

Screening for Melanoma in Aging Patients

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Despite recent advances, there is still no highly effective treatment of metastatic melanoma. By contrast, melanoma in situ essentially is a surgically curable disease. Therefore, the most promising approach to reducing melanoma mortality rates is the prompt detection and treatment of early-stage melanoma. The incidence of melanoma in the United States is increasing over time and the incidence increases with age. Thus early detection of melanoma via patient and physician screening in the aging population has the potential to substantially reduce melanoma mortality.

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More than 75,000 individuals in the United States are diagnosed with melanoma and nearly 10,000 die from their disease each year. The lifetime risk for developing melanoma is 1 in 37 for men and 1 in 56 for women.¹ One of the most important ways that dermatologists can help patients is through early detection of melanoma; however, patients at risk for melanoma do not always seek out screening opportunities. In particular, as with most cancers, the incidence of melanoma increases with age, particularly among men, and this group often is the least likely to seek skin cancer screening.² These patients may seek dermatologic evaluation for other issues, and recognizing that they could benefit from the simple and quick intervention of skin cancer screening may help to better reach these at-risk individuals. In fact, a recent study showed that the yield

of skin cancer screening in patients who present to the dermatologist for another reason is much higher in elderly versus young patients.³

Unlike screening for other forms of cancer (eg, breast, colon), skin cancer screening has no clear or established guidelines. To our knowledge, no large-scale, prospective, randomized studies have been conducted to analyze the value of melanoma screening, which has led agencies such as the US Preventive Services Task Force to determine that there is insufficient evidence to recommend for or against regular screening for melanoma.⁴ However, melanoma incidence and mortality rates clearly are increasing among individuals 65 years and older, particularly among men in this age group.⁵ Targeting individuals with the greatest risk for developing and dying from melanoma for screening will have the greatest impact on reducing the number of melanoma deaths nationwide.

Melanoma in Elderly Patients: Epidemiology and Outcomes

In determining which patients will benefit most from melanoma screening, it is important to consider disease incidence (ie, who gets melanoma) and mortality (ie, who dies from melanoma) in a particular population. Melanoma incidence rates are positively correlated with increasing age. From 2004 to 2006, the incidence of melanoma among individuals aged 65 years or older was more than 10 times greater than those aged 15 to 34 years and 2.7 times greater than those aged 35 to 65 years.⁶ To highlight the increased risk for melanoma associated with age, consider that the probability of a 60-year-old white man developing melanoma in the next 9 years of his life is nearly 5 times greater than the probability of a newborn white boy developing melanoma over the next 40 years of his life.⁷ Mortality rates follow a similar trend, with 12.69 deaths from melanoma per 100,000 in patients older than 65 years and 2.66 deaths per 100,000 in patients aged 35 to 64 years.⁶ Men are more than twice as likely as women to develop and

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die from melanoma. This discrepancy is even greater in individuals older than 65 years. Higher socioeconomic status is associated with increased melanoma incidence but decreased mortality rates; however, a recently noted exception to this trend is that among patients aged 15 to 39 years, the incidence of melanoma is actually greater in women than in men. Although the cause of this discrepancy is unknown, it may be related to increased tanning rates, particularly indoor tanning, among women in this age group. Interestingly, however, melanoma mortality rates still remain higher among men in this population.⁵

Not only does the melanoma disease burden increase with age, but melanoma also is more likely to be detected later in elderly patients, and their tumors seem to exhibit more aggressive behavior. In one study, patients who were diagnosed with melanoma at 70 years or older were more likely than younger patients to have T3 or T4 category tumors.⁸ Tumors in these older individuals also were more likely to have high mitotic rates, though there was not an age-related difference in rates of ulceration. In patients who underwent sentinel lymph node biopsy, when stratified by stage elderly patients with T3 or T4 lesions had a lower rate of sentinel lymph node involvement. However, their outcomes were poorer; recurrence-free survival rates were 91.8% in patients younger than 50 years but only 60% in patients 70 years or older, with progressively lower rates with increasing age.⁸ Although there was an overall decrease in melanoma mortality rates between 1992 and 2006 in the United States, there was an increase in melanoma mortality rates among individuals 65 years or older, with the greatest increase seen in men in this age group.⁵

Strategies to Improve Early Detection of Melanoma in the Aging Population

Because melanoma incidence and mortality rates are greater in aging patients, it makes sense to target this patient population for early melanoma detection. There is no effective treatment of metastatic melanoma, thus early detection has the greatest potential to impact disease mortality. Because primary melanomas are almost always visible on the skin, screening by visual examination is inexpensive, noninvasive, and poses a low risk compared to screenings for other types of cancer, such as breast or colon cancers. Unlike these other cancers, however, melanoma is unique in that it can be detected at the in situ stage with simple visual inspection by a physician (dermatologist or other provider). Unlike other cancers, melanoma also can be and often is detected by the patient.

