A 48-YEAR-OLD MAN WITH SEVERAL ACTINIC KERATOSES OF THE FOREHEAD

BACKGROUND AND TREATMENT PLAN

A 48-year-old male, an attorney, was visiting the office for a routine blood pressure measurement. He asked his physician about a skin rash that had developed on his forehead over the preceding several months. After some research on the Internet, the patient thought his rash to be chronic contact dermatitis. Visual inspection and palpation of the lesions indicated significant photodamage and the presence of several actinic keratoses (AKs), which were too numerous to count (Figure 1). The patient noted that some lesions were associated with a burning sensation or were sensitive to the touch, which are common features of AKs.1

Several factors were considered in selecting a treatment for this patient, including the severity, size, and distribution of his AKs. Due to the large skin area and the number of AKs, field-directed therapy (ie, topical therapy to treat AKs across a wide area of skin) was selected. The patient was treated once daily with 5-fluorouracil (5-FU) 0.5% for 4 weeks, which was applied to the entire forehead.

Options approved by the US Food and Drug Administration for the field therapy of AK include 5-FU, imiquimod, and diclofenac. Topical 5-FU is available in several different formulations, is effective for the treatment of both visible and subclinical lesions, and may be used preventively.2,3 5-FU is applied in a thin coat once or twice daily using a nonmetal applicator and gloves. Application continues until ulceration occurs, usually 2 to 4 weeks.2 A vigorous inflammatory response is required for efficacy, and patients should be counseled to expect severe skin irritation. 5-FU treatment is also associated with significant photosensitivity. Topical corticosteroids may be considered to relieve skin inflammation for a patient with an intolerable inflammatory reaction, or for a patient who has applied too much 5-FU. However, corticosteroids may suppress the desired inflammatory response produced by 5-FU, and should generally be avoided if possible. The frequency of 5-FU application may be reduced for patients who have severe ulceration. To improve the tolerability of 5-FU, a formulation consisting of 0.5% 5-FU incorporated into porous microspheres has been developed for once-daily application to the face and scalp.4 A severe systemic reaction to topical 5-FU has been described in individuals who have a rare deficiency of dihydropyrimidine dehydrogenase, which is the rate-limiting enzyme in 5-FU metabolism.5

Imiquimod is a topical immunomodulator that is used for the treatment of AK and skin cancer. It may be administered 2 to 3 times per week, usually for 12 to 16 weeks.2 As with 5-FU, imiquimod produces a vigorous inflammatory response that may be difficult for patients...
to tolerate. Other potential limitations of imiquimod include relatively high cost, considerable patient-to-patient variability in response, and the potential for rare systemic reactions. Imiquimod should not be used in patients with any form of immunosuppression.

A third topical agent, diclofenac, is available for AK treatment, but is rarely used in clinical practice. Diclofenac is usually administered twice daily for 60 to 90 days.

The professional and social obligations of the patient should also be considered when selecting an AK therapy. All of the treatments described earlier in this article produce significant inflammation and redness that may last for several weeks or even months. Patients who are required to engage in frequent interactions with other people may be unwilling to use a treatment that causes severe skin irritation, especially for facial lesions. Photodynamic therapy may remove AKs with a clearance rate that is similar to that of topical 5-FU with only a single treatment session. Although effective, photodynamic therapy is not widely used in family practice settings. Side effects of photodynamic therapy include photosensitivity, burning, and stinging, which are sometimes quite painful.

**A 56-Year-Old Woman with a Single Actinic Keratosis Lesion**

**BACKGROUND AND TREATMENT PLAN**

The patient is a 56-year-old woman from Boulder, Colorado. She is in excellent general health and participates in frequent outdoor activities, including bicycling, swimming, and hiking. Despite her frequent outdoor activities, she rarely uses sun protection. During a recent office visit for an annual physical examination, she asked her physician about a red, scaly lesion below her

**EVIDENCE-BASED PRACTICE RECOMMENDATION**

1. Practice recommendation: Cryosurgery is effective for the treatment of individual AK lesions.

**Name of AAFP-Approved Source:** European Dermatology Forum: Guidelines for the Management of Actinic Keratoses.

**Specific Web Sites of Supporting Evidence from Approved Sources:**

- [http://euroderm.org/content/guidelines_keratoses.htm](http://euroderm.org/content/guidelines_keratoses.htm)

**Strength of Evidence:** Recently updated guidelines for the management of AK developed by the European Dermatology Forum noted that cryosurgery with liquid nitrogen is widely used for the treatment of AK, although there are no randomized controlled trials demonstrating its effectiveness (consensus opinion, usual practice; strength of recommendation, C). Two single-cohort studies with a combined population of 433 patients demonstrated recurrence rates following cryosurgery of approximately 1% to 12% per year (strength of recommendation, B).
left eye. The lesion was slightly raised, was approximately 1 cm x 1 cm in size, and was not associated with increased vascularity, pearly borders, bleeding, or thick crusting (Figure 2). The patient noted that she had tried a nonprescription steroid cream, which did not improve the lesion. The lesion was diagnosed as a single AK, and was treated with liquid nitrogen cryosurgery.

This patient had only a single, easily accessible AK lesion, and was considered an excellent candidate for cryosurgery. Cryosurgery is easy to administer and is associated with a high cure rate and low risk of scarring when applied properly.1,4 The freezing of the skin surface results in exfoliation and replacement of the lesion with new skin. Treatment may produce a stinging or burning sensation, short-term skin redness, and the eventual formation of a flat white spot at the site of the lesion. Liquid nitrogen may be administered using a cotton-tipped applicator or a spray device. Cryosurgery may also be administered using a cryo-probe. It is also possible to combine cryotherapy with a topical therapy. For example, an initial application of 5-FU often reveals additional lesions, which may then be treated using liquid nitrogen.

The patient was also reminded to use preventive measures to reduce her risk of future AKs. She was encouraged to use a broad-spectrum sunscreen, sun-protective clothing (including a hat with a broad brim), avoid sun exposure during hours of peak sun intensity (10 AM–4 PM), avoid tanning salons, and perform regular self-evaluations for new lesions.

Regular follow-up evaluations should be performed every 6 months. For some high-risk patients (eg, patients with recurrent squamous cell carcinoma or who are repeatedly being treated for AKs), prophylactic 5-FU may be appropriate to prevent future AKs.

**CONCLUSIONS**

Skin cancer is the most common of all human cancers, but is highly treatable. The identification and early treatment of AKs are essential to reduce the risk of invasive skin cancer. A number of options are available to remove AKs and to prevent their recurrence. Selection of treatment requires the consideration of factors, such as the number, distribution, and characteristics of the AK lesions, in addition to the specific concerns of each individual patient.

**REFERENCES**
