Outcomes of Micropulse Transscleral Cyclophotocoagulation in a Hispanic Population

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AuthorBlock: *Logan Vincent[1], Ahmad Kheirkhah[1], Brian Planchard[1], Corey Waldman[1]*
[1]Ophthalmology, UT Health San Antonio, San Antonio, Texas, United States;

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Purpose
Micropulse transscleral cyclophotocoagulation (MP-CPC) is a non-invasive treatment for many types of glaucoma and provides a favorable side effect profile compared to trabeculectomy and glaucoma tube shunts. The efficacy in the Hispanic population has not been studied. This work reports outcomes of MP-CPC in this population, which is a minority group that faces significant barriers to medical and surgical therapy for glaucoma.

Methods
A retrospective chart review of 24 Hispanic patients treated with MP-CPC between Jan. 2017 and Aug. 2018. For the MP-CPC (Iridex CYCLO G6[TM]laser), a power of 2000mW and duration of 90 seconds was used, for a total of four passes, two for each the superior and inferior 180 degrees. Patient demographics and outcomes were reported in Table 1 and 2, respectively. Success was defined as a $\geq$ 20% decrease in IOP at last visit compared to baseline regardless of medications and complete success was the same IOP decrease off medications. Failures did not achieve this level of IOP lowering, required additional surgery, lost light perception vision, or developed hypotony (IOP $\leq$ 6).

Results
All 24 patients were Hispanic and 20.8% had a previous Ahmed glaucoma valve (AGV). The mean pre-op LogMAR acuity was 1.43 compared to 1.50 at the last follow-up. The mean pre-op IOP was 31.1 mmHg on a mean of 3.4 drops compared to 14.1 mmHg on a mean of 2.7 drops at last follow-up. The mean length of last follow-up was 7.8 months (range 4-12 months). Four patients (8.3%) required AGV after MP-CPC while 6 (25%) required repeat MP-CPC. One patient developed hypotony and none lost LP vision. Patients with previous AGV had better mean IOP at all time points. For the primary outcome measure, 8.3% and 62.5% obtained complete success and success, respectively, while 29.2% met criteria for failure. The Wilcoxon signed rank test showed statistical significant between pre-op and last IOP (p<0.001), but there was no statistical significance between pre-op and last number of drops (p=0.03) or visual acuity (p=0.39).

Conclusions
MP-CPC is an effective procedure to lower IOP for multiple glaucoma types in the Hispanic population, and it may be useful as an adjunct for patients with prior AGV. The population studied is unique given an entirely Hispanic population and a disproportionally high incidence of neovascular glaucoma. Limitations include retrospective study, small sample size, and limited post-op follow-up.

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.

Table 1: Patient Characteristics

Age	54.4 ± 1.7
Sex	54% Female and 46% Male
Type of Glaucoma	Neovascular glaucoma 15/24 (62.5%)
	Primary open angle glaucoma 8/24 (33.3%)
	Chronic angle closure glaucoma 1/24 (4.2%)
Previous Glaucoma surgery	Ahmed tube shunt 5/24 (20.8%)
Previous Glaucoma lasers	Selective laser trabeculoplasty 3/24 (12.5%)
	Laser peripheral iridotomy 1/24 (4.2%)
Required additional glaucoma surgery	Repeat MP-CPC 6/24 (25%)
	Ahmed glaucoma valve 4/24 (16.7%)
Primary Outcome Measure	Complete Success 2/24 (8.3%)
	Success 15/24 (62.5%)
	Failure 7/24 (29.2%)

Table 2: Average Pre and Post-op Outcomes

	Pre-op	POD1	POW1	POM1	POM3	Last visit
LogMAR acuity	1.43 ± 0.3	1.39 ± 0.6	-	-	1.53 ± 0.9	1.50 ± 0.9
Intraocular pressure	31.1 ± 8.7	25.3 ± 9.3	19.4 ± 8.6	22.8 ± 9.5	19.1 ± 7.4	11.1 ± 6.3
# of Glaucoma drops	3.4 ± 0.5	3.2 ± 1.1	2.9 ± 1.2	3.0 ± 1.2	3.0 ± 1.3	2.7 ± 1.7
Post-AGV IOP	28.8 ± 2.2	21.2 ± 6.1	14.6 ± 0.7	19.6 ± 0.5	16.4 ± 12.7	12.4 ± 3.0