

"Patient Age Related To Prostate Specific Antigen Bounce By Recursive Partitioning Analysis After Brachytherapy For Prostate Cancer"

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INTRODUCTION AND OBJECTIVES: Prostate specific antigen (PSA) bounce is defined by a temporary PSA rise of benign cause after irradiation of prostate cancer. The relationship of this phenomenon to patient age at implant is documented in this report.

METHODS: From 1992-1997, 1,097 consecutive men with clinical stage T1-T2 NxM0 prostate cancer were treated by simultaneous irradiation; transperineal prostate I-126 implant followed by external beam irradiation. None received neoadjuvant hormones. The median age was 66 (40-88). PSA bounce is defined by a postirradiation PSA rise of 0.1 ng/ml above the prebounce level followed by a subsequent decrease to or below this level with the floor defined by PSA 0.2 ng/ml. The median followup is six years (5-10).

RESULTS OBTAINED: Age, race, pretreatment PSA, Gleason score, stage, prostate volume and implant dose were evaluated as predictors of PSA bounce by Cox tree regression analysis. Overall, 460 men had a bounce and age was the primary predictor. Patient age 62 (node 1) had the highest risk of bounce (217/373) which was subdivided into leaf 1 and leaf 2 by PSA 5.6 ng/ml. Men >age 73, leaf 5, had the lowest risk of bounce (26/140). Men in node 62-73 had an intermediate bounce frequency (217/584) and were subdivided into leaf 5 and leaf 4 according to Gleason score 6. Log rank test for the difference between each of the five leaves are all significant at the two-sided type one error rate. Since men who recur early may not have time to bounce, which may explain why pretreatment PSA and Gleason scores were significant, 940 disease free men also had Cox tree regression analysis. Again, age was the strongest predictor of bounce with the break points at age 62, 63-68 and >69 as leaves 1, 2 and 3. Similar results were found after analysis of recurrent men.

CONCLUSION: Of the factors analyzed, patient age was the strongest predictor of PSA bounce. Young men have a significantly higher bounce frequency than older men.