Cureus

Open Access
Abstract
Published 02/11/2022

Biochemical Control, Toxicity and Quality of Life Outcomes of SBRT vs LDR Brachytherapy in the Treatment of Low and Intermediate Risk Prostate Cancer

Emile Gogineni [1], Zaker Rana [2], Danielle Soberman [3], Baho Sidiqi [4], Vincent D'Andrea [5], Lucille Lee [6], Louis Potters [7], Bhupesh Parashar [7]

1. Radiation Oncology, Johns Hopkins University, Baltimore, USA 2. Resident, Riverside Regional Medical Center, Baltimore, USA 3. Radiation Oncology, Hofstra, Lake Success, USA 4. Radiation Oncology, Northwell Health, New Hyde Park, USA 5. Urology, Brigham and Womens, Lake Success, USA 6. Radiation Oncology, Zucker School of Medicine at Northwell/Hofstra, Hempstead, NY, Hempstead, USA 7. Radiation Oncology, Northwell Health, Lake Success, USA

Corresponding author: Emile Gogineni, emile.gogineni@gmail.com

Categories: Radiation Oncology, Urology
Keywords: brachytherapy, stereotactic body radiotherapy, prostate cancer

How to cite this abstract
Gogineni E, Rana Z, Soberman D, et al. (February 11, 2022) Biochemical Control, Toxicity and Quality of Life Outcomes of SBRT vs LDR Brachytherapy in the Treatment of Low and Intermediate Risk Prostate Cancer. Cureus 14(2): a704

Abstract

Objective: Low dose rate (LDR) brachytherapy and Stereotactic Body Radiation Therapy (SBRT) have both shown acceptable outcomes in the treatment of low and intermediate risk prostate cancer. Minimal data has been published directly comparing rates of biochemical control and toxicity with these two modalities. We hypothesize that LDR and SBRT will provide similar rates of biochemical control.

Methods: All low and intermediate risk prostate cancer patients treated definitively with SBRT or LDR between 2010 and 2018 were captured. Phoenix definition was used for biochemical failure. Independent t-tests were used to compare baseline characteristics, while repeated measure ANOVA was used to compare AUA and EPIC scores between treatment arms over time. Biochemical control was estimated using the Kaplan Meier method. Differences in acute and late toxicity were assessed via Pearson chi-square.

Results: 219 and 118 patients were treated with LDR and SBRT. Median follow-up was 4.3 years (interquartile range:3.1-6.1). All patients treated with LDR received 125.0 Gy in a single fraction. SBRT consisted of 42.5 Gy in 5 fractions. 5-year biochemical control for LDR versus SBRT was 91.6% vs. 97.6% (p=.108). LDR patients had a larger increase in mean AUA scores at one month (17.2 vs. 10.3, p<.001) and three months post-treatment (14.0 vs. 9.7, p<.001), and in mean EPIC scores at one month (15.7 vs 13.8, p<.001). There was no significant difference between LDR and SBRT in late grade 3 GU toxicity (0.9% vs 2.5%, p=.238), however LDR had lower rates of late grade 3 GI toxicity (0.0% vs 2.5%, p=.018).

Conclusion: Our data shows similar biochemical control and GU toxicity rates at 5 years for both SBRT and LDR, with slightly higher GI toxicity with SBRT and higher AUA and EPIC scores with LDR.