Lasers, PDT May Have Niche in Cancer Treatment

BY JEFF EVANS
Senior Writer

BALTIMORE — Lasers and light therapies have a limited role in the treatment of skin cancers and pigmented lesions, but their judicious use may be appropriate when standard treatments would be time consuming or provide poor cosmetic results, Dr. James Spencer said at a meeting sponsored by the Skin Disease Education Foundation.

Dr. Spencer, director of Mohs micrographic surgery at Mount Sinai Medical Center, New York, presented information to help physicians determine when it may be acceptable or unacceptable to use lasers or photodynamic therapies on skin lesions.

CO_2 Laser

Use of a CO_2 laser in continuous wave mode produces rapid and bloodless thermal destruction of tissue, but this mode has not been shown to be an effective treatment for skin cancer, he said. In a study of 24 basal cell carcinomas (BCCs) treated this way, 50% recurred after 1 year and healing after the procedure produced hypopigmentation and atrophy (J. Dermatol. Surg. Oncol. 1979;5:803-6).

Some studies have tested the theory that treatment of superficial skin cancers with the CO_2 laser in ultrapulsed mode could destroy the tumor and avoid scarring. In a series of 51 BCCs that were treated with the CO_2 laser in ultrapulsed mode, dermatologic surgeons were able to ablate 21 superficial BCCs reliably if the level of ablation penetrated to the midreticular dermis or deeper. Attempts to use this method with 28 nodular and 2 infiltrating BCCs were not successful (Br. J. Plast. Surg. 2000;53:286-93).

In another study, two or three passes of an ultrapulsed CO_2 laser on 17 superficial BCCs and 13 squamous cell carcinomas (SCCs) in situ with 3-mm margins onto normal skin left an unacceptably high rate of lesions positive for cancer when they were excised and examined in serial sections. For superficial BCCs, two passes left five of eight lesions positive and three passes left zero of nine lesions positive. Treatment of in situ SCC with two passes yielded two of six lesions positive while three passes resulted in three of seven lesions being positive (Arch. Dermatol. 1998;134:1247-52).

Dr. Spencer said that he did not think CO_2 lasers should realistically be a part of a dermatologist's armamentarium against skin cancer, but he suggested that the CO_2 laser may be considered to treat actinic cheilitis and basal cell nevus syndrome, "where your role is not cure, but control, and you're trying to avoid too much mutilating surgery."

Intravenous and Topical PDT

Intravenously administered photodynamic therapy (PDT) with agents such as porfimer sodium (Photofrin) is being studied for a variety of cancers, but its side effect of photosensitivity for 4-6 weeks through the skin and eyes creates a problem in using it for skin cancers. "If you're dying of a stomach cancer, you will hide in a dark room for a month, but if you've got some basal cell skin cancers, I don't think you will," Dr. Spencer said.

In a prospective study, PDT with intravenous Photofrin and red light yielded a complete response rate of 88% after an average follow-up of 29 months in 37 patients who had a total of 151 BCCs (most patients had basal cell nevus syndrome). Tumors recurred, however, in 36% of lesions on the nose and in 89% of morpheaform tumors (Arch. Dermatol. 1992;128:1597-601).

PDT researchers are studying shorter-acting light-sensitizing compounds that preferentially accumulate in malignant cells to avoid the problem of persistent photosensitivity with Photofrin. Verteporfin, an intravenously administered agent approved for ophthalmologic use that photosensitizes patients for only a few days, is undergoing clinical trials to test its efficacy in skin cancer, he said.

Topical PDT agents such as delta-aminolevulinic acid (ALA), which avoid the photosensitizing problem altogether, have had reported recurrence rates of 44% in 95 superficial BCCs and 69% in 35 superficial SCCs after 19 months of follow-up (Arch. Dermatol. 1998;134:821-6). "You should not be doing this in your practice," said Dr. Spencer, who also has a private practice in St. Petersburg, Fla.

Eyelid tumors may represent the best opportunity to try topical ALA because it is usually desirable to avoid surgery in that

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New Leg Vein Tx Combines Laser and RF Energy

BY SHARON WORCESTER
Southeast Bureau

ATLANTA — A novel technology that combines diode laser and radiofrequency energy may be safe and effective for treating leg veins, Dr. Neil Sadick reported at the joint annual meeting of the American Society for Dermatologic Surgery and the American College of Mohs Micrographic Surgery and Cutaneous Oncology.

In a two-center study involving 50 women with lower extremity red or blue leg veins up to 4 mm in diameter, the Polaris LV system (Syneron Inc., Richmond Hill, Ont.) provided at least 50% vessel clearance in 76% of patients. The clearing persisted at 6 months of follow-up, said Dr. Sadick of Cornell University, New York.

The system uses a 915-nm laser. Patients were treated with one to three passes at each of three treatment sessions scheduled at 2-week intervals.

Pre- and posttreatment photographs were graded by patients and an independent physician at a 2-month follow-up visit to determine the level of vessel clearance, and a score was generated by a novel computer-based assessment system. Independent observer analysis was corroborated by the computer imaging analysis.

Biopsy specimens also were provided for histologic assessment, which showed signs of coagulation and prominent endothelial degeneration in all treated vessels, said Dr. Sadick, who is a research consultant for Syneron.

A subsequent study showed that the Polaris LV system's effects were comparable histopathologically with those of the 1064-nm wavelength laser.

Complications with the Polaris LV system were minimal. A slight increase in the amount of hyperpigmentation and bruising was noted, compared with the 1064-nm laser, but pain was considerably less with the 915-nm laser. ■

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area and ALA may be able to more fully penetrate the thin skin of the eyelid, he suggested. In one study, topical PDT ALA treatment clinically resolved 8 of 19 nodular BCCs on the eyelids and periocular skin, while the other lesions had partial or no response (Acta Ophthalmol. Scand. 1999;77:182-8).

In a study of topical PDT with methyl-5 ALA, 79% of 350 nodular BCCs that were curetted before treatment with PDT were clinically clear. After 2-4 years' follow-up, 11% of the clinically clear lesions recurred (Br. J. Dermatol. 2001;145:467-71).

Lasers That Target Melanin

Lasers should not be used as a substitute for surgical removal of lentigo maligna, Dr. Spencer said.

In 11 patients with lentigo maligna who were treated with the Q-switched ruby laser on four occasions in a 6-month period, 6 of 13 biopsies taken after treatment were still positive for the lesion. Studies of lentigo maligna treatments with 532-nm and 1,064-nm Q-switched Nd:YAG lasers have shown similar results.

Some people may want to undergo laser removal of common acquired nevi for cosmetic reasons. There is a variable response to such treatment, in which nevi partially or completely lighten in color. This "debulks" and superficially removes the nevus from the epidermis but leaves residual nevus cells in the dermis, he said.

It is unclear if laser treatment of dysplastic or congenital, especially giant, nevi reduces the risk of melanoma. Treatment of atypical-appearing melanocytic lesions with lasers can provide an excellent cosmetic result, but it may run the risk of promoting malignant transformation. Lasers strip a lesion of its outer layer of UV-protecting melanin and create a scar in the papillary dermis that may clinically mask a deeper component, Dr. Spencer said.

"These concerns are very real," he said, but "people have been cautiously trying lasers on nevi for 20 years, and we haven't seen any malignant transformation."

Dr. Spencer said that laser removal of nevi "should be studied in a more formal way, but people have been very afraid to do this."

Clinicians have widely accepted the removal of nevi of Ota with lasers for only cosmetic improvement, so laser removal of large congenital and common acquired nevi should be considered, he said.

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