Improves acne, rosacea
Intense Pulsed Light Eradicates Demodex Mites

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VAIL, COLO. Intense pulsed light appears to kill Demodex mites around hair follicles and sebaceous glands, which could make it useful in treating acne, Dr. Neil Sadick said at a symposium sponsored by the American Academy of Facial Plastic and Reconstructive Surgery.

Dr. Sadick of Cornell University, New York, conducted an investigation in which 24 patients with a mean age of 47 years and Fitzpatrick skin types I-IV were treated with an intense pulsed light device (Quantum SR, ESC-Lumenis, Palo Alto, Calif.), which emits a noncoherent, multiwavelength of light of 500-1,100 nm. All patients were treated monthly, up to five times, using an average fluence of 25-45 J/cm2.

Patients were then evaluated using a number of techniques that included observer rating of photographs, computer-based optical profiling, histology, and the use of monoclonal antibodies to measure cytokine production.

Histology showed no evidence of appreciable new collagen formation, either by ultrastructural observation or by monoclonal antibody binding concentration, even though there were indications of increased fibroblast activity, he said at the symposium, also sponsored by the American Society of Dermatologic Surgery.

"There is some attempt at 'neocollagenesis' occurring, but, in my opinion, there is not significant new collagen to the point where you can tell your patients that their wrinkling will be markedly improved because of new collagen formation," he said.

Likewise, there did not appear to be new elastin fiber formation. But there was "normalization" of the elastin fibers.

Histology also did not reveal any necrosis, or fibrin thrombi, and only minimal new blood vessel formation.
On the other hand, since intense pulsed light wavelengths target melanocytes, the investigation did find decreased melanin production at the dermoepidermal junction and eradication of the Demodex mites in the pilosebaceous units. Perhaps as a consequence, there was a decrease in inflammatory infiltrate in the skin, both in rosacea but also in photodamaged areas.

"If you treat patients with intense pulsed light, you can eradicate almost all the organisms," he said.

The findings help explain the results already observed with intense pulsed light, Dr. Sadick said. They also suggest that the patient who will benefit most is the person in his or her mid-40s who wants to reverse early sun damage but does not need dramatic rhytid improvement.

Killing of the Demodex organisms, and consequently toning down inflammatory processes, probably explains why intense pulsed light improves redness. Many patients believe that they have a decrease in pore size, and this may be due to shrinkage of the sebaceous glands. Normalization of the elastin fibers may improve elasticity and account for some of the smoothing of texture that is seen. Decreased melanin production accounts for the improvements in dyschromia.

The study did demonstrate fairly significant improvement, he said. The independent observer assessment of the 17 patients who completed five treatments found that 47% achieved more than a 50% improvement in skin tone, texture, and color.

Based on the results, Dr. Sadick said he tells patients that they can expect a 25%-50% improvement in skin contour and redness.

Because of the eradication of Demodex, Dr. Sadick has begun to investigate using intense pulsed light for acne. "In our experience, we have found it is helpful in treating mild acne ... but not as helpful in treating cystic acne."

SHARON WORCESTER, Tallahassee bureau, contributed to this story.