Self-detection of Melanoma—Several studies have examined the percentage of melanomas that are

detected by patients, and most show that it is more than half; however, not all patients are equally likely to detect their own melanomas. Women are more likely than men to detect melanoma in both themselves and their spouses. In one study (N=471), 69% of female patients compared with 47% of male patients detected their own melanomas; 90% of spousal detections were attributed to wives.⁹ Consistent with this finding, the risk for being diagnosed with a late-stage melanoma is greater among never married and divorced men than women.¹⁰ Older patients are less likely to detect their own melanomas or detect them only when the lesion is thicker, leading to a poorer prognosis than younger patients. In one study, when compared to patients younger than 50 years, those patients 50 years and older were nearly 3 times more likely to have a melanoma that was dermatologist detected.¹¹ In another series of 566 patients with melanoma, self-detection was more common among patients 60 years and younger than patients older than 60 years (57% vs 46%).¹²

Because there essentially is no harm in maximizing self-detection of melanoma, it seems logical to encourage self-screening examinations (SSEs), which are free and can be conducted by patients in the convenience of their own homes. Self-screening examinations are performed more frequently by patients who have a lower mortality from melanoma, specifically women and individuals with higher incomes and an education beyond high school.¹³ Increased knowledge of melanoma and its risks also is associated with increased SSE rates. In one study of behaviors in patients diagnosed with melanomas that were less than or equal to 1 mm in depth compared to those diagnosed with thicker melanomas, routine SSE of some or all of the skin using a visual aid illustrating a melanoma was associated with thinner melanomas. Self-examination using a visual aid is particularly promising in the aging population, as the effect of having a thinner melanoma at the time of diagnosis due to the use of self-examination and visual aids was statistically significant (odds ratio, 2.84; 95% confidence interval, 1.46-5.49) among individuals older than 60 years but not in patients who were 60 years or younger; the benefit of SSE primarily was realized by men older than 60 years.¹² Because simply being asked by a dermatologist to perform a SSE increases performance,¹⁴ recommending SSE and providing a simple visual aid with photographs of melanoma to all patients is a quick and simple way to improve the early detection of melanoma. However, diminished visual acuity or other physical impairments that can limit the patient's ability to examine hard-to-see areas (eg, dorsal surface of the body) may prevent

some elderly patients from effectively conducting SSEs.

Physician Screening for Melanoma—Screening for melanoma by physicians is another way to have an impact on melanoma mortality rates. To our knowledge, there are no large-scale randomized studies that evaluate the impact of physician screening on melanoma mortality rates such as those that have been conducted for breast and colon cancer screening; however, several groups have evaluated the impact using other methods. In a case-control study of an Australian-based population, patients who had a clinical, total body skin examination (TBSE) within 3 years of melanoma diagnosis showed a 14% lower risk for presenting with a lesion that was thicker than 0.75 mm and a 40% lower risk for presenting with a lesion that was 3 mm or thicker.⁴ Results from a national skin cancer screening project in Germany found that melanoma mortality rates were reduced to below the expected levels 5 years after a 12-month screening campaign in participating states.¹⁵ Although these findings were promising, further analysis revealed that 1 life would be saved for approximately every 25,000 individuals screened for melanoma, which is somewhat daunting considering that in women aged 50 to 59 years, 1 life can be saved from breast cancer with every 1500 patients screened.¹⁶ However, the German campaign targeted all adults 20 years and older and approximately half of the participants were younger than 50 years. It is likely that a campaign targeted at an older population would reveal a smaller number of patients screened for melanoma per life saved.

