New Studies Demonstrate Impact of BRCA, DNA Repair Gene Mutations in Prostate Cancer

BOSTON, May 13, 2017 /PRNewswire-USNewswire/ -- Data being presented at the 112th Annual Scientific Meeting of the American Urological Association (AUA) shows new facts related to the impact of certain genetic mutations on the risk and development of prostate cancer, in particular metastatic disease. Scott Eggener, MD, associate professor of surgery and director of the Prostate Cancer Program at the University of Chicago Medicine will moderate a special session for the media, which will be hosted at the Boston Convention and Exhibition Center in Boston, MA on Saturday May 13, 2017 at 9:30 a.m. EDT.

Study Details
Malignancies in Male BRCA Mutation Carriers - Results from a Prospectively Screened Cohort of Patients Enrolled to a Dedicated Male BRCA Clinic (#PD07-10): An analysis was conducted between February 2014 and July 2016 to find the cancer rate and type in a group of 154 known male BRCA mutation carriers. Of the study cohort, 92 (60 percent) had mutations of the BRCA1 gene, 61 (40 percent) had a BRCA2 mutation and one patient had a mutation on both genes. Patients ages 40 and older were screened for prostate, breast, colorectal, pancreatic and skin cancers using a standard protocol and findings were reported.

- A total of 24 patients (16 percent) in the cohort were diagnosed with cancer upon enrollment or during initial screening, with a median age of 55 years at diagnosis.
- Four patients had multiple malignancies (two to four cases per patient). Prostate cancer was identified in seven of the 93 patients (8 percent) with BRCA1 mutation, and three of the 62 patients (5 percent) with BRCA2.
- Overall, these data indicate cancer rates in male BRCA mutation carriers may be substantially higher than those reported for the general population in matching age groups. Additionally, prostate cancer was prevalent among BRCA1 carriers and not restricted to BRCA2, as some previous reports have shown.

Study Details
Frequency of DNA Repair Gene Mutations in Localized and Metastatic Prostate Cancer (#PD03-02): Using samples from 936 localized and metastatic prostate cancers, researchers studied the distribution of DNA repair gene mutations to characterize changes in repair pathway genes. In addition to assessing the frequency of these mutations in primary vs. metastatic prostate tumors, the study also sought to find if prostate tumors with DNA repair defects were particularly sensitive to platinum-based chemotherapy and poly(adenosine diphosphate [ADP]-ribose) polymerase (PARP) inhibitor therapy.

Of the samples in the study, 228 showed at least one likely functional mutation in a DNA repair gene (24.4 percent). Mutations were identified in 20.1 percent of prostate tumors and 18.8 percent of bone metastases. The highest rates of DNA repair mutations were found in visceral metastases (such as brain, pelvis and liver, which were significantly higher than either prostate tissue or bone sites). The most commonly mutated genes in the DNA repair pathway were BRCA2 (11 percent), ATM (66 percent), MSH6 (2.5 percent), MSH2 (2 percent), ATR (1.6 percent), MLH1 (1.3 percent), and BRCA1 (1.2 percent).

"These studies reveal new insights into the role genetic mutations play in the development of prostate cancer, particularly metastatic disease," Eggener said. "For some patients, a detailed understanding of these mutations could have a meaningful impact on the timely diagnosis and treatment of their disease."

NOTE TO REPORTERS: Experts are available to discuss this study outside normal briefing times. To arrange an interview with an expert, please contact the AUA Communications Office at 410-689-3932 or e-mail cfrey@AUAnet.org.

About the American Urological Association: The 112th Annual Meeting of the American Urological Association takes place May 12 – 16 at the Boston Convention and Exhibition Center in Boston, MA.

Founded in 1902 and headquartered near Baltimore, Maryland, the American Urological Association is a leading advocate for the specialty of urology, and has more than 21,000 members throughout the world. The AUA is a premier urologic association, providing invaluable support to the urologic community as it pursues its mission of fostering the highest standards of urologic care through education, research and the formulation of health policy.

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