Standardization Comes to PDT

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LOS CABOS, MEXICO — Advances in photodynamic therapy (PDT) using 5-aminolevulnic acid (ALA) have led dermatologists to increasingly extol its virtues as a practical, versatile, and highly effective therapy for actinic keratoses, nonmelanoma skin cancer, acne, and photo-rejuvenation.

For example, at the annual meeting of the Noah Worcester Dermatological Society, several dermatologists described ALA-PDT with a degree of enthusiasm poetically absent from presentations concerning many new lasers, skin smoothers, and nonablative, all-purpose devices. "It has...changed the way I practice," Dr. C. William Hanke said at the meeting. Dr. Hanke said he recalled hearing about ALA-PDT at an American Academy of Dermatology meeting 5 years ago. His impression of the therapy then was "how terrible it was. There was a lot of hand-holding...because the patient needed it." Still, it seemed to work pretty well in eradicating actinic keratoses (AKs), and a 2003 study showed that it had the potential to be equal to 5-fluorouracil in efficacy and was preferred by most patients, despite the painful recovery required after a 14- to 18-hour ALA incubation period and subsequent exposure to a specialized light source (J. Drugs Dermatol. 2003;2:629-35).

Since then, ALA-PDT has changed dramatically in the following ways:

- **Short-contact ALA-PDT is now standard.** ALA remains on the skin just 15-60 minutes, profoundly affecting the side-effect profile and reducing pain. Instead of enduring a week of raw skin, erosions, and inflammation, most patients today note only minor stinging, erythema, and scaling that resolve within a few days. Many studies show that short-contact ALA-PDT does not reduce its effectiveness.

- **Numerous light sources are being used.** Although blue light emits a width length (405-420 nm) that conforms precisely to the absorption peak for ALA (marked as the Levulan Kerastick by DUSA Pharmaceuticals, Inc.), intense pulsed light (IPL), pulsed dye lasers, and other light sources also are proving effective.

- **The versatility of ALA-PDT is expanding.** Approved for nonhyperkeratotic AKs of the face and scalp, it also is being used on the trunk and extremities for AKs, nonmelanoma skin cancer, pigmented lesions, rosacea, and, especially, acne.

- **Consolidation is on the horizon.** An American launch is imminent for the photosensitizer methyl aminolevulinate, marketed as Metvix by the Norwegian company Photocure ASA. Widely used in Europe, Metvix is incubated for 3 hours under occlusion and activated by red light (630-660 nm) from a diode laser. Besides treating AKs and nonmelanoma skin cancer, the system is used to treat psoriasis.

Dr. Neil S. Sadick voiced a common complaint when he noted that nonablative therapies have now been used for 5 years to treat everything from rosacea to scars, and "we’re still not sure [they’re] effective or worth it.”

- **Comparison is on the horizon.** A 2003 study showed that it had the potential to be equal to 5-fluorouracil in efficacy and was preferred by most patients, despite the painful recovery required after a 14- to 18-hour ALA incubation period and subsequent exposure to a specialized light source (J. Drugs Dermatol. 2003;2:629-35).

Getting the Most from PDT

The following steps can maximize the effects of ALA-PDT:

1. Discontinue topical retinoids several weeks before treatment with 5-aminolevulic acid photodynamic therapy (ALA-PDT).
2. Prepare the skin using gentle microdermabrasion or acetone (to maximize the PDT reaction), or isopropyl alcohol (to minimize the PDT reaction).
3. Use a fresh ampule of Levulan Kerastick (ALA). The drug becomes inactive 4 hours after being opened.
4. Apply two coats of ALA with a cotton tip applicator to avoid getting the solution in the patient’s eyes.
5. Adjust exposure to ALA and to the light source according to the patient’s condition and severity. For example, the photosensitizer should remain on the skin 60 minutes prior to PDT for treatment of photoaging. Exposure time will vary: 22-25 minutes for an intense pulsed light source or 16 minutes and 40 seconds for a blue light source.

6. Use cool airflow, rest periods, and, possibly, topical anesthesia or diazepam (5-10 mg) for pain management.
7. Observe the patient post-phototherapy, and wash the area thoroughly with soap and water to ensure that all of the photosensitizer has been removed. Apply sunscreen in the office.
8. Be adamant in instructing the patient and the patient’s caretaker to avoid sun exposure for 1-2 weeks following phototherapy. Patients can have extreme reactions to sun exposure in the days following phototherapy.

Phototherapy’s Efficacy Draws Strong Testimonials

Dr. Mitchel P. Goldman said short-contact ALA-PDT using IPL is “incredibly impressive” for acne and a convenient and highly “mildly painful” option for patients with actinic keratoses, telangiectasias, and skin texture problems. He even used the modality to treat his own facial squamous cell carcinoma.

He used a pulsed dye laser rather than IPL on hair-bearing areas because IPL can remove hair.

Like Dr. Sadick, Dr. Goldman uses ALA-PDT to “boost” the effectiveness of IPL, reducing the number of treatments required. After one or two treatments of ALA-PDT with IPL for actinic keratoses, “I think that when you need to biopsy,” said Dr. Goldman, who is in private practice in La Jolla, Calif.

Dr. Hanke, director of a dermatologic surgery practice in Carmel, Ind., says that ALA-PDT has become ever more useful in his practice over time, for cosmetic as well as medical dermatology.

If a patient’s goal is to have smoother, clearer skin, with less blotchiness and redness, “we can do that,” he said.

There are conditions, such as wrinkles, that do not respond well to ALA-PDT, the speakers agreed. In addition, Dr. Hanke said he was impressed by its results in a renal transplant patient with extreme sun damage that included a history of skin cancers and many keratoses.

It also doesn’t work for disseminated superficial actinic porokeratosis or granulomatous rosacea, he concluded.

Its record in treating warts is erratic, he said, although he has had luck sometimes by parring the wart down, applying several coats of ALA, and then occluding the wart overnight prior to exposure to a light source.

Dr. Hanke has conducted clinical trials for DUSA Pharmaceuticals. Dr. Goldman has been a consultant for DUSA and for the Lumins LightSheer diode laser system, which can be used for phototherapy. Dr. Sadick has conducted research and/or consulted with Photocure ASA, Metvix, DUSA Pharmaceuticals, and OmniliX Inc., companies that manufacture lasers and light sources that can be used in phototherapy.