Nonmelanoma Skin Cancers Diagnosis and Management

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KEYWORDS

• Nonmelanoma skin cancer • Squamous cell carcinoma • Basal cell carcinoma
• Actinic keratosis

KEY POINTS

- Nonmelanoma skin cancers are common cancers that are becoming an epidemic in the United States typically arising from precancerous cells that may be a result of extensive UV radiation exposure as well as other factors.
- An approach to treatment includes early diagnosis along with preventive measures and multiple therapies after a diagnosis is made to prevent disfiguration and recurrence.
- Guidelines outlining the specific care protocols for actinic keratosis, basal cell carcinomas, and squamous cell carcinomas are important for the management and clinical outcomes of patients.
- Health care providers play a key role in education, prevention, detection and treatment of nonmelanoma skin cancers.

INTRODUCTION

Diagnosis of actinic keratosis (AK) and nonmelanoma skin cancers can cost insurance companies billions of dollars every year. This largely preventable disease is actually growing in number instead of declining. With the popularity of indoor tanning being approved by the Food and Drug Administration (FDA) in 1978 and growing into a billion-dollar industry, the dermatologist has a challenge in convincing patients of the dangers that UV radiation, whether indoors or out, can cause. In addition to educating the patient that chronic cumulative exposure and sun burns are major risk factors, it is important to inform patients that there are other causes as well. The regular use of sunscreen, including reapplication, prevents the development of precancerous AK and results in regression of existing keratosis.[1] This may pose a challenge to the provider because in 2009 the average number of tanning salons exceeded the number of Starbucks and McDonalds in the United States.[2] However, as mentioned, other factors can play a key role in developing AK, basal cell carcinoma

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(BCC), and squamous cell carcinoma (SCC). These include but are not limited to family history and genetics (fair skin; blond/red hair; blue, green, gray eyes); also at risk are organ transplant recipients because of the therapy patients receive to prevent organ transplant rejections, and patients with low immune systems, whether from illness such as human immunodeficiency virus or AIDS or treatment modalities, like biologics and chemotherapies, for other diseases (**Box 1**). Because the precursor of most nonmelanoma skin cancer is known as AK, for simplicity, AK is included in this discussion as a nonmelanoma skin cancer; however, it is known as a premalignancy.

Nonmelanoma skin cancers are most commonly derived from keratinocytes, an epidermal cell that synthesizes keratin and other proteins and sterols, with most cases of AK, BCC, and SCC evolving on the face, with one-half presenting on the nose.[3] Other common areas include the ears, scalp, neck, decollate, shoulders, arms, and legs; however, they can present in areas that are not exposed to sun. Providers look for all new or changing lesions, which are then deemed suspicious and evaluate if the lesion presents as an AK, BCC, and/or SCC; as all these types of growths can be seen in the same location and diagnosed from one lesional biopsy. Depending on the clinical suspicion of a lesion, to make a histologic diagnosis, a biopsy with a curette, punch, or dermablade is the diagnostic test of choice; these biopsies are simple, fast, and definitive.[3] Depending on the pathology-proven diagnosis, a treatment plan is derived. Most nonmelanoma skin cancers have a high cure rate with early diagnosis, and treatment.[4] Patient education is always provided at every office visit and information is provided for the patient to take home.

WHERE IT ALL BEGINS: THE EPIDERMIS

The skin has 3 distinct layers that are identified with the most superficial layer known as the epidermis. Keratinocytes make up 95% of the skin cells that are found in the epidermal layer and form distinct layers that are used for protection. The 4 layers include the following: stratum corneum (horny layer), stratum granulosum (granular layer), stratum spinulosum (spinous, spiny, or prickle cell layer), and stratum basale (basal layer) (**Fig. 1**). As they mature, keratinocytes differentiate into these 4 layers and accumulate keratin as they move outward, which takes approximately 22 days and is known as "epidermal renewal time."[5] This layer of the skin is superficial to the dermal layer. The subcutis layer is the third, deepest, layer of the skin (**Fig. 2**).

AK, BCC, and SCC all arise from keratinocytes. With the risk of 10% of AKs turning into SCCs, it is imperative to treat AKs to reduce the risk. They are recognized as precancerous lesions and are common skin growths.[6] It is also now believed that some BCCs can arise from AKs as well. Approximately 65% of all SCCs and 36% of all BCCs arise in lesions that previously were diagnosed as AKs,[7] which makes the treatment of these precancerous lesions a priority with every patient visit. In 2009, the

Box 1
Risk factors for developing nonmelanoma skin cancers

1. UV radiation: Indoor and outdoor, cumulative exposure, or sunburns and/or long-term x-ray therapy.
2. Family history: Immediate blood relatives.
3. Genetic makeup: Fair skin, blond/red hair, blue/green/gray eyes.
4. Organ transplant recipients: Therapies to prevent organ rejection.
5. Low immune systems: Secondary to illness or treatment modalities of other diseases.