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Genomic classifier identifies men with adverse pathology after radical prostatectomy who benefit from adjuvant radiation therapy.

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Erratum in

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Abstract

PURPOSE: The optimal timing of postoperative radiotherapy (RT) after radical prostatectomy (RP) is unclear. We hypothesized that a genomic classifier (GC) would provide prognostic and predictive insight into the development of clinical metastases in men receiving post-RP RT and inform decision making.

PATIENTS AND METHODS: GC scores were calculated from 188 patients with pT3 or margin-positive prostate cancer, who received post-RP RT at Thomas Jefferson University and Mayo Clinic between 1990 and 2009. The primary end point was clinical metastasis. Prognostic accuracy of the models was tested using the concordance index for censored data and decision curve analysis. Cox regression analysis tested the relationship between GC and metastasis.

RESULTS: The cumulative incidence of metastasis at 5 years after RT was 0%, 9%, and 29% for low, average, and high GC scores, respectively (P = .002). In multivariable analysis, GC and pre-RP prostate-specific antigen were independent predictors of metastasis (both P < .01). Within the low GC score (< 0.4), there were no differences in the cumulative incidence of metastasis comparing patients who received adjuvant or salvage RT (P = .79). However, for patients with higher GC scores (≥ 0.4), cumulative incidence of metastasis at 5 years was 6% for patients treated with adjuvant RT compared with 23% for patients treated with salvage RT (P < .01).

CONCLUSION: In patients treated with post-RP RT, GC is prognostic for the development of clinical metastasis beyond routine clinical and pathologic features. Although preliminary, patients with low GC scores are best treated with salvage RT, whereas those with high GC scores benefit from adjuvant therapy. These findings provide the first rational selection of timing for post-RP RT.

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