UTSouthwestern
Simmons Cancer Center

Genetic Testing Information for Urologists

Impact of Genetic Testing on Patient Care

Genetic testing for hereditary cancers can be a useful tool for patients affected with cancer as well as their family members. It can also be helpful for unaffected patients with a significant family history of cancer.

For patients considering treatment options, genetic testing can help patients make informed decisions regarding their healthcare. For example, research has suggested that 11.8% of individuals with metastatic prostate cancer carry a mutation in a cancer predisposition gene. The early use of platinum-based chemotherapies and/or the use of a PARP inhibitor (e.g. Olaparib) are being evaluated for the treatment of metastatic, castration resistant prostate cancer in patients with an inherited (germline) mutation in the *BRCA1*, *BRCA2*, and/or *ATM* genes.

Additionally, patients with a hereditary cancer predisposition syndrome may also be at an increased risk for other cancers (e.g. male and female breast, colon, or pancreatic cancer). Genetic testing may help clarify these risks and allow patients to consider increased cancer screenings or even take preventative measures, such as prophylactic surgery. Family members of patients with a cancer predisposition syndrome may also be at risk, and should pursue genetic testing themselves to clarify their cancer risks.

Current Genetic Testing Options for Hereditary Cancer

Hereditary cancer genetic testing now includes many options consisting of panels that assess multiple genes at once. There are many options for panels depending on patient preference and personal/family history. Various commercial testing laboratories offer smaller, tailored panels for common cancers such as prostate, breast, and colon cancer, while other options include larger panels that test for a wide range of hereditary cancer indications.

When to Refer to Genetic Counseling

Typical referral indications are outlined below. Please note that this list is not all-inclusive and may change with time. The American College of Medical Genetics and Genomics and the National Comprehensive Cancer Network have practice guidelines for referring to cancer genetics, which can be found at www.ACMG.net and www.NCCN.org. Your local genetics office can also be a resource for answering referral questions.

Referral indications for genetic counseling you may come across in your clinic include:

- A personal history of metastatic prostate cancer, *regardless of age at diagnosis or family history*
- A first or second degree relative (parent, child, sibling, niece/nephew, aunt/uncle, or grandparent) diagnosed with metastatic prostate cancer
- A personal history of Gleason score ≥7 prostate cancer with any of the following:
    - Family history of ovarian cancer
    - Family history of early onset breast cancer (e.g. ≤50)
    - Family history of pancreatic cancer
    - At least two close relatives with breast or prostate cancer, regardless of age
- A personal history of urothelial carcinoma with ≥2 family members with a Lynch Syndrome-associated tumor (colon, stomach, small intestine, endometrium, ovary, ureter/renal pelvis, brain, sebaceous adenoma/carcinoma, biliary tract, or pancreas)
- A personal history of a Sertoli cell tumor

Insurance and Financial Options

Most insurance companies cover the cost of genetic testing for patients who meet certain criteria, and financial assistance may be available for patients without insurance. Competitive self-pay options are also available.

Criteria for genetic testing varies greatly depending on the type of cancer, but generally includes patients with a personal/family history of metastatic prostate cancer, young diagnoses (often <45-50 years old), multiple primary cancers in one person, and multiple family members with the same or related types of cancers (e.g. prostate, breast, pancreatic, and/or ovarian).

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How can I learn more?

For information about genetic testing and genetic counseling, visit the UT Southwestern Cancer Genetics for Health Professionals site.

For additional resources on coordinating genetics counseling and testing for patients, or providing genetics services, visit the Genetic Screening and Navigation Toolkit.

To find a genetic counselor near you, visit the National Society of Genetic Counselors Find a Genetic Counselor Tool.

References

Hampel H, et al. A practice guideline from the American College of Medical Genetics and Genomics and the National Society of Genetic Counselors: referral indications for cancer predisposition assessment. *Genet Med*. 2014. 17(1):70-87.

NCCN Clinical Practice Guidelines in Oncology®: Genetic/Familial High-Risk Assessment: Breast, Ovarian, and Pancreatic. Version 1.2020.

Pritchard C, et al. Inherited DNA-Repair Gene Mutations in Men with Metastatic Prostate Cancer. *N Engl J Med*. 2016. 375(5): 443–453.