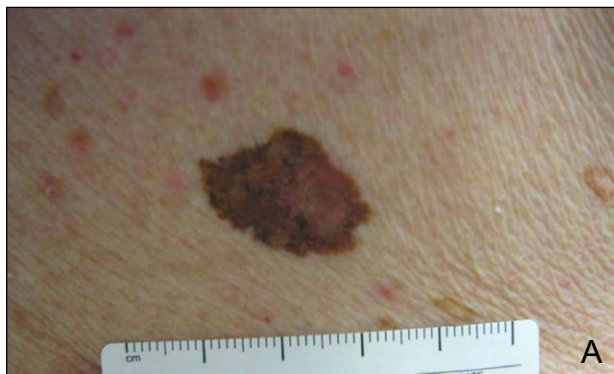
The difference in melanoma incidence with patient-detected versus dermatologist-detected melanomas in elderly patients highlights the importance of the patient's age in evaluating the benefit of physician screening. Regular visits to a dermatologist have been reported to correlate with thinner melanomas, especially in patients older than 60 years.^{9,11,12} Some studies have shown that detection of melanoma by a physician, particularly by a dermatologist, is associated with thinner melanomas. One large study performed using Medicare data showed improved survival among patients with physician-detected melanomas, particularly those detected by dermatologists.¹⁷ Because the vast majority of patients were 65 years or older, these findings are particularly applicable to elderly patients. Studies also have shown that the likelihood of self-detection of melanoma as well as the depth of self-detected lesions increases with age.^{11,18} For example, a study performed at our institution found that individuals 50 years and older were 2.75 times more likely than patients younger than 50 years to have a dermatologist-detected melanoma found at screening that was not part of their presenting condition.¹¹

Physician screening of elderly patients is much more likely to result in the detection of cutaneous malignancy than in younger patients, as shown in a study by Argenziano et al³ in which more than 14,000 patients who had presented to a dermatologist for reasons other than skin cancer screening were asked to undergo a TBSE. They found that 47 patients needed to be examined by TBSE to detect 1 malignancy and 400 patients to detect 1 melanoma. Interestingly, the number needed to be examined decreased significantly with advancing age ($P=.03$). Although 3334 patients younger than 30 years needed to be examined to find 1 malignant cutaneous neoplasm, the number needed to screen dropped to 25 to detect any skin cancer and to 170 to detect 1 melanoma among patients aged 60 to 69 years; among patients older than 69 years, the number needed to screen was 18 to detect any skin cancer and 295 to detect 1 melanoma. The likelihood of detecting a skin cancer also increased among individuals who had a personal history of skin cancer.³ These findings reflect the increased incidence of cutaneous malignancy, including nonmelanoma skin cancers, in the higher risk, aging population and the utility in targeting this group for TBSE by a physician, particularly if the patient is already at the dermatologist's office for another reason. Given the high risk for developing melanoma and low self-detection rates of melanoma in the elderly population, it is particularly important to encourage this patient population to undergo TBSE when presenting to a dermatologist (Figure).

A potential outcome of population-based screening across all age groups is the excision of a high number of benign lesions, which can be measured by comparing the number of benign lesions removed versus malignant lesions removed. In an Australian screening campaign, 37.8 benign lesions were removed for every 1 malignancy among individuals younger than 50 years; among individuals older than 50 years, this number dropped to 13.4 benign lesions for every 1 malignancy.¹⁹ These findings demonstrate how the screening examination has a higher specificity (or lower false-negative rate) for a population with an increased disease prevalence, namely an older population. This conclusion is even further illustrated when looking at the results from a German skin cancer screening campaign targeted at patients aged 14 to 34 years; screening of more than 12,000 individuals yielded biopsies of 6 melanomas (4 in situ and 2 invasive lesions), with 179 benign melanocytic lesions for each melanoma removed.²⁰

The Cost of Screening Versus the Cost of Treating Advanced Melanoma

In addition to saving lives, early detection of melanoma also provides opportunities to save health



Melanomas found during total body skin examinations of 2 elderly patients who presented with concerns that were unrelated to these lesions. An 89-year-old man presented with a malignant melanoma in situ on the right lower back (A). A 62-year-old man presented with a malignant melanoma (superficial spreading type) with a Breslow thickness of 1.3 mm on the right upper back (B).

