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COSMETIC DERMATOLOGY

532-nm laser adds option to skin rejuvenation

BY CHERYL GUTTMAN STAFF CORRESPONDENT

Summit, NJ — A long-pulse 532-nm frequency-doubled Nd:YAG laser (DioLite Laser, IRIDEX) offers another safe and effective alternative for nonablative facial skin rejuvenation in appropriately selected patients, according to the results of a randomized, split-face clinical trial conducted by Paul J. Carniol, M.D.

Dr. Carniol, clinical associate professor, department of surgery, New Jersey Medical School-University of Medicine & Dentistry of New Jersey, Summit, evaluated the instrument in study that enrolled eight patients ages 35 to 52 years old. All had Fitzpatrick skin types II and III, and presented generally with moderate photodamage. Dyschromia was usually mild and some patients had mild telangiectasia. Two patients smoked cigarettes and one had rosacea.

The solid-state 532-nm laser was used to perform nonablative photorejuvenation of the midfacial and periorbital region on one randomly selected side of the face. With the use of refrigerated aloe vera gel for skin cooling but no anesthetic, the treatments were very well-tolerated, resulting in only minimal discomfort and mild erythema that persisted no longer than 4 hours.

Examining the aesthetic results

Improvement was determined at two months after treatment by patient self-assessment and photographic rating by two single-blinded observers. The blinded raters correctly identified the treated side of the face in five (71 percent) of the seven

patients. Efficacy scorings by the blinded observers and patients alike indicated the treatment resulted in about 25 percent improvement, whereas no changes were noted in the appearance of the untreated sides of the face.

"This 532-nm diode laser is widely used for the treatment of pigmented and vascular lesions, and many surgeons may already have it available in their offices for those indications. This study shows its use may also be expanded to nonablative facial rejuvenation with the ability to achieve noticeable improvement, albeit modest, without any downtime," Dr. Carniol said.

Dr. Carniol indicated there is a good scientific rationale for using the 532-nm wavelength laser for nonablative rejuvenation since it may be expected to act via a variety of mechanisms to improve a spectrum of photodamage-related skin changes. The 532-nm wavelength is absorbed selectively by both melanin in the epidermis and oxyhemoglobin in the blood, and therefore it can treat photodamage pigmentary and vascular changes with resultant improvements in skin tone and color.

Furthermore, even though the 532-nm wavelength penetrates relatively superficially into the skin, it might still stimulate dermal collagenesis and formation of new elastin fibers by causing cytokine release secondary to treatment-induced injury to the endothelial lining of more superficial vessels.

Biopsies for histological evaluation were not performed in the study, although Dr.

Carniol suggested that he might expect such studies would have revealed changes in dermal collagen. However, he noted that clinical rating of improvement may be the most important criterion for judging the efficacy of nonablative photorejuvenation treatment. "Studies evaluating other lasers have shown that histologically documented improvements do not necessarily correlate with changes in appearance and patient satisfaction. Notably, the patients in our study were uniformly pleased with the treatment even though the clinical improvements in skin appearance were relatively subtle," Dr. Carniol said.

He noted that the level of patient satisfaction achieved with the treatment may be due in part to the minimal discomfort and absence of down-time. However, Dr. Carniol acknowledged that the fact that the procedures were performed free of charge as an incentive for recruitment into a split-face study might have biased patient satisfaction levels.

Therefore, careful review of patient expectations and counseling about the expected benefits of treatment are important for achieving patient satisfaction. Patients selected for nonablative photorejuvenation with this laser should also be restricted to Fitzpatrick skin types I-III since darker-skinned patients would be at greater risk for adverse events due to absorption of the laser energy by epidermal melanin. **DT**

Dr. Carniol has no financial interest in the laser used in his study.



IRIDEX

IRIDEX Corporation

1212 Terra Bella Ave • Mountain View, CA 94043

Ph- 650-962-8100 • Fax: 650-962-0486 • email: info@iridex.com

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