

Ocular photostimulation with the 577 nm micropulse yellow laser in the management of clinically significant diabetic macular edema (CSDME) – 2nd Year of Follow-up

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Abstract

Purpose : To present functional and anatomical outcomes in the second year of follow-up of 48 eyes of 44 patients that presented with CSDME and were treated with subthreshold micropulse 577 nm laser photostimulation.

Methods : Consecutive case series of patients that presented from November 2013 through November 2015. As in the first report (ARVO 2015-Poster Number 1764-A0197) patients were divided into two groups: a) with central macular thickness (CMT) $\leq 400 \mu\text{m}$ (31 patients) and b) with CMT $> 400 \mu\text{m}$ (13 patients) at baseline. Laser photostimulation was performed with a 577 nm laser in the micropulse delivery mode in a sub-visible-threshold manner, with no signs of laser impacts discernable during treatment and at any time post-operatively. Measurable outcome variables were best corrected visual acuity (BCVA) and CMT. Mean follow-up was 12 months (6-18 mo)

Results : In the second year about half of the patients completed the follow-up with respect to the first year. The main reason was their shift to intravitreal anti-VEGF treatment; one second reason was the loss to follow-up. The mean BCVA in the group with CMT $< 400 \mu\text{m}$ was 0.56 ± 0.17 before treatment and 0.6 ± 0.19 after treatment. Mean CMT before treatment was $335.6 \pm 36.2 \mu\text{m}$ and $286 \pm 64.7 \mu\text{m}$ after treatment. Considering visual acuity outcomes, in this group 2 eyes had a gain of more than 15 letters, 2 eyes had a gain of more than 10 letters, 20 eyes were stable and 3 eyes had a loss of more than 5 letters, 1 eye or more than 10 letters. The mean BCVA in the group with CMT $> 400 \mu\text{m}$ was

0.43 ± 0.15 before treatment and 0.59 ± 0.29 after treatment. Mean CMT was 452.4 ± 42 um before treatment and 334.25 ± 79.8 um after treatment. Considering visual acuity outcomes in this group, 5 eyes had a mean gain of more than 10 letters, 2 eyes of more than 10 letters letters, 5 remained stable, 1 eye had a loss of more than 5 letters, and non eyes lost more than 10 letters.

Conclusions : Laser photostimulation using the 577 nm yellow laser in the micropulse emission mode maintains its efficacy in stabilizing / improving BCVA and in reducing / eliminating DME in 27 over 31 and 12 over 13 of the patients that remained in the study. There is no concern about safety, having virtually no collateral effects.

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