New recommendations on genetic testing for prostate cancer

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Prostate cancer is a leading cause of death from cancer in the US and especially in the Philadelphia region. Consistently, Philadelphia has outpaced the state of PA and the nation in diagnoses and death from

prostate cancer. A key area impacting prostate cancer risk and treatment is germline genetic testing, which involves testing for hereditary cancer genes. Genes such as BRCA2, BRCA1 and many other genes have been reported to raise the risk for prostate cancer and are increasingly informing treatment and management approaches. However, genetic testing of men for prostate cancer is still not common practice due to inconsistent guidelines and challenges to implementation of genetic counseling.

To address these challenges, experts at Sidney Kimmel Cancer Center—Jefferson Health and the Department of Urology at Thomas Jefferson University hosted the international Philadelphia Prostate Cancer Consensus Conference 2019 entitled Implementation of Germline Testing for Prostate Cancer. The Consensus Conference, co-chaired by Drs. Veda Giri, Karen Knudsen, and Leonard Gomella, had representation from many major Philadelphia healthcare institutions, such as University of Pennsylvania and Fox Chase Cancer Center, as well as centers around the United States, Europe, and Australia. Importantly, the conference addressed key gaps or areas in need of clarity regarding genetic testing for prostate cancer including: which men should undergo genetic testing for prostate cancer, which genes should be tested, how genetic results impact precision medicine and precision management across the stage spectrum, and the impact of genetic testing for cancer risk and screening for men and their families.

Key recommendations which were published in *Journal of Clinical Oncology* on June 9th include a strong endorsement to perform genetic testing of all men with metastatic prostate cancer to inform precision medicine or clinical trial eligibility, as well as men with a family history suggesting hereditary prostate cancer as well as other cancers such as breast, ovarian, pancreatic, and colon cancers, to inform active surveillance or screening discussions. Recommended priority genes for testing include BRCA2, BRCA1, and DNA mismatch repair genes in

metastatic prostate cancer.

The Consensus recommendations come on the heels of two very important FDA approvals for drugs that target metastatic prostate cancer in men who carry BRCA mutations or mutations in other DNA repair genes. Two medications, rucaparib and olaparib, were granted FDA approval recently for treatment among men with specific genetic mutations due to clinical benefit, thus expanding precision medicine for prostate cancer. Therefore, the Conference results have significant impact for treatment decision-making for men with metastatic prostate cancer.

The Conference also addressed how genetic testing may impact management of early-stage prostate cancer. BRCA2 testing was recommended to inform active surveillance discussions and may help men and their doctors make decisions for management of early-stage disease. The Conference also focused on prostate cancer screening strategies such as age to begin screening and which genes to factor into screening discussions between men and their doctors to make an informed and shared decision. For example, BRCA2 and HOXB13 were recommended for testing to inform prostate cancer early detection discussions. The panel also recommended that BRCA2 carriers should begin early PSA screening, such as at age 40 or 10 years prior to the youngest prostate cancer diagnosis in a family. Since genetic testing may uncover hereditary cancer risk, the Conference also addressed genetic testing for male and female relatives of men who test positive for genetic mutations, factoring in family cancer history and other factors.

This was the first conference to propose a model for how to implement genetic testing in medical practices. The Conference included experts in oncology, urology, genetic counseling, primary care, Veterans Affairs, and patient stakeholders. Their guidance was used to develop genetic-evaluation processes that include seeing men in-person, using telehealth,

or using videos to provide genetic information to make an informed decision for genetic testing. In this era of COVID-19, remote health services such as telehealth, are increasingly needed to keep ahead of cancer development and to provide high-level cancer care.

Genetic testing is very conducive the telehealth genetic counseling, with at-home sample collection for genetic testing, and discussion of results through telehealth.

Finally, the Consensus Conference addressed approaches to increase knowledge of genetics among doctors and the public along with priorities for research. Many currently available resources were highlighted, with additional patient and public resources under development.

Overall, genetic testing for prostate cancer is now increasingly informing treatment, management, and screening for this potentially lethal disease at high rates in our region. The 2019 Philadelphia Consensus Conference was a major effort to provide guidance to doctors, men, and their families regarding how best to consider and undergo genetic testing to impact prostate cancer care. Importantly, the results can also provide information on other cancer risks impacting males and females in families such as breast cancer, prostate cancer, pancreatic cancer, ovarian cancer, and colon cancer.

This Father's Day, men may consider approaching their doctors and families regarding genetic testing for prostate cancer to be proactive in treatment and screening which may be life-saving from this potentially fatal disease.

More information: Veda N. Giri et al, Implementation of Germline Testing for Prostate Cancer: Philadelphia Prostate Cancer Consensus Conference 2019, *Journal of Clinical Oncology* (2020). DOI:

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