

Influence of Patient-reported Baseline Voiding Status on Toxicity and Recovery following Stereotactic Prostate Radiation

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Abstract

Objectives: To assess the relationship of patient-reported urinary voiding parameters present before treatment to the intensity of acute urinary toxicity and recovery after hypofractionated prostate radiation.

Methods: 160 consecutive patients treated by Robotic Stereotactic radiation for early stage prostate carcinoma were prospectively assessed and followed using the International Prostate Symptom Score (IPSS) validated questionnaire at baseline, during, and completion of treatment and at 1, 3, and up to 6 months afterward. A standard treatment protocol delivering 36.25 Gy in 5 fractions was utilized in all cases. Dosimetry goals were consistently applied to constrain urethral dose to <42Gy.

Pharmacologic management included alpha-blocker and oral anti-inflammatory medications prescribed either prophylactically or upon symptom development.

IPSS data were stratified using pre-defined severity categories of mildly, moderately, or severely symptomatic (scores 0-7, 8-19, and 20-35). Elevated baseline scores were reviewed for the presence of obstructive, irritative or mixed symptom patterns. The mild and moderate categories were split into lower and higher tiers (0-3 and 4-7; 8-13 and 14-19) for analysis. Prostate volume was assessed for correlation with IPSS severity category.

Results: Average age of the patients was 67. Median IPSS score at baseline was 6.2 (0-26). 67% presented at IPSS 0-7 with median prostate volume of 41cc. Of 48 with baseline score 0-3, median peak score reached 6.9. 60 cases presenting at score 4-7 had median prostate volume of 42.5 cc and showed increase score to 15.2 median (4-33). 73% with score 0-3 (median prostate volume 38cc) stayed within 0-7 whereas 17% (median 46cc) worsened to moderate or severe category, 4% reaching severe. A large majority of the lowest tier cases demonstrated recovery by 1 month. Of 54 patients at 4-7 baseline with 3+ months follow up, 70% demonstrated return to baseline but 7 of 16 patients reaching peak 14 or greater (upper moderate to severe status) had worsened symptoms persist beyond 3 months. Of cases presenting with high baseline scores, median volume was 49.5 cc w/ 41% over 50 cc. 46 presented at 8-19, 4 were 20-26. Symptom patterns were fairly equally distributed regarding obstructive (incomplete emptying, intermittency, weak stream, straining to void) and irritative symptoms (urgency, frequency, nocturia). 2 cases suffered acute retention requiring treatment interruption and

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catheterization. 30% at IPSS 8-19 baseline worsened to 17-34 although 70% demonstrated return to baseline status or better within 3 months. 6 of 14 reaching severe status showed persisting toxicity beyond 3 months. Including the 2 in chronic retention, 8/50 (16%) suffered chronic symptoms.

Conclusions: Baseline score is generally predictive of acute toxicity peak and recovery time, relatively independent of prostate volume. In the low severity category, cases with score 4-7 mostly improve by 3 months but occasionally require more than 3 months to return to baseline. Fortunately even higher baseline score cases also mostly improve by 3 months. However approximately half of patients who do experience substantial toxicity increase will show prolonged recovery. These patients may benefit from methods to improve voiding before therapy.