

Utilization of Salvage Radiation Therapy for Biochemical Recurrence after Radical Prostatectomy

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INTRODUCTION AND OBJECTIVES: For men with biochemical recurrence after radical prostatectomy (RP), salvage radiation therapy (SRT), especially "early" SRT (PSA \leq 0.5 ng/mL), is a potentially curative option. However, its utilization in clinical practice is not well defined. We sought to determine factors associated with SRT utilization as well as the variation in administration across diverse urology practices.

METHODS: Patients with localized prostate cancer (PCa) undergoing RP at 27 practices participating in the Statewide Michigan Urological Surgery Improvement Collaborative (MUSIC) between 2012-2016 were prospectively followed. Eligible patients for this study had at least 1 post-RP PSA \geq 0.1 ng/ml. SRT utilization along with clinical and pathologic patient characteristics were examined, including PSA, pathologic stage, grade, margin status, race, Charlson comorbidity index, age, and insurance type. Associations with SRT use were analyzed using logistical regression modeling.

RESULTS: Of 1017 eligible patients with a detectable PSA, only 29.7% underwent SRT; 16.7%, 5.2%, 3.3%, and 4.5% of patients underwent SRT at PSA levels of 0.1 to <0.5, 0.5 to <1.0, 1.0 to <2.0, and \geq 2.0 ng/mL, respectively. After adjusting for patient and practice level factors, higher maximum post-RP PSA, positive surgical margins, higher T-stage, and higher grade group were all associated with receipt of SRT (all $p < 0.05$). Even after adjusting for patient and tumor characteristics, there remained significant variation in the adjusted rate of SRT utilization across practices sites, ranging from 3.5% (95% CI 0.5-15%) to 74% (95% CI 35-94%, $p < 0.001$). Practices were grouped into tertiles based on SRT utilization, and those practices that utilized SRT more frequently overall were more likely to administer SRT across all patient-based predictors of SRT utilization (Figure).

CONCLUSIONS: Of men with a detectable PSA post-RP, one in six received early SRT, with significant variation in practice-level SRT utilization which can't be explained by patient factors alone. Factors suggesting higher risk disease were predictors of SRT administration. These data support the potential to expand the use of SRT, particularly among low utilization sites.

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