RADIOTHERAPY

Five-year PSA value predicts survival

PSA level is used to measure success of treatment for prostate cancer. The likelihood of achieving biochemical control following primary treatment with brachytherapy, external-beam radiotherapy or surgery is similar. Unlike prostatectomy, where PSA levels below a defined value represent treatment failure, PSA kinetics after prostate brachytherapy are variable and difficult to interpret. Stock and colleagues carried out an analysis of prognosis and outcomes in patients with prostate cancer who remained disease-free in the first 5 years after treatment. They focused on the predictive value of 5-year PSA value for disease recurrence in order to define the point at which patients are considered cured after brachytherapy. The results showed that the prognosis for patients treated with brachytherapy who are disease-free for at least 5 years is excellent.

The study included a total of 742 patients with prostate cancer who were treated with brachytherapy ($n = 306$), brachytherapy and hormonal therapy ($n = 212$) or combined implantation and external-beam radiotherapy ($n = 224$). All patients were free of biochemical failure during the first 5 years after treatment, according to ASTRO (American Society

for Therapeutic Radiology and Oncology) criteria. Patients were asked to return every 6 months for follow-up and the median follow-up time was almost 7 years. Both the ASTRO and Phoenix definitions were used to calculate freedom from biochemical failure rates.

The 10-year freedom from PSA failure rates were 97% and 95% using the ASTRO and Phoenix definitions, respectively. The median PSA level, 5 years after treatment, was 0.03 ng/ml. Patients were categorized into five PSA groups according to their median 5-year PSA levels after treatment, which ranged from less than 0.01 ng/ml to 0.5 ng/ml.

The prognostic significance of the 5-year PSA value demonstrated that a value of 0.2 ng/ml or less was found to correspond to a 10-year freedom from failure rate of 99% when the ASTRO definition was used and 98% when the Phoenix definition was used. Patients with a PSA value above 0.2 ng/ml had a 10-year freedom from failure rate of 86% using the ASTRO definition and 81% using the Phoenix definition. The occurrence of biochemical failure was not affected by treatment regimen and none of the patients in the study developed metastasis or died of prostate cancer. According to

the authors, “The most significant findings were that the 5-year PSA level was a strong predictor of eventual disease outcome. In addition there were, overall, few late failures in those patients who remained free of disease for the first 5 years and none of these patients developed metastatic disease by 10 years.”

“The results showed that the prognosis for patients treated with brachytherapy ... is excellent”

“The present findings have implications for clinical practice and follow-up. Because patients whose 5-year PSA value is 0.2 ng/ml or less will rarely develop subsequent treatment failure over the next 5 years, they can be followed at less regular intervals than the recommended every 6 months,” the authors state. The 5-year PSA value is a useful prognostic tool for predicting freedom from PSA failure for the following 5 years after a patient has been treated with brachytherapy. The authors plan to “...continue to study the effect of enhancing the local control of prostate cancer on the natural history of the disease”.

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Original article Stock, R. G. *et al.* Prognostic significance of 5-year PSA value for predicting prostate cancer recurrence after brachytherapy alone and combined with hormonal therapy and/or external beam radiotherapy. *Int. J. Radiat. Oncol. Biol. Phys.* 74, 753–758 (2009).