Integrated cooling-vacuum-assisted 1540-nm erbium:glass laser is effective in treating mild-to-moderate acne vulgaris.

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Abstract

Acne treatment by a mid-infrared laser may be unsatisfactory due to deeply situated acne-affected sebaceous glands which serve as its target. Skin manipulation by vacuum and contact cooling may improve laser-skin interaction, reduce pain sensation, and increase overall safety and efficacy. To evaluate the safety and efficacy of acne treatment using an integrated cooling-vacuum-assisted 1540-nm erbium:glass laser, a prospective interventional study was conducted. It included 12 patients (seven men and five women) suffering from mild-to-moderate acne vulgaris.

The device utilizes a mid-infrared 1540-nm laser (QM Lasers Ltd. Caesarea, Israel), which is integrated with combined cooling-vacuum-assisted technology. An acne lesion is initially manipulated upon contact by a vacuum-cooling-assisted tip, followed by three to four stacked laser pulses (500-600 mJ, 4 mm spot size, and frequency of 2 Hz). Patients underwent four to six treatment sessions with a 2-week interval and were followed-up 1 and 3 months after the last treatment. Clinical photographs were taken by high-resolution digital camera before and after treatment. Clinical evaluation was performed by two independent dermatologists, and results were graded on a scale of 0 (exacerbation) to 4 (76-100 % improvement). Patients' and physicians' satisfaction was also recorded. Pain perception and adverse effects were evaluated as well.

All patients demonstrated a moderate to significant improvement (average score of 3.6 and 2.0 within 1 and 3 months, respectively, following last treatment session). No side effects, besides a transient erythema, were observed. Cooling-vacuum-assisted 1540-nm laser is safe and effective for the treatment of acne vulgaris.

KEYWORDS:

Acne; Cooling vacuum; Erbium glass; Laser treatment