

**PROSTATE CANCER
GENETIC DIFFERENCES
IN PSA**

Adjusting PSA levels according to genetic factors can not only prevent unnecessary biopsies in white men, but might also be used to expedite biopsy in African American men, according to a new study published in *BJU International*.

A number of single nucleotide polymorphisms (SNPs) have been identified in the PSA gene that can cause high serum PSA levels and, therefore, might contribute to overdiagnosis of prostate cancer. Last year, Brian Helfand and colleagues investigated whether four of these SNPs could be used to personalize PSA testing in a cohort of white men. They hypothesized that performing genetic correction of PSA levels according to the presence of these SNPs could prevent men from undergoing unnecessary biopsy.

964 healthy white men without prostate cancer were recruited, and their PSA levels were adjusted by dividing each patient's PSA value by their combined genetic risk (calculated using a binary logistic model for each genotype). As expected, this tweak led to changes in whether patients met the criteria for biopsy; relative reductions in the total number of biopsies of 15% and 20% were reported for PSA thresholds of ≥ 2.5 ng/ml and ≥ 4.0 ng/ml, respectively.

Now, the same researchers have performed genetic correction in a cohort of African American men, with a considerably different outcome. First, they compared the effects of the so-called PSA-SNPs between the previous cohort of white men and 363 healthy African American men without prostate cancer. The frequencies of each genotype were significantly different between cohorts, leading the investigators to generate a specific genetic correction model for African American men.

In contrast to white men, PSA adjustment did not identify any African American men who would have undergone an unnecessary biopsy. Rather, an additional 32 (8.8%) and 5 (1.4%) men were identified as candidates for biopsy at thresholds of ≥ 2.5 ng/ml and ≥ 4.0 ng/ml, respectively. The researchers hope that genetic correction might be used to prevent delayed biopsy in African American men, who are known to be at high risk of aggressive prostate cancer.

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Original article Donin, N. *et al.* Genetically-adjusted PSA values may prevent delayed biopsies in African-American men. *BJU Int.* doi:10.1111/bju.12647

Further reading Helfand, B. T. *et al.* Personalized PSA testing using genetic variants may reduce unnecessary prostate biopsies. *J. Urol.* **189**, 1697–1701 (2013)