

"A Standard Definition of Disease Freedom is Needed for Prostate Cancer"

F. Critz, J. Benton, F. Schnell, P. Shrake. American Brachytherapy Society Meeting. ABS Proceedings, 1: 57, 2001.

PURPOSE: Disease-free survival rates, calculated with an undetectable prostate-specific antigen (PSA) level, following radical prostatectomy are often compared with disease-free survival rates, calculated with the ASTRO definition, following radiotherapy of prostate cancer. Investigators apparently assume that the two definitions are comparable, an issue evaluated in this study.

MATERIALS & METHODS: From 1984 to 1997, a total of 1504 men, clinical stage T1T2No, NX were treated with simultaneous irradiation, prostate iodine-125 implant followed by external beam radiation. Of these men, 358 had a retropubic I-125 implant (median, 8000 cGy) and 1146 men had a transperineal implant (median, 12,000 cGy). All men had follow-up 4500 cGy external beam radiation plus an additional 750 cGy to the seminal vesicles in transperineally men with high risk factors. The median pre-treatment PSA level for the retropubic men was 8.5 ng/ml (range 0.3 to 188 ng/ml) and was 7.2 ng/ml (range 0.3 to 88 ng/ml) for the transperineal men. Disease-freedom is defined both by posttreatment PSA level output 0.2 ng/ml and the ASTRO consensus definition. The median followup of the retropubic men is eight years and four years for the transperineal men.

RESULTS: Calculated with the ASTRO definition, 102 retropubic men recurred and the ten-year disease-free survival rate is 70%. Calculated with PSA level cutpoint 0.2 ng/ml, 146 retropubic men recurred and the ten-year disease-free survival rate is 55%, a significant difference ($p=.001$). Calculated with the ASTRO definition, 84 transporineally implanted men recurred and the eight-year disease-free survival rate is 92%. Calculated with PSA output 0.2 ng/ml, 112 transperineal man recurred and the eight-year disease-free survival rate is 87%, a significant difference ($p=.001$). On multivariate analysis, the definition of disease freedom ($p=.001$) has the same significance as pre-treatment PSA ($p=.001$) and Gleason score ($p=.001$). Of transperineal men treated five or more years ago and analyzed with the ASTRO definition, the eight-year disease-free survival rate is 98% for men who achieve PSA level nadir 0.2 ng/ml and 43% for men who achieve PSA level nadir 0.3 to 1.0 ng/ml, a significant difference ($p=.001$). Of the 340 transperineal disease-free men who have minimum five year PSA level follow-up, 97% achieved PSA level nadir 0.2 ng/ml.

CONCLUSION: When calculated with the ASTRO committee definition, substantially fewer reoccurrences and significantly higher disease-free survival rates are observed relative to an undetectable PSA level, PSA level output 0.2 ng/ml. A standard definition of disease freedom is needed for calculation of disease-free survival rates after all treatments, radiation and surgical, for prostate cancer. Analysis of this database strongly suggests that the PSA level output of 0.2 ng/ml should be standard.