

# 10-YEAR BIOCHEMICAL (PROSTATE-SPECIFIC ANTIGEN) CONTROL OF PROSTATE CANCER WITH $^{125}\text{I}$ BRACHYTHERAPY

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**Purpose:** To report 10-year biochemical (prostate-specific antigen [PSA]) outcomes for patients treated with  $^{125}\text{I}$  brachytherapy as monotherapy for early-stage prostate cancer.

**Methods and Materials:** One hundred and twenty-five consecutively treated patients, with clinical Stage T1–T2b prostate cancer were treated with  $^{125}\text{I}$  brachytherapy as monotherapy, and followed with PSA determinations. Kaplan–Meier estimates of PSA progression-free survival (PFS), on the basis of a two consecutive elevations of PSA, were calculated. Aggregate PSA response by time interval was assessed. Comparisons were made to an earlier-treated cohort.

**Results:** The overall PSA PFS rate achieved at 10 years was 87% for low-risk patients (PSA < 10, Gleason Sum 2–6, T1–T2b). Of 59 patients (47%) followed beyond 7 years, 51 (86%) had serum PSAs less than 0.5 ng/mL; 48 (81%) had serum PSAs less than 0.2 ng/mL. Failures were local, 3.0%; distant, 3.0%. No patients have died of prostate carcinoma. The proportion of patients with a PSA  $\leq$  0.2 ng/mL continued to increase until at least 7–8 years posttherapy. A plot of PSA PFS against the proportion of patients achieving serum PSA of less than 0.2 ng/mL suggests a convergence of these two endpoints at 10 years. Patients treated in the era of this study (1988–1990) experienced a statistically improved PFS compared with an earlier era (1986–1987). This difference appears independent of patient selection, suggesting that the maturation of the technique resulted in improved biochemical control.

**Conclusion:** With modern technique, monotherapy with  $^{125}\text{I}$  achieves a high rate (87%) of biochemical and clinical control in patients with low-risk disease at 10 years. The decline of PSA following brachytherapy with low-dose-rate isotopes can be protracted. Absolute PSA and PFS curves merge, and are comparable at 10 years.

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