Prostate-specific antigen after salvage radiotherapy for postprostatectomy biochemical recurrence predicts long-term outcome including overall survival.

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Abstract

BACKGROUND: For patients with recurrent prostate cancer after radical prostatectomy (RP), salvage radiotherapy (SRT) is a second chance of cure. However, depending on risk factors, 40-70% of the patients experience further progression. With a focus on the pre- and post-SRT serum level of the prostate-specific antigen (PSA), we assessed the determinants of the long-term outcome after SRT.

PATIENT AND METHODS: Between 1997 and 2011, 464 patients received 3D-conformal SRT with median 66.6 Gy. The median PSA level before SRT was 0.31 ng/ml. In our retrospective analysis, post-SRT progression was defined as either a rising PSA >0.2 ng/ml above the nadir, or the application of anti-androgens or clinical recurrence. A PSA <0.1 ng/ml was termed undetectable. We analyzed the data with the Kaplan-Meier method (Logrank test) and multivariable Cox regression.

RESULTS: The median follow-up was 5.9 years. Overall, 178 patients had recurrence, 13 developed distant metastases and 30 died. Univariate, a pre-RP PSA <10 ng/ml, pathological stage pT <3, Gleason score <8, positive surgical margins, a pre-SRT PSA <0.2 ng/ml and a post-SRT PSA nadir <0.1 ng/ml correlated with fewer and later second recurrences. In a multivariable Cox model, pT, Gleason score, margin status and pre-SRT PSA were significant covariates of progression. If the post-SRT PSA response was included in the regression analysis, then a nadir ≥0.1 ng/ml was the strongest risk factor. Initiating SRT at a PSA <0.2 ng/ml correlated with a post-SRT PSA <0.1 ng/ml. Men who achieved an undetectable post-SRT PSA nadir also had lower rates of metastases and a better overall survival. However, there were too few events for Cox regression analysis of these two endpoints.

CONCLUSIONS: Early SRT at a PSA <0.2 ng/ml correlates with re-achieving an undetectable PSA, which predicts improved freedom from progression and metastases and better overall survival.

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