Contemporary Update of a Multi-Institutional Predictive Nomogram for Salvage Radiotherapy After Radical Prostatectomy.

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Abstract

PURPOSE: We aimed to update a previously published, multi-institutional nomogram of outcomes for salvage radiotherapy (SRT) following radical prostatectomy (RP) for prostate cancer, including patients treated in the contemporary era.

METHODS: Individual data from node-negative patients with a detectable post-RP prostate-specific antigen (PSA) treated with SRT with or without concurrent androgen-deprivation therapy (ADT) were obtained from 10 academic institutions. Freedom from biochemical failure (FFBF) and distant metastases (DM) rates were estimated, and predictive nomograms were generated.

RESULTS: Overall, 2,460 patients with a median follow-up of 5 years were included; 599 patients (24%) had a Gleason score (GS) ≤ 6, 1,387 (56%) had a GS of 7, 244 (10%) had a GS of 8, and 230 (9%) had a GS of 9 to 10. There were 1,370 patients (56%) with extraprostatic extension (EPE), 452 (18%) with seminal vesicle invasion (SVI), 1,434 (58%) with positive surgical margins, and 390 (16%) who received ADT (median, 6 months). The median pre-SRT PSA was 0.5 ng/mL (interquartile range, 0.3 to 1.1). The 5-yr FFBF rate was 56% overall, 71% for those with a pre-SRT PSA level of 0.01 to 0.2 ng/mL (n = 441), 63% for those with a PSA of 0.21 to 0.50 ng/mL (n = 822), 54% for those with a PSA of 0.51 to 1.0 ng/mL (n = 533), 43% for those with a PSA of 1.01 to 2.0 ng/mL (n = 341), and 37% for those with a PSA > 2.0 ng/mL (n = 323); P < .001. On multivariable analysis, pre-SRT PSA, GS, EPE, SVI, surgical margins, ADT use, and SRT dose were associated with FFBF. Pre-SRT PSA, GS, SVI, surgical margins, and ADT use were associated with DM, whereas EPE and SRT dose were not. The nomogram concordance indices were 0.68 (FFBF) and 0.74 (DM).

CONCLUSION: Early SRT at low PSA levels after RP is associated with improved FFBF and DM rates. Contemporary nomograms can estimate individual patient outcomes after SRT in the modern era.

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