To Screen or Not to Screen: Ongoing Debate in the Early Detection of Prostate Cancer

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Debate about the use of prostate-specific antigen (PSA) tests to screen prostate cancer in men is ongoing. Prostate cancer is the most common cancer after skin cancer in men and the second most deadly after lung cancer. An elevated PSA level can lead to this cancer's diagnosis and treatment even before the onset of symptoms. However, other causes also can create a high PSA level, which may lead to men being unnecessarily treated for prostate cancer. This article will shed some light on the issue and discuss prostate cancer screening.

For most Americans, simply saying or hearing the word *cancer* brings about terrible images and thoughts. Losing hair, undergoing chemotherapy treatment or surgery, and becoming frail or possibly dying all are common associations. A prostate cancer diagnosis leads many individuals down a path that includes numerous painful procedures, incontinence and impotency issues, and a label of *cancer patient* for the rest of their lives (National Cancer Institute [NCI], 2010) (see Figure 1). However, for some men, diagnosis and treatment are unnecessary and avoidable. Published studies have shown that mass screening for prostate cancer with the prostate-specific antigen (PSA) blood test has led to overdiagnosis and subsequent overtreatment because of a high percentage of false-positive results (Albertsen, 2005).

Results from two large trials have contributed to this debate. Andriole et al. (2009) looked at 77,000 men randomized to annual screening (PSA testing plus annual digital rectal examination) or to no screening for six years. The results showed that no difference was noted in prostate cancer-related deaths. Unfortunately, many of the men in the control group received PSA testing outside of the trial. The second trial, conducted by Schröder et al. (2009), examined 182,000 men randomized to PSA screening or to no screening. During the nine-year follow-up period, fewer prostate cancer-related deaths occurred in the screened group than in the control group. However, both of these studies were widely considered flawed, either theoretically or methodologically.

Problems With Prostate-Specific Antigen Testing

PSA tests frequently are performed in numerous settings as a screening for prostate cancer, but the guidelines vary among experts. The American Cancer Society (2010) recommends that men older than age 50 have a discussion with their doctor about the pros and cons of PSA screening, and then make an informed decision concerning the risks and benefits of undergoing the screen. The American Urological Association (2009) suggests PSA screening for all men beginning at age 40, whereas the U.S. Preventive Services Task Force ([USPSTF], 2008) does not recommend the screening.

An effective test to detect cancer for asymptomatic screening purposes should be able to find a cancer when it is present (high sensitivity) and not miss it when it is present (high specificity). When used, the test should contribute to a reduction in mortality from the disease. PSA levels can be elevated because of a number of different noncancerous causes, including benign prostatic hypertrophy, prostatitis, inflammation, or prostatic infection, which can lead to a false-positive diagnosis (Lin, Lipsitz, Miller, & Janakiraman, 2008). When an elevated PSA is found, the next step is to perform a biopsy to determine whether the elevation is the result of prostate cancer. Because so many false-positive test results occur, many men have biopsies only to find out they do not have prostate cancer. Situations also exist in which the biopsy result is positive but, based on factors such as the natural history of prostate cancer, aggressiveness and extent of disease, and the patient's age and overall health status, treatment would provide more harm than benefit. In this scenario, whether this earlier detection and consequent earlier treatment affect overall mortality from prostate cancer is unclear (NCI, 2010).

PSA testing cannot be used to determine stage of cancer. Stages are determined with a prostate biopsy or other tests as indicated. Based on the stage, treatment options can range from watchful waiting or active surveillance to surgery and radiation. PSA testing may

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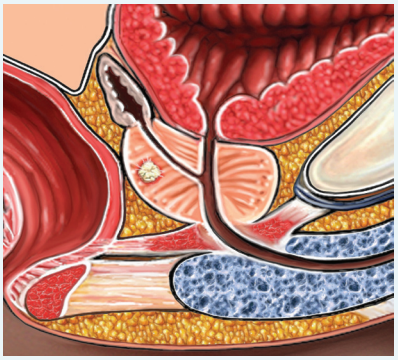

Note. Additional structures depicted include the bladder, urethra, and penis of an adult male.

Figure 1. Small Cancerous Tumor in the Prostate, Sagittal Cross Section

be used for treatment response and monitoring. Treatment of prostate cancer can cause long-term difficulties for men. Unfortunately, many experiencing these difficulties from treatment may have never developed clinically significant prostate cancer during their lifetime. Although the prevalence of prostate cancer and precancerous lesions found at autopsy steadily increases for each decade of age, most lesions remain clinically undetected and would not have affected the patient's overall survival (Martin, 2007). USPSTF (2008) stated that "treatment for prostate cancer detected by screening causes moderate-to-substantial harms, such as erectile dysfunction, urinary incontinence, bowel dysfunction, and death" (p. 185). This does not even address the negative psychological effects that the diagnosis and treatment for prostate cancer can bring. Men endure increased medical visits, additional costs, anxiety, and the lifetime label of *cancer patient*. One study even concluded that "PSA screening is associated with psychological harms, and its potential benefits remain uncertain" (Lin et al., 2008, p. 192).

The PSA tests became widely used in 1986, and a substantial increase has been seen in the number of prostate cancer diagnoses. A review of prostate cancer statistics in the United States showed an increase in incidence from 94 per 100,000 men in 1974 to 166 per 100,000 men diagnosed with prostate cancer in 2007 (NCI, 2009). Prostate cancer survivors in the United States to date number more than 2.2 million and represent 19% of all survivors, second only to breast cancer.

The increased amount of prostate cancer screening leads to an increased risk of overdiagnosing this cancer. Some would argue that "this benefit comes at the cost of substantial overdiagnosis and overtreatment" (Barry, 2009, p. 1353) and that the issue is not whether PSA screening is effective but "whether it does more good than harm" (Barry, 2009, p. 1353). The potential to help many people exists; however, others may be harmed by unnecessary treatment—the key issue in the harm versus benefits debate.

Making Informed Decisions

Insufficient evidence exists to prove that treatment for prostate cancer detected after screening reduces mortality, which suggests that men should make informed decisions regarding the test. In the meantime, healthcare providers and researchers will need to wait for the results of other studies that may yield more sensitive and specific tests for this cancer. A trial is currently under way that tests a computer-based decision aid for use by men considering PSA screening for prostate cancer (NCI, 2010). NCI also has developed a program called the Early Detection Research Network in hopes of accelerating the translation of cancer biomarker information into clinical applications and of evaluating new ways of screening for cancer in its earliest stages.

Additional resources concerning prostate cancer can be found at NCI's Web site (www.cancer.gov/cancertopics/pdq/screening/prostate/healthprofessional) or at the American Cancer Society's Web site (www.cancer.org/Cancer/ProstateCancer). Oncology nurses can help educate men and their loved ones about the risks and benefits of having a PSA test for screening purposes.

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