

Prostate cancer screening

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TO THE EDITOR: In their article on men's health,¹ Chaitoff and colleagues present the scenario of a 60-year-old patient, with no other history given, whose recent screening prostate-specific antigen (PSA) level was 5.1 ng/mL, and who asks his doctor:

- 1) Should I have agreed to the screening?
- 2) How effective is the screening?
- 3) What are the next steps?

These questions are consistent with the patient having read the latest US Preventive Services Task Force (USPSTF) report on PSA screening, which states: "Screening offers a small potential benefit of reducing the chance of death from prostate cancer in some men. However, many men will experience potential harms of screening, including false-positive results..."²

I would tell the patient that he can expect greater benefit from PSA screening than reported by the USPSTF simply by adhering to the screening protocol. Intention-to-treat analysis applied to the trial results diminished the apparent benefits of PSA screening by counting fatal prostate cancers experienced by nonadherent study participants as screening failures.³ In other words, screening works better in those who actually get screened!

The authors state¹ that "in 2014, an estimated 172,258 men in the United States were diagnosed with prostate cancer, but only 28,343 men died of it." Nevertheless, prostate cancer remains the second most common cause of cancer deaths in American men, after lung cancer.⁴ In addition to the reduction in prostate cancer-specific mortality with screening, patients should consider the reduction in morbidity from painful bone metastases and pathologic fractures, which are common in advanced prostate cancer.

A false-positive elevated PSA can be caused by reversible benign conditions, such as

prostate infection or trauma, which can resolve over time, returning the PSA to its baseline level. Studies have demonstrated that simply repeating the PSA test a few weeks later will significantly reduce the number of false-positive PSA screening tests.⁵

Also, it is not optimal to screen for prostate cancer using a single PSA measurement. This patient's PSA of 5.1 ng/mL cannot distinguish between chronic benign prostatic hyperplasia and a fast-growing but still curable malignancy. If the patient's PSA had been tested annually and was known to be stable at its current level, a benign or indolent condition would be most likely, allowing for the possibility of continuing noninvasive observation. If his PSA was 1.1 ng/mL a year ago, and his PSA remains elevated when retested in a few weeks, the likelihood of malignancy would increase, increasing the yield of biopsy.

Lastly, consider false-negatives. A man with a PSA of 2.0 ng/mL would not have undergone biopsy in any of the trials, but if he had a history of several consecutive annual PSA levels less than 1.0 ng/mL, the doubling of his PSA during an interval less than or equal to 1 year could signal an early aggressive prostate cancer. Increases in PSA velocity can reveal the rapid proliferation of malignant prostate cells before the tumor is large enough to cross a static threshold PSA. We have zero data indicating how much benefit can be derived from the use of PSA velocity in this fashion. However, clinicians who carefully track serial PSA changes in each patient have anecdotes of success in early detection and cure of aggressive prostate cancers that would not have been detected by the trial protocols using fixed PSA thresholds. Until such trials are done, we can only tell patients that the ability to compute PSA velocity may be another source of benefit of annual screening of PSA.

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