

# Q-switched 532-nm Nd:YAG Laser Trabeculoplasty (Selective Laser Trabeculoplasty)

## A Multicenter, Pilot, Clinical Study

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**Objective:** To investigate the safety and efficacy of a new laser procedure using a q-switched 532-nm neodymium (Nd):YAG laser, also called "selective laser trabeculoplasty," to lower intraocular pressure (IOP) in patients with open-angle glaucoma (OAG). The laser parameters were set to selectively target pigmented trabecular meshwork (TM) cells without coagulative damage to the TM structure or nonpigmented cells.

**Design:** Nonrandomized, prospective, clinical trial.

**Participants:** Thirty eyes of 30 patients with uncontrolled OAG (OAG group) and 23 eyes of 23 patients with uncontrolled OAG treated previously with argon laser trabeculoplasty (ALT group) were observed for 4 to 26 weeks. Forty-four of the 53 eyes were observed for 26 weeks.

**Intervention:** Patients were treated with the Coherent Selecta 7000 (Coherent, Inc, Palo Alto, CA) frequency-doubled q-switched Nd:YAG laser (532 nm). A total of approximately 50 nonoverlapping spots were placed over 180° of the TM at energy levels ranging from 0.6 to 1.2 mJ per pulse. After surgery, patients were maintained with the identical drug regimen as that before treatment.

**Results:** Both the OAG and ALT groups showed similar IOP reductions over time. Seventy percent of patients in each group responded to treatment with an IOP reduction of least 3 mmHg. At 26 weeks of follow-up, mean IOP reduction was 5.8 mmHg (23.5%,  $P < 0.001$ ) for the OAG group and 6.0 mmHg (24.2%,  $P < 0.001$ ) for the ALT group. The untreated eye showed a 9.7% ( $P < 0.001$ ) reduction of IOP at 26 weeks. However, the IOP difference between the treated and untreated eyes was statistically significant at  $P < 0.003$ . Transient IOP elevation of 5 mmHg or greater was seen in 24% of patients.

**Conclusion:** The selective laser trabeculoplasty appears to be a safe and effective method to lower IOP in patients with OAG and patients treated previously with ALT. A reduction of IOP can be achieved without coagulation of the TM. *Ophthalmology* 1998;105:2082-2090