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# Prostate Cancer Recurrence Fear: The Prostate-Specific Antigen Bounce

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A benign elevation in prostate-specific antigen (PSA) values with a subsequent nadir (the lowest PSA reading achieved after prostate cancer treatment) only recently has been identified and reported in the literature as the “PSA bounce.” Men who choose external beam radiation therapy (EBRT) or ultrasound-guided prostate brachytherapy (seed implant) for early-stage prostate cancer may experience this transient rising of PSA values after treatment without disease recurrence. This elevation can be a major source of anxiety for patients and families and can create diagnostic challenges for clinicians. Because no standard method exists to define the PSA bounce, more study is needed to explain its occurrence. Clinicians should be aware of this complex phenomenon, observe PSA values, and consider the PSA bounce in post-treatment management of their patients.

Prostate cancer is the most common cancer in American men and the second leading cause of cancer death, yet its cause remains unknown. Men older than 60, African American men, and men with a family history of prostate cancer have a higher risk of developing the disease. The American Cancer Society (2004) estimated that more than 230,000 men will be diagnosed with prostate cancer in 2004 and more than 29,000 will die from the disease. As many as a third of the men diagnosed with prostate cancer who undergo radiotherapy for the treatment of their disease will experience the PSA bounce phenomenon (Das et al., 2002).

Prostate cancer is the most common cancer in American men. Those who choose external beam radiation therapy or ultrasound-guided prostate brachytherapy (seed implant) as treatment for early-stage prostate cancer may experience a benign rise in prostate-specific antigen (PSA) values after treatment. This phenomenon has been identified in the literature as the “PSA bounce,” which can be mistaken for a rise in PSA resulting from biochemical failure. The PSA bounce can be a major source of anxiety for patients and families and can create diagnostic challenges for clinicians. Additional study is needed to explain its occurrence. Clinicians should be aware of this complex phenomenon, observe PSA values, and account for the PSA bounce in post-treatment management of their patients. Patient education and psychosocial support can be helpful for patients and families when PSA values rise after radiation treatment.

**Key Words:** prostate specific antigen, prostatic neoplasms/blood, tumor markers/biological, external beam radiotherapy

The purpose of this article is to describe the PSA bounce and PSA use in surveillance after prostate cancer treatment. Clinical and psychosocial implications of the PSA bounce will be presented with implications for nursing practice.

## Case Study

P.C., a 66-year-old Caucasian man, had a routine screening PSA drawn at a primary care office in November 1999. Although his PSA had been within normal limits (i.e., 4.0 ng/ml) on previous occasions, this time, it was elevated to 7.1 ng/ml (Morey, 2000). A nodule was palpated in the right zone of the prostate during a digital rectal examination

(DRE). A subsequent transrectal ultrasound and biopsy of the prostate revealed a mildly enlarged 31 g prostate, whereas a normal prostate measures 20 g (Grimm et al., 1997). His ultrasound also showed a 1.5 cm hypoechoic nodule in the right transition zone. Final pathology revealed a Gleason grade 3 + 3 adenocarcinoma in the right base and right midgland. Aside from his chronic arthritis, the patient felt healthy and had no urinary symptomatology. He denied weight loss, new bony aches or pains, or bowel problems. When P.C. presented for discussion of treatment options, he had difficulty understanding that he was seriously ill. Although he was cognizant that his prostate cancer had been detected early, he nevertheless was facing treatment decisions for a disease that had caused no symptoms.

P.C. was a good candidate for a radioactive seed implant because he was healthy and had an excellent performance status. His PSA was less than 10, and his Gleason score was 6 (3 + 3) or moderately differentiated. He underwent iodine<sup>125</sup> seed implant in early 2000. The implant went well, and he returned to his baseline activities within a week after the procedure. His first post-treatment PSA blood test was drawn one month later and had dropped to 1.4 ng/ml, indicating an excellent response to therapy. Subsequent serial PSA blood tests

*Submitted September 2003. Accepted for publication November 18, 2003.*

Digital Object Identifier: 10.1188/04.CJON.361-366