

Blue-Light Therapy Warding Off Skin Cancer

The addition of photodynamic, or "blue-light," therapy at UI Hospitals and Clinics is helping dermatologists ward off skin cancer in patients with actinic keratoses.

Also known as solar keratoses, these scaly bumps range in size from pinhead to one inch and appear primarily in sun-exposed areas on the face, ears, head, lips and back of the hands and forearms. If left untreated, an estimated 10 percent of these precancerous lesions may eventually evolve into a type of skin cancer called squamous cell carcinoma.

The hospital has treated about a dozen patients since acquiring the technology in the spring, said Vincent Liu, MD, UI Hospitals and Clinics dermatologist and clinical assistant professor of dermatology in the UI Roy J. and Lucille A. Carver College of Medicine.

"Photodynamic, or blue-light, therapy for actinic keratosis can help treat and reduce the number of precancers, hopefully reduce the number of full-fledged skin cancers and possibly help in photo-rejuvenation," Liu said.

Pioneered in Europe, the therapy works by applying a light-sensitizing chemical solution to the skin area that needs treatment and then exposing the area to blue light. The photosensitive chemicals, which have been absorbed into the skin, react with the particular wavelength of blue light to generate reactive oxygen radicals that destroy the potentially precancerous or cancerous skin cells.

"Photodynamic therapy can treat large areas of the patient's skin, usually with little discomfort, and offers some advantages over other treatment methods," Liu said. "Many people, even those with diabetes, are candidates for the therapy. People with rare light-sensitive conditions, however, cannot receive the treatment."

Longer-standing treatments for actinic keratosis include cryotherapy, which involves freezing the skin with liquid nitrogen. "Cryotherapy is quick and effective," Liu said, "But, unlike blue-light therapy, it can sting and is not practical to use for large areas of skin."

A second option, topical chemotherapy, can treat a large skin area but often causes inflammation. A third option uses chemical or laser resurfacing to remove skin layers. This method can treat large areas but can be uncomfortable.

"Photodynamic therapy is a helpful alternative method for treating actinic keratosis. It's proactive and to some extent, preventative," Liu said.

People who work in farming or spend a lot of time outdoors without using sunscreen or protective clothing are at risk of developing actinic keratosis. In addition, people with fair skin, blonde or red hair, or blue, green or gray eyes are most at risk. However, even individuals with darker complexions can be at risk if they receive a lot of sun exposure.

"Using sunscreen, hats and sun-protective clothing, and avoiding peak sunlight hours

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Using sunscreen, hats and sun protective clothing, and avoiding peak sunlight hours, are ideally the first line of protection against sun damage to the skin," Liu said.

"However, with many individuals at increased risk of skin cancer in the United States, it's important to have effective treatments available."

Photodynamic treatment involves an initial screening, followed by a treatment visit. First, the photosensitizing liquid, aminolevulinic acid, is applied to the patient's affected skin. The patient sits in a darkened room for about one hour while the liquid is absorbed. Then, the target area is exposed to blue light for about 17 minutes. Patients wear protective eye goggles while undergoing the light treatment.

The treated lesions heal in about one week, however, the therapy makes people temporarily more sensitive to sunlight and sunburn. As a result, patients must use sunscreen and sun-protective clothing for the 24 to 48 hours immediately after treatment.

Liu said researchers are interested in exploring whether photodynamic therapy can be used to treat other skin conditions, including acne and acne-related conditions.

As with all medical care it is best to consult your personal doctor before making any changes to your health care routine.

Vincent Liu, MD

January 2007