External validation of preoperative nomograms predicting biochemical recurrence after radical prostatectomy.

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Abstract

OBJECTIVE: Preoperative nomograms can accurately predict the rate of biochemical recurrence after radical prostatectomy. Although these nomograms were shown to be valid in several external validation cohorts of Caucasian patients, they have not been validated in non-Caucasian patients from Asian countries. We therefore validated these preoperative nomograms in a Japanese cohort, using different cutoff values of prostate-specific antigen concentrations for biochemical recurrence.

METHODS: We analyzed 637 patients who underwent radical prostatectomy for clinically localized prostate cancer at the Tokyo Medical University Hospital between February 2000 and January 2011. We evaluated two prostate-specific antigen cutoff values for biochemical recurrence, 0.2 and 0.4 ng/ml. Using c-index and calibration plots, we validated the previously developed Kattan and Stephenson nomograms.

RESULTS: Overall, the mean 5-year non-biochemical recurrence rate was 72 ± 4%. Using a prostate-specific antigen cutoff values of 0.2 and 0.4 ng/ml, the c-indices for the Kattan nomogram were 0.714 and 0.733. Similarly, using a prostate-specific antigen cutoff values of 0.2 and 0.4 ng/ml, the c-indices for the Stephenson nomograms were 0.717 and 0.671. The calibration plots showed that the predictive value of the Stephenson nomogram at a prostate-specific antigen cutoff of 0.2 ng/ml was close to the actual outcomes compared with other combinations of nomograms and prostate-specific antigen cutoff levels.

CONCLUSIONS: Because the c-indices of both nomograms were generally high, these nomograms can be applied to our cohort. The addition of biopsy information did not markedly improve the c-index but resulted in good calibration, indicating that the Stephenson nomogram may be a better fit for our patient cohort.

KEYWORDS: Japanese, biochemical recurrence, preoperative nomograms, prostate cancer, prostatectomy

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