Josh Baxt
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Study by Sylvester Researcher Points to Genomic Testing Disparities in Prostate Cancer Patients

In a study published in the *New England Journal of Medicine* on Sept. 9, researchers from several institutions, including Sylvester Comprehensive Cancer Center at the University of Miami Miller School of Medicine, Memorial Sloan Kettering Cancer Center, and Dana-Farber Cancer Institute, showed genomic variations that drive prostate cancer vary significantly among white, Asian, and Black patients.

These findings may help explain why prostate cancer poses a greater danger for Black men. They also underscore the importance of diverse cohorts in clinical trials to develop appropriate treatments and prognostic models based on genomics that benefit all patients.

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Dr. Brandon A. Mahal

“Black men are much more likely to develop prostate cancer and more than twice as likely to die from it, and we need to understand why,” said Brandon Mahal, M.D., first author on the study and now assistant professor of radiation oncology at Sylvester.

Health disparities are driven by access to care, how Black men are treated once they're in the system, and other issues governed by structural racism. Prostate cancer disparities may also be caused by the current use and application of genomic tests, which identify the molecular variations that may drive prostate cancer and guide precision treatment development. Both molecular diagnostics and personalized therapies are developed through a longstanding clinical trial process, which may inadvertently promote racial disparities due to a lack of

diversity in these studies.

“The studies we use to develop prognostic models and novel treatments based on genomics are highly Eurocentric, and there are few Black patients included in them,” said Dr. Mahal. “As a result, we risk developing ‘precision’ prognostic tools and ‘precision’ therapeutics that are really only designed for one population. This current trend could widen cancer disparities.”

To better understand prostate cancer genomics in different groups, the researchers studied genomic sequences from 2,393 patients (1,308 white, 133 Black, and 43 Asian) at Dana-Farber and Memorial Sloan Kettering, focusing on mutations in 474 genes.

“The most significant thing we found was that Black men with metastatic prostate cancer were much more likely than white or Asian men to have tumor mutations in the androgen receptor,” said Dr. Mahal. “The caveat is, we don’t know what’s driving that difference. It could be underlying population differences or other external factors such as the treatments these patients received, social factors, or even other comorbid diseases.”

Still, this variation speaks directly to how prostate cancer treatments are prescribed, as patients often receive anti-androgen therapy during early-stage disease. Androgen receptor mutations could potentially predispose patients to treatment resistance – an important piece of information to guide therapeutic decisions.

More work needs to be done to understand and expand upon these

results. Dr. Mahal recently came to Sylvester from Massachusetts General Hospital and Dana-Farber Cancer Institute in Boston and is eager to continue these investigations.

In addition to his work in radiation oncology, Dr. Mahal is assistant director of community outreach and engagement, a role that will give him important opportunities to expand diversity in clinical trials and other cutting-edge cancer studies.

“I'm hoping to follow up on this work, looking at larger patient cohorts, treatment responses, social determinants of health, and outcomes,” said Dr. Mahal. “I really want to focus on involving more minority patients in precision medicine studies and clinical trials, addressing that access gap and bringing high-quality treatments to all patients.”

Dr. Mahal believes the results from the *New England Journal of Medicine* study, and many others, highlight how disparities can be incorporated into emerging approaches, such as genomic diagnostics and precision medicine, and that it’s up to the medical community to ensure this does not happen.

“There needs to be a concerted effort to put minority patients into genomic and precision medicine studies,” said Dr. Mahal. “If we don't give patients from different backgrounds access to those studies, we can make health care access even worse. If we don’t have complete representation, our treatments could end up being less generalizable to minority populations and actually widen disparities.”

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