Editorials

Keratinocyte Carcinomas: Should We Screen for Them?

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Keratinocyte carcinoma, which includes basal cell and cutaneous squamous cell carcinomas, is common, and the incidence is increasing. According to the Centers for Medicare and Medicaid Services, the estimated number of keratinocyte carcinomas diagnosed in the United States in 2012 was more than 5.4 million.[1] The treatment costs for such cancers are high. From 2007 to 2011, the average annual cost for skin cancer treatment in the United States was $8.1 billion.[2] The article by Firnhaber in this issue discusses available treatment options, which allows treatment to be tailored to minimize the functional and cosmetic consequences of these cancers while maximizing cure rates.[3] A small proportion of cutaneous squamous cell carcinomas have the potential to metastasize; however, keratinocyte carcinoma has a very low risk of death with an incidence of 7,000 per 100,000 but a mortality rate of only 0.44 per 100,000.[1,4,5]

The morbidity and costs associated with keratinocyte carcinoma have led to significant attention on prevention, including clinical counseling on reducing sun exposure and limiting tanning bed use, and public health messages about sunscreen use.[6,7] In addition to prevention, some have advocated systematic screening to reduce the burden of skin cancer, including keratinocyte carcinoma.

The decision of whether or not to screen people who are at average risk for skin cancer is challenging. Most of the discussion about skin cancer screening has focused on melanoma because it is much more deadly than keratinocyte carcinoma. The decision to screen for skin cancer depends on if screening for melanoma (i.e., a systematic examination in the absence of specific patient symptoms or concerns) would be more effective in reducing melanoma mortality compared with usual care (i.e., an opportunistic examination or examination in response to patient concerns). Targeted screening for melanoma based on risk might be a more effective strategy, whether based on age alone; or by assessing for common, weak risk factors such as the presence of fair skin; or less common but stronger risk factors such as immunosuppression after organ transplantation, greater than 100 atypical moles, or a personal or family history of melanoma.

Unfortunately, no high-quality randomized trials have assessed whether screening for melanoma is more effective than usual care for reducing melanoma-related mortality; therefore, it is even harder to address screening practices for keratinocyte carcinoma. The U.S. Preventive Services Task Force has determined that evidence is insufficient to recommend for or against screening for adults based on limited evidence for melanoma. The U.S. Preventive Services Task Force did not systematically review the evidence about keratinocyte carcinoma because of the presumed limited impact on mortality.[8,9]

The decision to screen for skin cancer should ideally incorporate all positive and negative consequences of screening, including the effect of screening on the detection and treatment of keratinocyte carcinoma. A visual screening examination will inevitably detect keratinocyte carcinoma and its precursors. This would seem to be an advantage because screening could detect keratinocyte carcinoma earlier when it could be treated with less involved or expensive treatments that reduce cosmetic and functional morbidity. However, screening will also detect some lesions that would be defined pathologically as cancer, but that would never actually progress to cause any symptoms or disability. This phenomenon of overdiagnosis results in treatment that would not have been required to maintain function or quality of life. Apart from overdiagnosis, false-positive screening results may cause worry, the need for additional visits, and potential scarring at the biopsy site. Therefore, systematic screening could increase costs and harms.

A German study on the effectiveness of skin cancer screening found that the number of keratinocyte carcinomas detected increased by 34% for men and 47% for women.[10] Most of the increase in detection was on body sites that are usually covered by clothing. Despite increases in incidence, there was no discernable effect on mortality. Mortality rates from keratinocyte carcinoma across Germany have been mostly stable or have slightly decreased over time.[11] Unfortunately, physicians are unable to determine which individual keratinocyte carcinomas will progress to cause disability or metastasize; therefore, physicians should diagnose and treat each lesion with the goal of maximum treatment effect.

Patients or family members often detect keratinocyte carcinomas present in visible areas before they have caused significant morbidity. This makes it more difficult for systematic screening to be beneficial in comparison with usual care. The opportunity to reduce the currently unmet burden of care from keratinocyte carcinoma may come from reducing the time from incidental detection to localized treatment, especially for patients with limited access to care because of a lack of health insurance or local treatment resources. The issue of whether or not to screen for skin cancer must be resolved by answering if systematic screening reduces mortality from melanoma, which would require a large, randomized trial. Compared with usual

care, potential effects of screening on morbidity and mortality from keratinocyte carcinoma are at most small, and screening cannot be justified based on the impact on keratinocyte carcinoma alone.

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