

Cancer Screening



Philip Shaver, MD

Procedures for cancer screening, and guidelines on when screenings are most appropriate and effective, have been the source of extensive debate in the scientific community. Recently, a group of Eisenhower Medical Center physicians met to discuss the value of routine screenings for different types of cancers. The participants were Medical Oncologist Davood Vafai, MD; Radiologist John Cutrone, MD, Medical Director of the Eisenhower Schnitzer/Novack Breast Center; Internist and Dermatologist Tim Richardson, MD; and moderator, Cardiologist Philip Shaver, MD.

Dr. Shaver: There has been a good deal of discussion lately on screening guidelines for breast cancer and prostate cancer, on which we spend about two billion dollars a year. After 20 years of screening, some experts say that we are finding more early disease, but the numbers in more advanced disease have not decreased as much as expected. They believe we need to re-evaluate how we are doing screenings for cancer, particularly for breast and prostate.

Melanoma is increasing faster than any other preventable cancer in the United States. In 2009, there were 68,720 invasive melanomas diagnosed and 8,650 deaths. We know that detection at an early stage saves lives. Dr. Richardson, who is most at-risk for melanoma?

Dr. Richardson: Patients who are at highest risk for melanoma are those with fair skin who sunburn very easily, patients who have a parent, sibling, or child with melanoma, and patients who have numerous moles on their body. Patients who have all three of these risk factors probably should be checked and screened on a regular basis.

Dr. Shaver: Is it true that severe sunburns occurring even in childhood or adolescence can set the stage for melanoma later?

Dr. Richardson: There is a correlation between blistering sunburns during childhood and melanoma later in life. Fair-skinned individuals who grow up closer to the equator have the highest rates of melanoma in the world, and so, there clearly is a relationship between the sun and melanoma. One group at particularly high-risk is men over 65.

Dr. Shaver: The American Cancer Society says that all adults should have a baseline, total-body skin exam, and should be checked periodically. When should we have a skin lesion checked?

Dr. Richardson: Basically, remember the letters "ABCDE." Asymmetry, border irregularity, color variability, diameter over 1/4 inch, and evolution, or rapidly changing lesions.

As a dermatologist, I advise a complete skin exam whenever a new patient comes in. How frequently after that? I don't think we know the answer. I believe doing complete skin exams is an extremely inefficient way to find skin cancers. However, if somebody has a history of melanoma, they absolutely have to get their skin checked regularly, at least once a year.

Dr. Shaver: Does using a high SPF [sun protection factor] sunblock reduce the risk of melanoma?

Dr. Richardson: Sunscreen has been shown to prevent actinic keratoses, which are precursor lesions to squamous cell carcinoma and to decrease the rate of squamous cell carcinoma. While sunscreen has never been shown to prevent basal cell carcinoma, and has never been shown to prevent melanoma, we do know that ultraviolet radiation [UVB, or shortwave] is a carcinogen.

Dr. Shaver: Let's move on to breast cancer. The incidence of breast cancer in the United States has doubled over the last 60 years of the 20th century. Annually, approximately 182,460 American women are diagnosed with breast cancer, and 40,480 women die from the disease. Approximately 85 percent of breast cancer occurs in women over 50. In 2009, the United States Preventive Services Task Force evaluated clinical research assessing the merits of preventive measures including screening tests. The Task Force recommended that mammograms to screen for breast cancer in 40 to 49-year-old women did not appear to be beneficial, which caused a firestorm of controversy.

Dr. Cutrone: The Task Force recommendations created a lot of confusion for both patients and doctors. Mammography has been extensively studied with an exhaustive amount of efficacy data compiled, and has resulted in, at least, a 30 percent reduction in mortality across the board since becoming commonplace in the United States.

In women 40 to 49 years of age, the incidence of breast cancer is lower than older women, so the temptation is to believe that screening in that age group is less important. However, the younger you are, typically the more aggressive and fast growing the breast cancers are, so this is where screening has the greatest impact on survival.

Dr. Vafai: I think scientifically I would agree with what the Task Force recommends. The science is not there to unequivocally support mammograms between the ages of 40 to 49. That said, I agree with what Dr. Cutrone says about the high-risk patients. The Task Force did not say to not do mammograms. The Task Force said talk to your physician, and make a decision depending on your family history and other risk factors, and your beliefs and concerns. This is very different than just stating not to do mammograms between ages 40 to 49.

