.13 years. The mean follow-up period was 118 +/- 60 days. The mean IOP before MP-TSCPC was 22.15 +/-7.73 mmHg mmHg. Mean IOP decreased to 16.46 +/- 7.04 mmHG at 1 day (P=0.001), 15.39 +/- 6.56 mmHG at 1 month (P=0.001), 16.28 +/-6.52 mmHG at 3 months (P=0.001) and 17.15+/-7.67 mmHG at 6 months (P=0.001). At the last visit, VA was equal or better than the pre-surgery in 61 eyes (59%); 40 patients decreased VA by an average of 1.6 lines of vision. Twenty-nine patients had mild inflammation post operatively, while two patients developed choroidals.

Conclusion

The novel MP-TSCPC laser is a safe and effective method of lowering IOP after a short follow-up period in patients with refractory glaucoma. Further long-term evaluation is warranted.

Authors

[Christine Nguyen, MD](#)

[Brian A. Francis, MS, MD](#)

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