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The Controversy of *Prostate Screening*

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Abstract

Within the context of aging and ageism, this article evaluates current research on the benefits and risks of prostate cancer screening. Prostate cancer is a concern for many men because it often strikes in the prime of life. Prostate cancer is the most common form of cancer in American men and the second leading cause of cancer-related mortality after lung cancer. Although the disease can be cured if discovered early, it is a slow-growing malignancy that leads to an agonizing death if left untreated. Differential diagnosis often is complicated by comorbid conditions that are part of the normal aging process. Moreover, practitioners' judgment often is prejudiced by common aging misconceptions. Despite the benefits of early screening and detection, the benefits of screening initiatives remain controversial. (*Geriatr Nurs* 2000;21:245-9)

Cancer of the lung and prostate represent the two primary cancers of men; the latter represents the second highest cause of cancer-related mortality in men (after lung cancer). Prostate cancer is a silent epidemic in this country and, if left untreated, can result in an agonizing death.

The American Cancer Society¹ reports that an estimated 180,000 new cases of prostate cancer will be diagnosed this year and close to 40,000 deaths will be directly attributed to this slow-growing malignancy. According to Walsh,² that figure means a man is diagnosed with prostate cancer every 3 minutes and a death directly related to prostate cancer occurs every 15 minutes. Within the context of aging and ageism, this article evaluates current research on the benefits and risks related to prostate cancer screening.

AGEISM AND PROSTATE CANCER

In the United States, several notable organizations, such as the American Cancer Society (ACS), the American Academy of Family Physicians (AAFP), and the American Urological Association (AUA), have taken positions on screening.¹ The AAFP believes that screening creates a great deal of stress for the individual who then must decide what to do with the results. Opponents contend that prostate cancer is a slow-growing adenocarcinoma; hence,

its ability to metastasize outside the prostatic capsule and affect bone and other organs is remote despite its being the second highest cause of cancer deaths. Because the treatment historically has caused distressing side effects and serious problems related to erectile dysfunction (ED) and urinary and bowel incontinence, physicians do not agree on whether screening is beneficial to men who are not at risk. Their position is clear—the choice for screening should be left to the individual and his physician.

The ACS holds that men 50 and older who have at least a 10-year life expectancy should talk with their health care professional about a digital rectal examination (DRE) of the prostate gland and a prostate-specific antigen (PSA) blood test every year. In addition, the ACS recommends that black men who are at higher risk for prostate cancer should consider beginning the screenings at an earlier age.¹ The AUA³ supports the ACR recommendations of an annual DRE and a PSA examination for all men beginning at 50 who have a 10-year life expectancy and younger men at risk.

An element of ageism is at work in the positions these organizations have taken regarding screening. Just as racism and sexism discriminate for skin color and gender, ageism is a process of stereotyping and discriminating against people because they are old. These biases are partially explainable by ignorance and insufficient contact with a variety of older people. However, the deeper issue is the fear of growing older.⁴ Discrimination against older adults is common by health care providers and leads to incomplete assessment of older adults. Frequently, elders whose symptoms and complaints are attributed to the “aging process” are dismissed. After years of research, the need for more education and information about the facts of aging continues.⁵

Prostate cancer is a condition that follows an age-related pattern of mortality. In men younger than 55, the rate is 1.1%. In men between 55 and 64, the rate increases to 7.4%. In men between 65 and 74, the rate is 28.4%; 75 to 84, 41.7%; and more than 85, 21.4%. Only 8.5% of the deaths from prostate cancer occur in men younger than 65, whereas 63.1% of the deaths occur in men 75 and older.⁶ Recent research indicates that early detection and screening save lives. Studies evaluating disease control and survival show that the lower the PSA at diagnosis, the better the progress. Even though a normal level usually is considered 4 or less, many patients are diagnosed at lower levels specifically by following PSA changes with annual evaluations.

PROSTATE CANCER SCREENING ISSUES

The PSA, which has been championed as the primary method of surveillance for identifying prostate cancer risk, is a glycoprotein chain of 237 amino acids that can be found in periurethral and perianal glands. The antigen also is found in normal breast tissue and certain breast tumors. PSA is believed to be involved in the liquefaction of seminal gel. However, although evidence exists for the PSA test’s specificity in identifying men at risk, many questions remain unanswered.

