

Treatment of Focal Axillary Hyperhidrosis Using a Long Pulsed Nd:YAG 1064nm Laser

Use of the Nd:YAG 1064nm laser at hair-reduction settings may affect eccrine structures adjacent to hair follicles and reduce hyperhidrosis.

By Philip R. Letada, MD, T. Landers, N. Uebelhoer, and P. Shumaker

Axillary hyperhidrosis is a common, socially distressing idiopathic disorder of eccrine sweat glands for which treatment (see Table 1) is difficult and often unsatisfactory. The purpose of this study was to examine the effect of laser hair reduction using the Nd:YAG 1064nm laser on excessive sweating in patients with focal axillary hyperhidrosis. We theorized that using a longer than usual pulse duration would allow for bulk heating of the area around the bulb, in effect allowing for collateral damage to surrounding structures, including perhaps the eccrine and apocrine glands.

Methods

This IR-approved, case-controlled, prospective, randomized study involved four participants with axillary hyperhidrosis who received six monthly

laser hair reduction treatments to a randomly assigned axilla using the long pulsed Nd:YAG 1064nm laser at settings appropriate for skin type and hair color. The other axilla acted as a control. A relatively long laser pulse width of 20ms was utilized to allow for potential collateral photothermal injury to eccrine structures adjacent to hair follicles. At weekly intervals following each treatment, participants were asked to subjectively classify improvement in sweating using a patient global assessment questionnaire. Qualitative assessment of sweat production for both axillae was performed at baseline, prior to each treatment, and at one month following the final treatment using a modified starch iodine test.

Results

All four study participants reported gradual subject-

Table 1. Current Treatments for Hyperhidrosis

Treatment	Efficacy/Duration	Drawbacks
Aluminum chloride	Moderate/Very Temporary	Short duration of effect; Cumbersome
Iontophoresis	Moderate/Temporary	Not permanent; Cumbersome
Botox	Good/Temporary (months)	Potentially uncomfortable; Potential side effects incl. muscle weakness
Systemic medications	Good/Requires continuous treatment	Multiple side effects
Sympathectomy	Good/Permanent	Risks include pneumothorax, horner's syndrome, compensatory hyperhidrosis



Fig. 1a. Control side.



Fig. 1b. Treated side, same patient.

tive improvement in axillary sweating following each laser hair reduction treatment. All reported good to excellent subjective improvement in sweating of treated axilla compared to control axilla at one month follow-up after final treatment. The modified starch iodine test demonstrated markedly reduced sweating of the treated axilla compared to the control axilla in all study participants. (Fig. 1a-b) Histological evaluation conducted at baseline and one month after the final treat-

ment demonstrated decrease in the density of eccrine glands.

Implications

Results indicate that long-pulsed laser hair reduction using the Nd:YAG 1064nm laser at hair reduction settings may offer a relatively easy, effective, non-invasive alternative to current treatment modalities for axillary hyperhidrosis. Further studies in larger cohorts are needed to confirm this benefit. ■

—Ashish Bhatia, MD and Jeffrey T. S. Hsu, MD
Section Editors

The authors are on staff at the Naval Medical Center San Diego, CA. They have disclosed that Candela, Inc. loaned the Gentle-YAG 1064nm laser to the Naval Medical Center San Diego for the duration of the study.

Adapted from a presentation given at the Cosmetic Surgery Forum 2009, Las Vegas, NV, December 4-6, 2009 (cosmeticsurgeryforum.com).

Table 2. Hyperhidrosis Facts

- Affects 1.4 percent of US population
- Associated with significant social impairment
- Categories
 - Primary – localized to axillae, palms, soles, face
 - Secondary
- Associated with emotional factors
- Associated with systemic conditions