

1072 Prognostic Significance of the 5-Year PSA Value for Predicting Prostate Cancer Recurrence Following Brachytherapy

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Purpose/Objective(s): Outcomes studies of brachytherapy for prostate cancer have been criticized for their lack of long-term follow-up. Given the long natural history of the disease, it has been suggested that outcomes data lacking a lengthy follow-up period have little prognostic value. To address this issue, we analyzed the prognosis and outcomes for patients who have been followed for at least five years post radioactive seed therapy without a documented failure in the first five years after treatment. In particular, we examined the prognostic significance of the 5-year PSA value for predicting future recurrences.

Materials/Methods: From 1990 to 2002, a total of 708 patients with prostate cancer were treated with permanent radioactive seed implant therapy, either with or without external beam radiation and/or hormonal therapy, went on to remain free from failure in the first five years after implantation, and had a documented five-year PSA value. Biochemical failure was defined using the ASTRO definition. The five-year PSA value was defined as the PSA value documented within one year of the 5-year post-implant date. If more than one such value was documented, the value documented closest to the five-year date was chosen. Clinical stage was: T1a-0.14%, T1b-0.57%, T1c-41%, T2a-24%, T2b-23%, T2c-10%, T3a-1.8%, T3b-0.00%, T3c-0.28%. Gleason score was: 2-6-73%, 7-18%, 8-10-8.8%. PSA at diagnosis was: ≤ 10 -70%, >10 -20-22%, >20 -7.9%. Patients were followed for a median of 6.89 years (range, 5 to 13.4 years).

Results: The actuarial 10-year Freedom from PSA Failure (FFPF) was 96%. The total number of patients who failed was 15. The median 5-year PSA was 0.03 ng/mL, with a range of 0-3.6. The distribution of 5-year PSA values was: ≤ 0.01 -47.5%, >0.01 -0.10-29%, >0.10 -0.2-10.5%, >0.2 -0.5-8%, >0.5 -5%. The 5-year PSA value had prognostic significance, with values of <0.1 ($n = 465$) and ≥ 0.1 ($n = 263$) corresponding to actuarial 10-year freedom from PSA failure rates of 99.5% and 90.5%, respectively ($p < 0.0001$). The PSA at the time of initial diagnosis also had prognostic significance, with values of ≤ 10 ($n = 497$), >10 -20 ($n = 155$), and >20 ($n = 56$) corresponding to actuarial 10-year freedom from PSA failure rates of 97%, 97.5%, and 83%, respectively ($p = 0.002$). Stage (actuarial 10-year FFPF $\leq T2a = 95\%$, $\geq T2b = 96\%$, $p = 0.53$), grade (actuarial 10-year FFPF $\leq 6 = 96\%$, $7 = 94\%$, $8-10 = 96\%$, $p = 0.34$), and BED value (actuarial 10-year FFPF $\leq 180 = 92\%$, $>180 = 99\%$, $p = 0.113$) did not have prognostic significance. In the 15 patients who failed, the median PSA doubling time was 9 months, with a range of 1.7-30 months. None of the 708 patients in this study developed metastatic disease or died due to prostate cancer.

Conclusions: Overall, the prognosis for prostate cancer patients treated with brachytherapy and who remain free from disease for at least five years is excellent, with a 10-year FFPF rate of 96%. The 5-year PSA value is prognostic and patients with values <0.1 are unlikely to develop subsequent biochemical relapse. In addition, the fact that the disease-specific survival for all patients in this study was 100% and that no patient developed metastatic disease suggests that any residual disease in patients who remain FFPF for five years is most likely indolent in nature and is unlikely to have a significant impact on mortality.

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