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Cosmetic Dermatology

High-energy plasma device regenerates, rejuvenates aging skin

Tx appropriate for all skin types;
associated with minimal downtime

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Sacramento, Calif. — A new skin rejuvenation modality using high-energy plasma (Portrait PSR3, Rhytec) improves the appearance of photoaged skin in a procedure that is well-tolerated, appropriate for all skin types and associated with minimal downtime, says Suzanne L. Kilmer, M.D.

nia, Sacramento.

The Plasma Skin Regeneration (PSR) device has been cleared by the U.S. Food and Drug Administration for use in single-pass, low-energy repeat treatments and single-pass, high-energy treatment of facial rhytids, and for the treatment of superficial skin lesions. It uses ultra-high frequency radiofrequency energy to convert nitrogen gas into millisecond plasma pulses. When directed from the handpiece onto the skin, the plasma transfers its energy, causing thermal heating of tissue from the skin's surface into the dermis.

Dr. Kilmer has been involved in a series of studies evaluating this new technology first for perioral and periorbital rhytids, then full-face treatment using a single-pass technique and, subsequently, in an investigation of the effects of two passes. Future plans are to evaluate the effects of

triple-pass treatment and to do a split-face comparison with carbon dioxide and/or erbium:YAG laser resurfacing.

Comparable to peels

Dr. Kilmer reports that results achieved with a single-pass treatment are similar to those associated with a medium-

depth chemical peel. Patients benefit with a refreshed appearance and improvements in discolorations along with modest tightening. The surface changes are visible within 30 days, and the effect on skin tightening appears to continue over time among patients who have been followed up to one year.

The double-pass approach affords the benefits of the epidermal changes but results in more tightening, and so has a greater effect on improving wrinkles. Outcomes achieved in the double-pass procedures approach those associated with double-pass erbium:YAG laser resurfacing, possibly with the benefit of a shorter recovery time.

"The PSR treatment heats the epidermis, but because of the nonablative nature of plasma pulses, the epidermis remains intact for the first 24 to 48 hours, acting as a protective biological dressing to enhance healing," Dr. Kilmer says. "Within seven to 10 days, re-epithelialization is complete, and patients are left with minimal to mild erythema that resolves by 30 days or sooner."

Histological evaluations of skin obtained by punch biopsies 90 days post-treatment with PSR illustrate its benefits for inducing neocollagenesis and reducing solar elastosis. Those studies show a reactive epidermis and a zone of new collagen beneath the dermal-epidermal junction together with a zone of thermal damage in the papillary dermis containing islands of deeper neocollagenesis in a matrix arrangement. The architecture in the deeper dermis appeared to be unaffected by the treatment, as it was char-



According to Dr. Suzanne Kilmer, re-epithelialization is complete in seven to 10 days with the Portrait PSR3. Patients are left with mild to moderate erythema that resolves in 30 days or less.

Photos: Suzanne L. Kilmer, M.D.

"This new technology appears to be an attractive alternative to resurfacing lasers because it is able to improve skin tone, texture, dyschromia and wrinkles, but with less morbidity and a much shorter post-treatment recovery time," notes Dr. Kilmer, director, Laser & Skin Surgery Center of Northern Califor-

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acterized by old, large, disorganized bundles of collagen.

Favorable safety

The treatment can cause discomfort but

is well-tolerated when performed using topical anesthesia supplemented with an oral sedative and analgesic. One of its key benefits is its speed. In a study of 24 patients who underwent full-face treatment with a single-pass at a 4 Hz pulse repetition rate, the mean treatment duration was 14.3 minutes.

"That is much quicker than the time it takes to do a full-face procedure with the radiofrequency device, and almost 50 percent shorter than laser resurfacing," Dr. Kilmer says.

Post-treatment care is similar to that used following laser resurfacing, with use of dilute vinegar soaks and application of a petrolatum-based ointment. However, because the epidermis is intact, the

frequency of using the vinegar soaks in the early post-op period is less than that needed after ablative laser resurfacing.

Until the epidermis sloughs, the skin takes on a bronzed appearance similar to that seen after a chemical peel procedure. Some patients also have developed mild, transient hyperpigmentation when treated with higher energy levels.

"Current protocols use lower energy settings, and there have been no cases of scarring, infection or persistent adverse pigmentary alterations," Dr. Kilmer says. **DT**

Disclosure: Dr. Kilmer's studies have been funded by Rhytec, and she is on the medical advisory board for that company.

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