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Intraocular pressure reduction profile in patients with refractory glaucoma submitted to micropulse transscleral cyclophotocoagulation

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Posterboard#: B0183

Abstract Number: 705 - B0183

AuthorBlock: Larissa Ibrahim², Ariel Chaves², Tereza Kanadani², Syril Dorairaj³, Tiago Prata¹, Fabio Kanadani²

¹Hospital Medicina dos Olhos, Osasco, Brazil; ²Instituto de Olhos Ciências Médicas, , Brazil; ³Mayo Clinic, Florida, United States;

DisclosureBlock: Larissa Ibrahim, None; Ariel Chaves, None; Tereza Kanadani, None; Syril Dorairaj, None; Tiago Prata, None; Fabio Kanadani, None;

Purpose

To evaluate the results of micropulse transscleral cyclophotocoagulation diode laser (MP-TSCPC) in a minimum 6-month period in patients with refractory glaucoma.

Methods

This is a retrospective and non-comparative study. Data from patients with refractory glaucoma (at least one unsuccessful filtering procedure) submitted to MP-TSCPC by the same surgeon from 2017 until January 2018, according to a pre-defined protocol of energy and time of application were collected. Intraocular pressure (IOP) and number of antiglaucomatous medications were compared before and after surgery and adverse events were recorded. Finally, the correlation between the initial response to the treatment and the magnitude of final pressure reduction was evaluated.

Results

A total of 34 patients (37 eyes) with a minimum follow-up of 6 months (mean follow-up was 10.52 months) were included. The diagnoses were primary glaucoma (PG, 62%), secondary glaucoma (SG, 14%) and congenital/juvenile glaucoma (CG/J, 24%). The mean age was 46 ± 19.9 years. The mean IOP reduction was 23.3%, from 23.8 ± 6.7 mmHg (8 to 40 mmHg) to 17.8 ± 6.2 mmHg (8 to 30 mmHg) at the last visit ($p < 0.001$). The mean reduction of topical hypotensive medications was 2.8 ± 0.7 (1 to 4) to 1.7 ± 1.1 (0 to 4) ($p < 0.001$) and oral acetazolamide use was 17 (50%) to 8 patients (23.5%) at the last visit. There was a positive correlation between the initial response to treatment (after 1 month) and the magnitude of pressure reduction after 6 months ($p = 0.038$). The mean IOP reduction in PG patients was 24.4%, 23% in SG and 20.6% in CG/J. The success rate (defined as IOP reduction >25%) at the last visit was 58%, when considered an IOP reduction >20% the success rate increased to 61%. No significant side effects were observed during follow-up although 6 patients required a second MP-TSCPC application between 2 and 6 months after initial treatment.

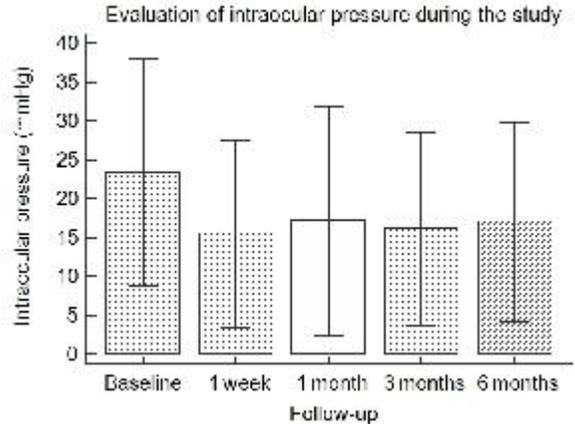
Conclusions

Our short-term results in refractory glaucoma eyes have shown that MP-TSCPC may be an effective alternative for IOP reduction in about 58% of the cases, and a reduction in topical hypotensive medications may be an advantage. The initial response profile appears to be a predictor of positive

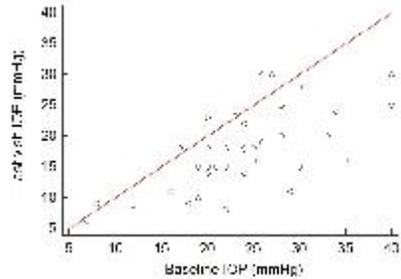
outcome at the end of 6 months. Further studies are needed to assess the long-term efficacy and safety profile.

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.

Transscleral cyclophotocoagulation with the micropulse diode laser has emerged as an alternative in the treatment of refractory glaucomas. There are few studies regarding its efficacy and safety.



Correlation between basal intraocular pressure (IOP) and IOP at the last visit



* In all cases below the dotted line, the IOP at the last visit was lower than the baseline IOP

