

# PCa markers improve predictive performance of existing clinical variables

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A genetic score based on PCa risk-associated single nucleotide polymorphisms (SNPs) is an independent predictor of prostate biopsy outcomes, suggest the results of a new study conducted by a group from the Department of Urology Huashan Hospital, Fudan University in Shanghai, China.

The authors, who relate their findings to the male population in China, also suggest that this score can improve predictive performance of existing clinical variables, especially for patients with a total PSA levels

"[Genetic susceptibility](#) to prostate cancer (PCa) is well established," write the authors. "In a recent study with a large number of cases and controls from the Chinese Consortium for PCa Genetics (ChinaPCa), we identified 25 [SNPs](#) that were significantly associated with PCa risk and obtained odds ratio (OR) estimates for these SNPs in Chinese men."

In the follow-up of the ChinaPCa study, this investigation aimed to evaluate whether a genetic score based on these 25 PCa risk-associated SNPs can independently predict outcome of [prostate biopsy](#), and improve the predictive performance of existing clinical variables such as prostate-specific antigen (PSA).

The results of the study will be presented at the 28th Annual EAU Congress in Milan, 15-19 March 2013.

Three-hundreds and twelve consecutive patients who underwent prostate biopsy for detection of PCa at Huashan Hospital, Shanghai, China since January 2010 were recruited for this study. All clinical variables such as serum PSA levels as well as [DNA samples](#) from peripheral blood were collected prior to biopsy. Twenty-five SNPs were genotyped using the Sequenom MassARRAY platform.

In the course of the study, a genetic score was calculated for each man based on his genotype at the 25 SNPs and weighted by OR obtained from the ChinaPCa study. Multivariate analyses were performed to test association of biopsy outcome and predictors (clinical variables and genetic score) using a logistic regression model. Area under the receiver operating characteristic curve (AUC) was used to assess the ability of clinical variables and the genetic score to predict for positive prostate biopsy. Detection rate of PCa was also used to assess performance of predictors.

The results of the study revealed that the PCa detection rate was 45% overall in this biopsy cohort, and was 29% and 79%, respectively for patients with total PSA levels  $\geq 20$  ng/ml (~1/3 of patients). Age, total PSA levels, and genetic score were independent predictors of biopsy outcomes,  $P = 0.002$ ,  $7.18 \times 10^{-9}$ , and  $0.01$ , respectively.

The AUC for discriminating biopsy outcomes was 0.65, 0.79, and 0.66, respectively for age, total PSA, and genetic score. When genetic score was added to the model with age and total PSA, the AUC for discriminating biopsy outcomes increased from 0.82 to 0.86. The difference in AUC was statistically significant,  $P$  **More information:** H.W. Jiang et al., "Performance of inherited genetic markers to predict prostate biopsy outcomes in Chinese men," Abstract Nr: 9; 28th Annual EAU Congress, 15 to 19 March 2013; Milan, Italy.

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