care dollars. Health care costs calculated for patients older than 65 years by melanoma stage reveal that \$249 million is spent annually on direct melanoma care in the United States, which ranges from \$5247 annually per patient with melanoma in situ to up to \$23,285 annually per patient with stage IV disease. Patients with stage IV disease made up 2.9% of all Medicare patients with melanoma but were responsible for 40% of the treatment costs for melanoma in the population evaluated.²¹ Thus detecting melanoma at a surgically curable stage can save money. A cost analysis for melanoma screening showed that one-time screening at 50 years of age was cost-effective in patients who did not have a first-degree relative with melanoma. For patients with a first-degree relative with melanoma, screening conducted once every 2 years starting at 50 years of age also proved to be cost-effective.²²

Incorporating Targeted Screening for Melanoma as Part of Care for the Aging Patient

Even though melanoma can occur at any age and in patients determined to be at low risk for developing melanoma, full cutaneous screening of every patient at every dermatology visit would likely be prohibitive and low-yield. Screening every patient regularly, regardless of their risk stratification, may paradoxically increase the wait times for appointments for patients with suspicious lesions or at higher risk for developing melanoma. The age at which screening should begin is debatable, as studies have used 50 to 65 years as a guideline to define the aging patient population. Encouraging patients who are older than 50 years to disrobe for their visit at least once every 2 years seems to be a reasonable start. A TBSE should be done, however, in the context of the overall health and age of the patient. One of the lingering questions related to cancer screening in general is, at what age is cancer screening no longer indicated? The answer varies according to the age-related incidence and mortality rates associated with the malignancy. The challenge of coming to the dermatologist regularly and of undergoing skin biopsies may be remarkable for patients with limited mobility. In addition, one must consider the morbidity associated with treatment of the disease if it is detected in a frail patient. Although there is no particular age at which screening should be stopped in all patients, a reasonable guideline that has been offered is that there is little utility in screening asymptomatic patients who would have a life expectancy of less than 5 years or who would decline treatment if a cutaneous malignancy was detected.²³

In a survey of 190 dermatologists, 57 reported performing TBSEs on all of their patients and 93 reported screening only patients at a high risk for malignancies.²⁴ Eighty respondents reported lack of time as a reason for not screening patients. Implicitly, these dermatologists seemed to agree that TBSEs are important but that other endeavors take priority, either due to time constraints or for reasons of limited reimbursement.²⁴ Another study indicated that the median time needed for a trained dermatologist to perform a TBSE was approximately 70 seconds,²⁵ thus indicating that the extra time spent screening for melanoma is minimal. Furthermore, if a suspicious lesion is noted during the examination and a biopsy is necessary, the clinician would be reimbursed.

Similar to screening for other cancers (ie, breast, colon, prostate), screening for melanoma in aging patients also should be incorporated in visits to primary care physicians. Most patients in the United States do not see a dermatologist regularly, as indicated in an analysis of the American Academy of

Dermatology's skin cancer screening data, which showed that although men older than 50 years constituted 44% of individuals with confirmed melanoma, they only represented 20% of those who sought screening.²⁶ Because men older than 50 years visit their primary care physicians on average 2 to 3 times per year²⁷ and several brief teaching interventions targeted at nondermatologists have been shown to improve diagnostic accuracy,²⁸⁻³¹ primary care physicians should be encouraged to perform skin examinations in men older than 50 years as well as in other high-risk patients to capture those patients who do not present to dermatology offices.

Screening also should be considered even in patients who present with aesthetic concerns, as many patients who seek cosmetic consultation share risk factors with populations that are more likely to develop melanoma, particularly advanced age and substantial UV light exposure. Even in patients who decline a TBSE, simple examination of the head and neck area, an area of high melanoma density among elderly patients, can help in the early detection of melanoma. One recent study of 257 cases of melanoma in situ found that 46.3% of lesions were located in the head and neck region. Among these lesions, more than 90% were detected in patients older than 50 years, and only 38.8% of patients had expressed any concern about their melanoma, highlighting the value of keeping a watchful eye for these curable lesions that may be hiding in plain sight.³²

Conclusion

The most promising approach to reducing melanoma mortality rates is the prompt detection and treatment of early-stage melanoma. Self-screening examinations and physician TBSEs among patients in the aging population has the potential to substantially reduce melanoma mortality. The time spent on examinations in the physician's office is minimal and can save long-term health care costs.

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QUICK POLL QUESTION



What percentage of your office visits are focused primarily on skin cancer screening?

- a. 10% to 35%
- b. 36% to 60%
- c. 61% to 75%
- d. >75%

Go to www.cutis.com to answer our Quick Poll Question and see how your peers have responded