Re-calibration and external validation of an existing nomogram to predict aggressive recurrences after radical prostatectomy.


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Abstract
OBJECTIVE: To re-calibrate the previously published Duke Prostate Center (DPC) nomogram for the prediction of biochemical recurrence (BCR) after radical prostatectomy (RP) to not only predict overall BCR but also the clinically more relevant endpoint of an aggressive recurrence (i.e. a BCR with a postoperative PSA doubling time (PSADT) of <9 months).

PATIENTS AND METHODS: Using the established point-scale system based upon the previously published DPC nomogram, we re-calibrated this point system to predict not just BCR, but also aggressive BCR within 2599 men treated with RP from the DPC database. PSADT was computed on all patients meeting the recurrence definition who had a minimum of two PSA values, separated by at least 3 months, and < or =2 years after recurrence. External validation was performed using data from 1695 men treated with RP within the Shared Equal Access Regional Cancer Hospital (SEARCH) database by calculating the concordance index c and by plotting calibration curves.

RESULTS: The median follow-up for patients with no BCR was 56 and 47 months for DPC and SEARCH, respectively. In the DPC modelling cohort and the SEARCH validation cohort, 645 (25%) and 557 (33%) men had BCR, while 83 (3.2%) and 71 (4.2%) patients had an aggressive recurrence. In external validation, predictive accuracy for an aggressive BCR was high (c = 0.83) and the nomogram showed good calibration.

CONCLUSIONS: We re-calibrated an existing nomogram to not only predict overall BCR after RP but also aggressive recurrence after RP. Our new tool can provide valuable information for patient counselling and patient selection for adjuvant therapy trials.

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