

# Treatment of Active Inflammatory Acne Vulgaris with 1064-nm Nd:YAG Laser

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## SUMMARY

**BACKGROUND.** Acne vulgaris is a multifactorial chronic inflammatory skin disorder of the pilosebaceous unit that can lead to scarring of the skin and is also associated with psycho-social comorbidities. Treatment of acne with combined topical and oral medications can be prolonged and is frequently associated with side-effects. Lasers have been reported to be convenient to improve inflammatory acne in numerous small uncontrolled studies.

**OBJECTIVES.** To evaluate the clinical efficacy, safety, and histological changes of a new method of treatment for mild to moderate acne with 1064 nm Nd:YAG laser.

**METHODS.** Seventeen patients ages 18 to 30 years clinically diagnosed as having mild-to-moderate acne were enrolled in an open, prospective, controlled, randomized study. A split-face design was used: the side of the face to receive the intervention was randomized with the other side, acting as a within-patient control. Treatment was delivered using the Fotona SP Dynamis 1064 nm Nd:YAG laser system (Fotona, Ljubljana, Slovenia) with an S-11 scanner. Four treatments were performed, once a week for four weeks. The progress of the treatment and acne lesion counts were monitored prior to each treatment, and at 1 month after the final treatment by photographic evaluations. 3 mm skin biopsies were obtained from facial acne lesions of 3 patients before the laser therapy and after the last treatment.

**RESULTS.** Within the participants, the median lesion count declined by 56 lesions in the laser-treated facial side and by 34 lesions in the untreated control side. Total acne lesion reduction on the laser-treated facial side was 12% after 1 week ( $P=0.001$ ) and 75%

after 4 weeks ( $P<0.001$ ), and total acne lesions were reduced on the control untreated side face side by 10% (1 week,  $P 0.006$ ) and 75% (4 weeks,  $P<0.001$ ). The histopathologic examination of the acne lesions showed decreased inflammation after the laser treatment course. All patients reported mild transient erythema that disappeared in a few hours.

**CONCLUSIONS.** This laser treatment showed effectiveness for treating not only inflammatory but also non-inflammatory acne lesions. The histopathologic findings correlated well with the clinical acne treatment response. Both sides of the face improved and it can be supposed that a systemic effect of the laser treatment occurred through the activation of systemic immune mechanisms. This novel laser treatment appears to be a safe and effective alternative for mild-to-moderate inflammatory acne treatment.

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