The International Consultation on Urological Diseases (ICUD), the World Health Organization (WHO), and the Union International Contre le Cancer (UICC) convened the

second International Conference on Prostate Cancer Screening and Diagnosis in June 1999 in Paris, France. During the meeting, a consensus was reached by 18 committees on the controversial topic of prostate cancer screening. The group proposed that an aging male is entitled to an annual physical examination and serum PSA testing, assuming he is well informed of possible benefits and negative effects of an early detection process. Such consensus on the screening recommendations was expected to bring the controversy to a close until data on the quantity of decreased mortality by early detection versus the quantification of side effects on the general population are available. Additional recommendations included the preparation for population screening in the future and the development of guidelines to diagnose and treat these patients.⁷

SCREENING SPECIFICS

Screening for prostate cancer begins with an assessment of family history that may increase a man's risk. Men should be interviewed to determine if common hallmarks of prostate cancer are present, including age, race, diet, history of prostatitis, and family history. In addition, men who eat diets high in fat, particularly saturated fat, may be at higher risk. Men who experience prostatitis at age 20 are at high risk. The risk of prostate cancer doubles if a man's father or brother also has it. For these men (with a familial genetic predisposition), the early screening and detection should begin at age 40.

Moreover, black men have the highest incidence rates of prostate cancer in the world and are twice as likely to develop the disease, which explains the racial discrepancies in the current recommendations for PSA screening. Black men are encouraged to begin annual screenings at age 45 and white men to begin at 50.

DIFFERENTIAL DIAGNOSIS: BPH VERSUS PROSTATE CARCINOMA

Benign prostatic hyperplasia (BPH) and prostate cancer are similar in that both conditions manifest similar symptom patterns; the variation reveals itself only as the disease progresses. With BPH, a rise in PSA usually is slow and stabilizes (reinforcing the importance of serial PSAs), whereas PSA rise resulting from prostate cancer usually continues to climb. A more specific evaluation, free PSA%, may help differentiate BPH from prostate cancer. Early on, both processes may be asymptomatic, or symptoms with an insidious onset may be ignored. What often obscures accurate diagnosis of prostate cancer is BPH, considered to be a normal outcome of the aging process.

Prostate cancer symptoms often mimic those of BPH. Many patients are asymptomatic at the time of diagnosis, although early symptoms frequently are related to pain or a burning sensation while urinating. Other signs are urinating frequently, especially at night (every 2 hours or sooner), and an inability to start, stop, or postpone urinating at will. In addition, a weak or interrupted urine flow with lots of starts, stops, or dribbling occurs. Urinary retention and urinary tract infections also are common. Sometimes blood appears in the urine or semen, ejaculation is painful, or a rapid onset of impotence (defined as the inability to have an erection) occurs. Later symptoms vary, and the disease processes become easier to distinguish. Those symptoms most relevant to the late stages of prostate cancer include

bone pain, weight loss, anemia, shortness of breath, and lymphedema. Men with prostate cancer may experience pain or stiffness in their lower back, hips, or upper thighs.

Practitioners must understand the overlapping of the differential diagnoses. Other differential diagnoses are prostate stones, nodular whorls of adenoma, seminal vesicle enlargement, and prostatitis that causes an increase in PSA.

ATTITUDES TOWARD SCREENING

A genetic familial predisposition enhances the risk of prostate cancer beginning at an earlier age among men. When no genetic predisposition can be identified, the risk for black men begins as early as 45, whereas the risk for white men begins at 50. For the former group, the incidence is 34% higher and the mortality rate is 123% higher than for their white counterparts. These phenomena may partly be a result of reduced awareness, access, and acceptance of screening and health care services available to the minority group.

Early screening for all men is central to the success of curative treatment. However, much controversy exists about the benefit of screening initiatives. In addition to the PSA, the DRE is considered equally important as a screening test. The DRE has high specificity and negative predictive value; however, it has a low sensitivity and positive predictive value. Once suspicion is established, additional evaluations include ultrasound and biopsy.

Reports on initiatives to educate the public of the benefits of early screening and detection are mixed. Wolf et al.⁸ found that men 50 and older were less likely to express interest in receiving PSA screening after an informational intervention. In this study, 38% of the participants were not white and had less than a high school education. The authors concluded that providing patients with information would result in decreased PSA screening.

Men at risk for prostate cancer (N = 1522) between the ages of 40 and 70 participated in four different educational interventions to evaluate barriers to screening. Among black men (n = 1096), the barrier “would be embarrassed” was a significant predictor of participation in screening besides age, income, marital status, and education.^{9,10} Of those who took part in the free screening, marital status and racial makeup (white), having a high school education, and receiving the client navigator or combination educational intervention predicted individual participation.

Volk et al.¹¹ evaluated an educational videotape intervention to determine if watching it would influence the number of men between the ages of 45 and 70 who requested PSA screening. The title of the videotape was *The PSA Decision: What You Should Know*. Subjects were randomly assigned to either the videotape intervention followed by a utility assessment, videotape alone, or a control group that received only an office visit. After the intervention, 62% of the intervention subjects planned to have a PSA test compared with 80% of the control subjects.

No statistical differences occurred between these groups. The authors concluded that, because 13% of the control group and 17% of the intervention group had a family history of prostate cancer and more than one third of the men participated in a PSA test, no

intervention effects existed. This finding suggests that merely recommending that patients discuss the need for PSA testing may decrease the incidence of PSA screening.

