Genetic marker may predict early onset of prostate cancer

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Fox Chase Cancer Center researchers have identified a genetic marker that is associated with an earlier onset of prostate cancer in Caucasian men who have a family history of prostate cancer. If the data are confirmed, the marker may help clinicians personalize prostate cancer screening.

Veda Giri, M.D., a medical oncologist and director of the Prostate Cancer Risk Assessment Program at Fox Chase, will present the data at the annual meeting of the American Society of Clinical Oncology on Saturday, May 30.

"Genetic testing for prostate cancer is not yet clinically well characterized as it is for breast, ovarian cancer and colon cancer," Giri says. "Markers such as this one are useful because they may help clinicians distinguish between men who are at risk for earlier onset of disease where intensive screening approaches can be discussed. Men who do not carry genetic markers of risk may not need such screening measures."

More than half of all prostate tumors carry a fusion gene called, TMPRSS2-ERG, which may have a role in prostate cancer formation. Recently, scientists reported that a single nucleotide polymorphism, called the Met160Val SNP (also referred to as rs12329760), is associated with the gene fusion. Specifically, prostate cancer patients who carry the T allele of Met160Val are more likely to have a prostate tumor with the gene fusion than patients who have the C allele.

To find out if the T allele is clinically relevant in men who are at high risk of developing prostate cancer but do not yet have the disease, Giri and colleagues genotyped 631 men enrolled in the Prostate Cancer Risk Assessment Program at Fox Chase. Overall, while there were differences in the distribution of the alleles by race, the risk allele did not have a major contribution to disease in 400 African American men or in 231 Caucasian men with a family history of prostate cancer. They then evaluated this marker in 183 Caucasian men who have a family history of prostate cancer undergoing follow-up in the Prostate Cancer Risk Assessment Program. They found that the high risk allele was associated with a 2.5-fold increased risk of developing prostate cancer, relative to the low risk allele. Additionally, more men carrying the high risk allele developed prostate cancer earlier than men not carrying the risk allele.

"We need longer follow-up to know the precise time frame for cancer development, but we have learned some information on the difference in time to diagnosis from this study," Giri says.

According to Giri, a similar association between the T allele and disease may exist in African American men with a family history of prostate cancer, however, there were not enough of these men in the study to test the possibility.

"This was a pilot study," Giri says. "We are expanding the study to see if the association holds up in a larger Caucasian patient population. We are also planning collaborations with investigators at other institutions to test if this marker would be informative in African American men with a family history."

Source: Fox Chase Cancer Center (news : web)