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—John Cutrone, MD

Dr. Shaver: The risk factors we should look at are increased age, family history, a close relative with breast or ovarian cancer, older age at first birth, younger age menarche [first menstrual cycle], and a BRCA1 or BRCA2 gene mutation. Dr. Cutrone, is there increased risk because of the exposure to radiation from a yearly mammogram?

Dr. Cutrone: For patients at low risk or normal risk for breast cancer, radiation from mammograms is not a significant risk. For high risk individuals, however, it is a consideration.

Dr. Shaver: What other tests are out there?

Dr. Cutrone: Mammography overall is the most useful and first-line tool for detecting breast cancer. There are many signs that we look for in detecting breast cancer. Mammograms are very good at finding calcifications associated with the earliest form of breast cancer. In women with dense breasts, however, mammography is limited in finding abnormalities such as masses. In that type of patient, we need additional tests.

Ultrasound is very good at finding abnormalities in women with dense breasts. MRI [magnetic resonance imaging] is good for screening high-risk patients in tandem with mammography. Eisenhower is one of the few places in the country that has a specialized nuclear camera for doing breast-specific gamma imaging [BSGI], which is a useful tool for finding breast cancer as well.

Dr. Shaver: For high-risk patients, mammogram, followed by MRI and BSGI, if appropriate.

Dr. Cutrone: Correct. In my opinion, BSGI is equivalent, in most patients, to MRI for detecting breast cancer. BSGI is just not as widespread a modality as MRI, with relatively few hospitals and breast centers having breast-specific gamma imaging.

Dr. Shaver: I would like to move on to colon and rectal cancer, the fourth most common cancer in the United States, and the second leading cause of cancer deaths. I think that colonoscopy is the most successful screening procedure we do. Dr. Vafai, if you are seeing a patient who has no family history of colon cancer and says, "I really don't want this colonoscopy; you are put to sleep; there's a terrible prep," what would you recommend?

Dr. Vafai: With a colonoscopy, you can prevent colon cancer because the natural progression is growth, and progression of hyperplastic polyp [excessively growing cells] to adenomatous polyp [benign growth]. They all can start as very small polyps, and can grow and become dysplastic [abnormal], and finally become cancerous. If you do a colonoscopy, you can identify the polyp, have it removed, and you don't get colon cancer. The prep is unpleasant, but a colonoscopy is totally painless. If you have one, and it is completely normal, you may not need another one for probably 10 years.

Dr. Shaver: Let's look at prostate cancer. The lifetime risk in American men is one in six. However, the chance of dying of prostate cancer is only 2.9 percent. The American Cancer Society (ACS) recommends that serum PSA (prostate-specific antigen) testing and DRE (digital rectal examination) should be offered annually to men 50 years of age and older. The guidelines also stress the benefit of screening beginning at age 45 in patients at high-risk of developing prostate cancer. Dr. Vafai, do you think all patients should get a PSA and a DRE starting at 50?

Dr. Vafai: That's what I would suggest. I think the hot topic in the field of cancer medicine is going to be biomarkers, which would allow us to identify very high-risk populations. That would be the trend of the future. For example, we have genes that researchers have identified, that if you have this gene — the TMPRSS2:ERG fusion gene — and about 60 percent of prostate cancer patients have this gene, then if you decide to watch and wait, we may be facing more metastases and higher mortality. If an individual does not have this gene, then you can easily watch and wait.

Dr. Shaver: Finally, a quick question about screenings for lung cancer.... I think it intuitively makes sense to screen smokers for lung cancer with CT (computed tomography) screening. But some oncologists have taken the view that it picks up early disease that probably wouldn't be a problem. The Task Force does not recommend CT scanning as a screening procedure.

Dr. Vafai: We have a number of studies underway, including the National Cancer Institute's National Lung Cancer Study that will be completed in 2011. Intuitively, screening makes sense, but we are waiting for completion of major United States and international randomized trials. There are other tests which again can help us to identify the very high-risk population among smokers. One of the very easy ways of screening the high-risk population is to do pulmonary function tests, FEV1 (forced expiratory volume in one second). FEV1 is the "PSA" of lung cancer. The science is constantly evolving, so I would advise all patients to stay informed and talk to your doctor.

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