DOES PSA TESTING REDUCE MORTALITY?

The PSA is an effective screening tool that is highly predictive of the current risk of disease. Research indicates that PSA levels that are high normal earlier in life may predict prostate cancer development in 5 to 10 years after the initial test. As in all cancers, evidence shows that early identification and diagnosis produces higher cure rates, and evidence has been accumulating since the introduction of the PSA test that early detection saves lives. Large-scale population studies, outlined in Table 1, support the benefits of PSA testing to detect early prostate cancer, which directly translates into higher cure rates.

Tarone, Chu, and Brawley²⁰ found that, since PSA testing was approved in 1986, mortality rates for men between the ages of 60 and 79 were lower in 1997 than in any other year since 1950. The researchers concluded that early testing detects cancers before metastasis and therefore increases longevity. Roberts et al.²¹ found a 22% decline in mortality during a 10-year period when comparing age-adjusted community mortality rates from prostate cancer. They concluded that the 1993 to 1997 mortality rates were lower than in the 1980s before the introduction of PSA testing. Even though Meyer et al.²² found that prostate cancer mortality rates declined by 23% in Canada during the period 1991-1997, they believe the reduction was a result of better prostate cancer management or improved treatment.

Appendix

Contact hours: 1.0

Minimum passing score: 70% (seven correct answers)

Test processing fee: \$9

Test ID No.: G110829

1. The decision to screen for prostate cancer is left to the:
  - A. Urologist
  - B. Primary care physician
  - C. Patient
  - D. Patient and his physician
2. What is the rate of prostate cancer in men younger than 55?
  - A. 28.4%
  - B. 21.4%
  - C. 7.4%
  - D. 1.1%

3. What age group has the highest rate of prostate cancer?
- A. 55-64 years
  - B. 65-74 years
  - C. 75-84 years
  - D. More than 85 years
4. Men who are at a higher risk for prostate cancer may have the following factors EXCEPT:
- A. Advanced degree in the sciences
  - B. Black race
  - C. Diet high in fat
  - D. Family history of prostate cancer
5. When PSA rises slowly and then stabilizes, the most likely conclusion is?
- A. Benign prostate hypertrophy
  - B. Prostate cancer
  - C. Faulty laboratory tests
  - D. Contaminated sampling technique
6. Late or advanced symptoms of prostate cancer do not include:
- A. Anemia
  - B. Weight loss
  - C. Lymphedema
  - D. Dribbling
7. The authors thought educating the public on early screening for prostate cancer had which result?
- A. Fewer men obtaining PSA screening tests
  - B. Greater number of men being tested
  - C. No change
  - D. The relationship between education and screening has not been determined.
8. If a man's PSA level is "high normal," what is the disease projection?
- A. Prostate cancer will not develop.
  - B. Prostate cancer will develop within 4 years.
  - C. Prostate cancer will develop in 5 to 10 years.
  - D. More emphasis is placed on family history than PSA results.

9. With PSA testing, researchers think:
  - A. They are able to quantify the incidence of prostate cancer better.
  - B. Early testing detects cancer before it metastasizes.
  - C. Monitoring PSA levels over time can reduce unnecessary chemotherapy.
  - D. The differentiation between prostate cancer and benign prostate hypertrophy is better.
10. The reduction of prostate cancer mortality in Canada from 1991 to 1997 was attributed to?
  - A. Lower incidence of PSA levels
  - B. Educational efforts
  - C. Better or improved prostate cancer management
  - D. Advances in drug therapy

Biography

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Table 1.**Important Studies on PSA Screening**

Authors	Country	Serum PSA	Cancer Detected	Stage
Horninger W, et al.	Austria (N = 21,079)	2.5* 45-49 yrs.; 3.5* 50-59 yrs. *(8% increase in detection)	197 (0.9%)	95 were organ confined
Hugosson J, et al.	Sweden (N = 658, b. 1913)	3.0	18 (2.7% died); 5% PSA < 3.0; 33% PSA > 3.0	31 were localized
Labrie F, et al.	Canada (N = 46,193; 38,056 unscreened, 8137 screened)	3.0	4.4% PSA < 3.0; 22% PSA > 3.0 137 Deaths (49/100,000) 5 Deaths (15/100,000)	NA
Maattanen L, et al.	Finland (N = 5053)	4.0	106 (< 1%)	85% T1-T2
Martin E, et al.	Spain (N = 2576)	4.0	169 (6.5%)	T3
Ito K, et al.	United States (N = 9671)	4.1	303 (3.1%)	Localized
Rietbergen JB, et al.	United States (N = 9776)	4.0	474 (4.8%)	358 were localized
Uchida K, et al.	Japan (N = 1125)	4.0	17 (1.5%) overall; (2.1%) 50 years	Localized