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Combination 532-nm and 1064-nm lasers for noninvasive skin rejuvenation and toning.

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Author information

Erratum in

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Abstract

BACKGROUND: Noninvasive techniques for skin rejuvenation are quickly becoming standard in the treatment of mild rhytids and overall skin toning. Multiple laser wavelengths and modalities have been used with varying degrees of success, including 532-nm, 585-nm, 1064-nm, 1320-nm, 1450-nm, and 1540-nm wavelengths.

OBJECTIVES: To evaluate a combination technique using a long-pulsed, 532-nm potassium titanyl phosphate (KTP) laser and a long-pulsed 1064-nm Nd:YAG laser, separately and combined, for noninvasive photorejuvenation and skin toning and collagen enhancement and to establish efficacy and degree of success.

DESIGN: Prospective nonrandomized study with longitudinal follow-up.

SETTING: Private dermatologic surgery and laser practice.

METHODS: A total of 150 patients, with skin types I through V, were treated with long-pulsed KTP 532-nm and long-pulsed Nd:YAG 1064-nm lasers, separately and combined. For the KTP 532-nm laser, the fluences varied between 7 to 15 J/cm2 at 7- to 20-millisecond pulse durations with a 2-mm handpiece and 6 to 15 J/cm2 at 30- to 50-millisecond pulses with a 4-mm handpiece. The 1064-nm Nd:YAG laser fluences were set at 24 to 30 J/cm2 for a 10-mm handpiece. These energies were delivered at 30- to 65-millisecond pulse durations. All subjects were treated at least 3 times and at most 6 times, depending on patient satisfaction level, at monthly intervals and were observed for up to 18 months after the last treatment.

MAIN OUTCOME MEASURES: All patients were asked to fill out a "severity scale" on which redness, pigmentation, rhytids, skin tone/tightness, texture, and patient satisfaction were noted before and after each treatment. Redness, pigmentation, rhytids, skin tone/tightness, and texture were also evaluated by the physician and another observer.

RESULTS: After 3 to 6 treatments, 50 patients treated with the 532-nm KTP laser alone showed improvement of 70% to 80% in redness and pigmentation, 30% to 50% in skin tone/tightening, 30% to 40% in skin texture, and 20% to 30% in rhytids. Another 50 patients treated with the 1064-nm Nd:YAG laser alone showed improvement of 10% to 20% in redness, 0% to 10% in pigmentation, 10% to 30% in skin tone/tightening, 20% to 30% in skin texture, and 10% to 30% in rhytids. The third group of 50 patients treated with both KTP and Nd:YAG lasers showed improvement of 70% to 80% in redness and pigmentation, 40% to 60% in skin tone/tightening, 40% to 60% in skin texture, and

30% to 40% in rhytids. Skin biopsy specimens taken at 1-, 2-, 3-, and 6-month intervals demonstrated new collagen formation.

CONCLUSIONS: All 150 patients exhibited mild to moderate improvement in the appearance of rhytids, moderate improvement in skin toning and texture, and great improvement in the reduction of redness and pigmentation. The KTP laser used alone produced results superior to those of the Nd:YAG laser. Results from combination treatment with both KTP and Nd:YAG lasers were slightly superior to those achieved with either laser alone.

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