

Minimizing Urinary Toxicity in Daily Prostate Stereotactic Body Radiotherapy with Urethra Dose

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Abstract

Objectives: Stereotactic body radiotherapy (SBRT) is an evolving treatment modality for prostate cancer. There is currently no standard dose fractionation or timing for prostate SBRT. Prior reports indicated that daily treatment is toxic and every other day (QOD) treatment is safer. However, some patients prefer daily treatments to decrease overall treatment time and travel expenses. We challenged the hypothesis that daily treatment is toxic and provide prospective data of daily SBRT treatment.

Methods: 32 patients with FR/LIR prostate cancer were prospectively treated at our institution from 2009 to 2015 with SBRT using CyberKnife. Treatment consisted of 36.25 Gy in 5 daily fractions with prostatic and membranous urethra dose constraints (V47 < 20% and D50 < 37Gy, respectively) and daily dexamethasone. Patient reported bladder and rectal toxicity was graded on the RTOG scale. Baseline and post-treatment international prostate symptom score (IPSS), sexual health inventory for men (SHIM), urinary symptom quality of life (QOL) and PSA levels were compared using McNemar's Chi-square and Bowker tests.

Results: Median Follow-up is 38 months. (Range 1-89 mos). We observed no statistically significant differences in baseline and post-treatment median IPSS (6,9) and urinary QOL scores. Of 14 patients with SHIM scores >18, 7 (50%) demonstrated a decline of > 5 points. 6/32 (18%) patients experience grade 2 GU sxs managed with Tamsulosin. 1/32 (3%) patients had Grade 3 GU acute and late sxs resolved with HB02 (dysuria). 4/32 pts (12%) experienced transient acute rectal tenesmus which resolved. No other Gr 3-4 GU or GI sxs were observed. Median PSA nadir is 0.4 ng/ml (0-4.8) with one BF to date.

Conclusions: Contrary to prior reports, the Grade 2-3 toxicity profile of QD treatment with our strategy compared favorably with historical QD data. Grade 3 GU toxicity as reported in prior daily SBRT studies was rare. These data indicate that daily SBRT with urethra dose constraints for FR/LIR prostate cancer is feasible and results in a comparable toxicity profile to that of QOD treatment, while decreasing overall days of treatment duration and associated travel costs. BFFS is 97% is encouraging.

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Abstract

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