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## **EFFECTS OF 532 NM KTP LASER EXPOSURE ON ACNE AND SEABACEOUS GLANDS**

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**Background and Objective:** Acne vulgaris affects millions of people worldwide, often requiring long term treatment. Visible light exposures can improve acne. This is thought to occur by photo-dynamic killing of *P. acnes* bacteria, medicated by porphyrins. Green light, which is well absorbed by bacterial porphyrins and can penetrate to a depth of 1-2 mm in skin, was examined as a treatment for acne.

**Study Design/Patients and Methods:** Eleven healthy volunteers with mild to moderate acne vulgaris completed a prospective randomized split-faced clinical trial. One half of the face was exposed to 532 nm KTP laser (Aura, Laserscope, Palo Alto, CA). Two weekly treatments were delivered for two consecutive weeks for a total of 4 treatments. Fluence of 7-9 J/cm<sup>2</sup> per pulse, pulse duration of 20 msec, spot size of 4mm, and repetition rate of 3-5 Hz were used, with parallel contact cooling. Cumulative fluence per treatment ranged from 20 to 50 J/cm<sup>2</sup>, given in 6 to 10 passes over the treated half-face. The other half received only contact cooling. Assessment of efficacy 1 week and 1 month after treatment was based on the Michaelsson acne count score, sebum measurements (Sebumeter SM 820, Courage-Khazaka, Cologne, Germany) and fluorescence photography of porphyrins.

**Results:** Michaelsson acne lesion score on the laser-treated side decreased significantly by 33.9% and 35.9% at the 1-week and 1-month visits, respectively. On the side receiving contact cooling only, the score remained unchanged at 1-week and increased by 1.8% at the 1-month visit. Sebum measurements on the laser treated side decreased by 31% and 28.1% at the 1-week and 1-month visits, respectively. On the other side receiving contact cooling only, sebum measurements decreased by 21.4% and increased by 6.4% at the 1-week and 1-month visits, respectively. Fluorescence photography showed only subtle change after KTP laser treatment. Two subjects experienced blistering and crusting on the nasal groove area after laser exposure, which healed uneventfully.

**Conclusion:** The 532-nm KTP laser produced a moderate improvement in acne with a moderate decrease in sebum measurements for at least 1 month after treatment. Treatment was well tolerated.

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