**Contemporary Update of a Multi-institutional Predictive**

**Nomogram for Salvage Radiation Therapy After Prostatectomy**

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**Purpose/Objective(s):** Our multi-institutional consortium previously

published a predictive nomogram of salvage radiation therapy (SRT)

following radical prostatectomy (RP). Randomized trials have since

demonstrated the benefit of early RT in high-risk patients (pts),

particularly at lower prostate-specific antigen (PSA) levels. We aim to

update the nomogram with additional pts treated with SRT in the

contemporary era.

**Materials/Methods:** Individual data of pts treated with SRT neoadjuvant/concurrent androgen deprivation therapy (ADT) were collected

for this institutional review board-approved study. Pts were excluded if

ADT was given prior to surgery or >6 months prior to SRT; they were

lymph node-positive; or full pathologic staging or follow-up details were

unavailable. Kaplan-Meier estimates of freedom from biochemical failure

(FFBF) from SRT end-date, with failure defined as PSA >0.2 ng/mL with

a confirmatory value or a single PSA >0.4, and freedom from distant

metastases (FFDM) from both SRT end-date and RP date. Multivariable

analyses (MVA) by Cox proportional hazards regression were performed to

identify risk factors for these endpoints.

**Results:** Three thousand, one hundred and two pts with median follow

up of 59 months from SRT end-date were included. Seven hundred and

forty-nine pts (24%) had a Gleason score (GS) ≤ 6, 1732 (56%) GS 7,

621 (20%) GS ≥ 8, 1803 (58%) extraprostatic extension (EPE), 614

(20%) seminal vesicle invasion (SVI), 1781 (57%) margin positive (R1),

and 491 (16%) received neoadjuvant/concurrent ADT. Median pre-SRT

PSA was 0.6 ng/mL (interquartile range 0.3-1.3). Five-year FFBF was

51% for all pts and was 70% for pts with pre-SRT PSA < 0.2 (n =

444), 61% for 0.21-0.50 (n = 978), 50% for 0.51-1.0 (n = 689),

40% for 1.01-2.0 (n = 475), and 25% for >2.0 (n = 516), P <

.0001. On MVA, pre-SRT PSA (P = .0027), GS (P < .0001), EPE (P

= .0028), SVI (P < .0001), R1 (P < .0001), and ADT (P < .0001)

were significant predictors of FFBF. For FFDM from SRT end-date, preSRT

PSA (P = .003), GS (P < .0001), SVI (P < .0001), and R1 (P <

.0001) were significantly predictive, while EPE (P = .21) and neoadjuvant/concurrent ADT (P Z .75) were not. For FFDM from RP

date, pre-SRT PSA (P < .0001), GS (P < .0001), and SVI (P < .0001)

were significantly predictive, while EPE (P = .07), R1 (P = .09) and

neoadjuvant/concurrent ADT (P = .25) were not. Compared to pre-SRT

PSA ≤ 0.2 (reference level), SRT at higher PSA levels was associated

with worse FFDM from RP date for PSA 0.51-1.0 ng/mL (HR = 2.14,

P = .001), for PSA 1.01-2.0 (HR = 2.64, P < .0001), and for PSA

>2 (HR = 3.86, P < .0001), but not for PSA 0.21-0.5 (HR = 1.46, P

= .12).

**Conclusion:** Early SRT is associated with improved FFBF and FFDM. A

contemporary predictive nomogram will be presented to estimate individual

patient outcomes after SRT.