Introduction

Prostate cancer is the second most common cause of cancer-related mortality among men, with more than 40,000 deaths expected in 1996. It rarely occurs before 45 years of age, but the rate of occurrence increases rapidly with age. A 50-year-old American man has a 9.5% risk of developing prostate cancer and a 2.9% chance of dying of the disease. Many cases of prostate cancer remain latent, but they can be aggressive at advanced stages.

Although the American Cancer Society recommends annual screening with a prostate-specific antigen (PSA) assay and a digital rectal examination for men over 50 years of age, prostate cancer screening has not been shown to reduce mortality. The challenge remains to detect clinically aggressive prostate cancer at early stages while minimizing unnecessary testing and associated costs.

Diagnosis

The digital rectal examination is a simple, inexpensive, and direct method of assessing the prostate, but it is unreliable as a sole indicator of prostate cancer. The cancer detection rate increases when this modality is combined with PSA analysis and/or transrectal ultrasound examination. While transrectal ultrasound examination can be helpful in staging and performing multiple biopsies, its value in diagnosing prostate cancer has not been established.

The detection rate of prostate cancer with PSA screening is higher compared with that of digital rectal examination. However, PSA is not specific for prostate cancer, and its serum concentration increases with age even in the absence of clinically detectable prostate cancer.

Patient age correlates with PSA concentration. Thus, an age-specific reference range enhances the relevance of serum PSA concentration in distinguishing benign prostate hyperplasia from prostate cancer in older men (by increasing specificity) and in younger men (by increasing sensitivity). The age-specific reference ranges for serum PSA are as follows:

- 0.0 to 2.5 ng/mL for men aged 40 to 49 years
- 0.0 to 3.5 ng/mL for men aged 50 to 59 years
- 0.0 to 4.5 ng/mL for men aged 60 to 69 years
- 0.0 to 6.5 ng/mL for men aged 70 to 79 years

Staging

Well-performed studies have examined the use of PSA analysis, clinical stage, and Gleason score to determine whether a bone scan and a computed tomography scan are needed to stage patients with early disease. Using the aforementioned parameters, the majority of patients contemporarily diagnosed with prostate cancer do not require these imaging studies. Assuming that at least 80% of the patients with newly diagnosed prostate cancer present with low-risk features, the expected savings in cost per 100 patients evaluated at our center is approximately $98,160 (ie, per-patient costs for bone scan [$803] plus computed tomography scan of the pelvis [$424]).

Treatment

The recent American Urological Association treatment guideline and the best data available for prostate seed implants comprised the basis for this guideline. Treatments are presented as options - patients are given the opportunity to review the information available regarding potential outcomes and complications of each treatment and then decide which treatment modality they wish to pursue. In addition, patients are counseled regarding the possibility of observation when the tumor is low grade and life expectancy is less than 10 years.
References