

### Treatment of Moderate to Severe Acne With a 650-microsecond Pulsed Nd:YAG 1064nm Laser Using High Fluences and Stacked Pulses at a Low Repetition Rate

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#### Background and Objectives

Laser treatment of active acne is traditionally limited to the application of relatively low fluences due to the risk of burning skin and/or getting unwanted hyperpigmentation. This limits efficacy of those laser treatments particularly on large and deep moderate to severe acne. This study was conducted to evaluate the safety and efficacy of a 650 microsecond pulsed Nd:YAG 1064nm laser for the treatment of moderate to severe acne using high laser fluences and stacked pulses at a low repetition rate.

#### Study Design and Methods

100 subjects with moderate to severe active acne, age 13 to 25 with Fitzpatrick skin types II to III underwent three weekly treatments with a 650 microsecond pulsed Nd:YAG 1064nm laser. Subjects used home-care facial cleansing but no topical or oral therapies. 5 to 15 laser pulses were applied to each acne lesion in a 'daisy' pattern until the lesions exhibited a light blue color. Laser fluences of 28-64  $\text{j}/\text{cm}^2$ , at 0.65Hz repetition rate were used. No anesthetics, skin cooling or skin contact by the handpiece was required. Subjects were evaluated for potential erythema, edema, burns, blisters and pain sensation. Photographs were taken before and after 3 treatments.

#### Results

Immediately post treatment, acne lesions look pale with post treatment erythema appearing shortly. Subjects reported an intense pain sensation during the first 2-3 pulses, then reported additional pulses as tolerable or negligible in terms of pain. Subjects reported a reduction in pain and pressure in inflamed acne lesions post-treatment, with a feeling of loss of volume or emptiness of the treated lesion. Some inflamed lesions ruptured within a few hours of treatment, releasing white fluid. During the

days following the treatment inflamed acne lesions gradually became pale and reduced in size. Some subjects with severe acne transitioned into light or moderate acne. No complications were observed, including hyperpigmentation, burns, blisters, scars or increase in acne. All subjects reported high satisfaction from the treatment due to the rapid and aesthetically pleasing results.

#### Conclusion

The 650 microsecond pulsed Nd:YAG 1064nm laser is safe and effective for the treatment of moderate to severe acne, including large lesion structures, fistulas and globular (conglobate) acne, using stacking of high fluence pulses at a low repetition rate.

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Before



After 3<sup>rd</sup> Tx



Before



After 3<sup>rd</sup> Tx



Before



After 3<sup>rd</sup> Tx