

Skin Tightening & Non-Ablative Skin Rejuvenation Using a Novel 650-microsecond Pulsed Nd:YAG 1064nm Laser

Lori Schaen, MD

Dunwoody Dermatology
Atlanta, GA

Abstract

This study was conducted to evaluate the use of a 650 microsecond pulsed Nd:YAG 1064nm laser for skin tightening and non-ablative skin rejuvenation in two treatment sessions. 10 female subjects with skin types I-III and ages 45-69 were enrolled for two sessions of treatment. Laser fluences ranged from 21-223 j/cm². No complications were reported or observed. Nine out of ten subjects reported little or no treatment discomfort and a pleasant warming sensation with a feeling of tightness of the skin immediately following the treatment, and rated their satisfaction as High to Very High; one thin-skinned subject aged 69 exhibited little to no response and had a lower degree of tolerance for the treatment.

Background and Objective

Published research has demonstrated that the Nd:YAG 1064nm laser modality has an affinity for absorption within the water in the skin tissue, and that laser irradiation with millisecond pulse durations travels deep into the papillary dermis at depths of up to 7mm; the resultant heating can create a localized effect in the papillary dermis of stimulating the formation of new collagen fibers. Such collagenesis is attributed with certain cosmetic enhancements of the aging skin, in particular “non-ablative skin rejuvenation” (improvements in skin tone and texture including the smoothing of fine lines, and the reduction of vascular and pigmented lesions) and “skin tightening” (a tightening effect on lax skin). The purpose of this study was to evaluate a 650 microsecond pulsed Nd:YAG 1064nm laser in terms of its ability to safely and effectively perform non-ablative skin rejuvenation and skin tightening in two treatment sessions, without the need for any anesthetics.

Study Design/Materials and Methods

Ten female subjects with skin types I-III and an age range of 45-69 were enrolled for two sessions of non-ablative laser skin rejuvenation and skin tightening. No other topical, oral or light-based therapies were combined in the treatment regimen and the subjects were not receiving interval treatments with fillers or neurotoxins. All subjects confirmed that they were not using Accutane or other photosensitizing medications; none changed their oral or facial regimens during the course of treatments. Subjects had all makeup and lotions removed before treatment session. Targeted indications included uneven skin texture, wrinkles, superficial scars, patches of rosacea and telangiectasias, and lax skin areas. At each treatment session, laser pulses were initially applied in a painting fashion achieving thorough coverage by laser pulses of all cosmetic units of the face for skin rejuvenation, applying 3 passes at laser energy fluences of 25-28 j/cm². This was followed by 3 passes at a fluence of 36-41 j/cm² for tightening of the periorbital areas (with laser energy applied away from the eyeball and outside the orbital rim), glabella, preauricular, jawline, nasolabial folds and marionette lines. Six subjects also received one pass at 96-191 j/cm² for the treatment of telangiectasias in the nasal, cheek and chin areas.

All treatments were performed using a 650 microsecond pulsed Nd:YAG 1064nm laser, LightPod Neo (Aerolase, Tarrytown, NY). No anesthesia was necessary; skin was cooled before, during and after the treatments using ice packs. After each treatment session, patients were provided with appropriate skincare such as moisturizers and sunblock. Photographs were taken before treatment and prior to the follow-up treatments.

Results

Nine out of ten subjects reported little or no treatment discomfort and a pleasant warming sensation with a feeling of tightness of the skin immediately following the treatment, and rated their satisfaction as High to Very High; one thin-skinned subject aged 69 who exhibited little to no response and had a lower degree of tolerance for the treatment. Some transient erythema was observed and it resolved within several hours when it appeared; no complications were reported or observed. The tone and texture of the facial skin noticeably improved in nine out of ten subjects with some degree of skin tightening, and vascular and pigmented lesions improved or cleared up in several subjects.

Conclusion

This study shows that a 650 microsecond pulsed Nd:YAG 1064nm laser can be safely and effectively used for skin tightening and non-ablative skin rejuvenation in two treatment sessions, without the need for any anesthetics.

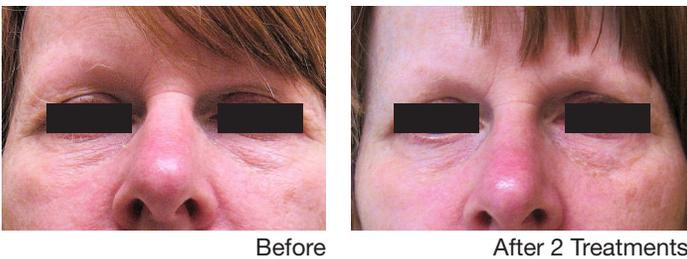
Subject 1 - Skin Rejuvenation & Tightening



Subject 2 - Acne, Rosacea, Skin Rejuvenation & Tightening and Spider Veins



Subject 3 - Skin Rejuvenation and Periorbital Tightening



Subject 5 - Diffuse Redness and Pore Reduction



Subject 7 - Skin Rejuvenation & Periorbital Tightening



Subject 8 - Skin Tightening and Dyschromia



Subject 10 - Skin Rejuvenation & Tightening

