PROSTATE CANCER

New nomogram predicts risk of Gleason upgrading

Researchers have developed and validated a nomogram for the prediction of pathological upgrading of prostate cancer. Current estimates suggest that 30–50% of tumours characterized as Gleason 6 on biopsy are upgraded at radical prostatectomy, which has serious implications for treatment decisions. The possibility that patients with Gleason 7 prostate cancer might be enrolled on an active surveillance programme based on inaccurate biopsy results is a pressing concern.

David Jarrard and colleagues noticed that the currently available nomograms are not always applicable to low-risk disease and decided to develop their own, which they have named BADGR (Biopsy-Integrated Algorithm for Determining Gleason 6 Upgrading Risk). "We questioned whether there were clinical or pathological predictors that might help inform patients of the risk of upgrading and, therefore, better stratify individuals considering active surveillance," explains Jarrard.

Researchers evaluated more than 30 variables for their ability to predict upgrading on univariate analysis in a discovery cohort of 413 patients treated at the University of Wisconsin-Madison. Factors significantly associated with upgrading were entered into a multivariate model, and four independent predictors were chosen for BADGR (PSA density, obesity, number of positive cores and maximum percent core involvement). The predictive accuracy of BADGR in the discovery cohort was demonstrated using receiver operating characteristic analysis, generating an area under the curve (AUC) of 0.753. External validation in cohorts of 1,152 men treated at the University of Chicago and 392 patients at the University of Miami revealed AUCs of 0.677 and 0.672, respectively. The predictive accuracy of BADGR was significantly higher than those of a number of existing active surveillance protocols (AUCs ranged from 0.505 to 0.622; $P < 0.0001$).

As support for active surveillance of low-risk prostate cancer has increased, so has awareness that patients selected for this type of expectant management must be chosen carefully. "The use of this nomogram by patients with low-risk prostate cancer provides further information that can be used in the decision to treat prostate cancer or to monitor it," explains Jarrard. "In the future, use of molecular markers in conjunction with this nomogram may further improve the stratification of risk for patients with prostate cancer."

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