

Actinic Keratosis: An Overview for Patients and Caregivers

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Actinic keratoses, also called solar or senile keratoses, are benign lesions that commonly appear on areas of sun-exposed skin. Cumulative UV radiation exposure drives changes in the skin cells by interfering with pathways responsible for cell growth. These lesions may undergo transformation to squamous cell carcinoma in anywhere from 0.025% to 16% of patients with properly functioning immune systems, and in up to 20% of patients with compromised immune systems.

Risk Factors

The development of actinic keratoses is associated with several risk factors. The prevalence of actinic keratoses is higher in older individuals, men, individuals with lighter skin types, those who live closer to the equator, and those with a higher lifetime accumulation of exposure to UV radiation. Moreover, individuals with a compromised immune system, including those undergoing chemotherapy, those with HIV, those on medications that can suppress the immune system, or those with leukemia, are more susceptible to developing actinic keratoses.

Presentation

Actinic keratoses most typically present as red flat or raised lesions, usually covered by scale. Less commonly, these lesions can be darker colors, like brown. They are typically rough in texture, and may be more easily identified by touch than by visual inspection during initial stages. The surrounding skin may show signs of sun damage, including wrinkles. Actinic keratoses are usually asymptomatic, but can be associated with itching, burning, pain, or bleeding. These lesions most commonly occur in areas of the skin that have had chronic sun exposure, including the face, scalp, neck, shoulders, forearms, and back of the hands. The head, neck, and forearms account for 75% of lesions.

Diagnosis

Your dermatologist will diagnose an actinic keratosis primarily based on clinical observation and by examining the lesion using a tool called a dermatoscope. Dermoscopy can be particularly useful for evaluating the progression of an actinic keratosis to invasive squamous cell carcinoma. In certain cases, a biopsy is necessary to confirm the diagnosis. A biopsy is warranted for large lesions, or those that are bleeding, ulcerated, growing quickly, intensely itchy, causing pain, colored, or raised. A biopsy is also required if you fail to respond to standard treatments, or if there is concern of progression to squamous cell carcinoma.

Treatment

Because of the potential to undergo malignant transformation and the inability to predict which lesions will do so, all actinic keratoses should be treated. Treatment selection varies based on clinical presentation, location, and the number of lesions, and is therefore individualized to each patient. The highest recurrence rates are observed in patients treated only with cryotherapy, while the lowest rates are observed in those who have undergone field cancerization treatment.

Lesion-Directed Treatments

Lesion-directed therapies focus on treating individual actinic keratoses. Standard options for lesion-directed therapies include cryotherapy, curettage, or surgical excision. Cryotherapy involves using liquid nitrogen to achieve tissue freezing and thawing. Cryotherapy is the treatment of choice in patients presenting with an isolated or small number of lesions. Curettage is an additional consideration, which is performed under local anesthesia to scrape off the lesion, either alone or with electrodesiccation to help stop bleeding. Curettage is indicated for patients with few lesions or those resistant to field cancerization therapy. Finally, surgical excision can be considered if the diagnosis is unclear or if there is suspicion for squamous cell carcinoma.

Field-Directed Treatments

Field-directed therapies treat multiple or widespread actinic keratoses within areas of chronic sun damage rather than an individual lesion. Field-directed therapies can include topical chemotherapy creams or immunomodulators, photodynamic therapy, or laser resurfacing. Before prescribing a topical medication, the expected side effects of blistering, erosion, crusting, burning, pain, itchiness, redness, swelling, and increased sensitivity to sunlight should be discussed.

Among FDA-approved topical medications, 5-fluorouracil cream is one of the most effective treatments for actinic keratoses, applied twice daily for a period of two to four weeks. Imiquimod is typically indicated for use on the face and scalp, and requires 4-16 weeks of application. Diclofenac sodium gel is generally well-tolerated by patients, but requires application twice daily for two to three months, and therefore may have lower patient adherence rates. Ingenol mebutate is available for facial and scalp actinic keratoses, and requires only a few consecutive days of treatment.

Beyond topical medications, a number of other field-directed treatment options exist. Dermabrasion involves removal of the affected outer layers of the skin. Resurfacing lasers can also target the outer layers of the skin. However, lasers can increase the risk of secondary infection, so they are not recommended in patients with compromised immune systems. Chemical peels, which involve the application of a chemical solution to remove the outer layers of the skin, can treat widespread facial actinic keratoses. Finally, photodynamic therapy involves the topical application of a light-sensitive agent and a light source to destroy the lesion.

Prevention

Studies have demonstrated that vitamin B3, or nicotinamide, in doses of 500 mg taken twice daily is effective at reducing the rate of onset of both new actinic keratoses and nonmelanoma skin cancers (NMSC). If you have a history of actinic keratoses, talk to your dermatologist about photoprotection and the use of sunscreen to prevent the onset of new lesions. For patients with functioning immune systems, SPF over 15 has been shown to reduce the development of new lesions, while SPF over 50 has been shown to be effective in patients with compromised immune systems.

References

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