Genetic Testing

While you don't inherit cancer, you can inherit a higher risk for developing it. Although only 5-10 percent of cancers are from inherited gene mutations, genetic testing identifies an individual's risk for certain types of cancer. Testing provides early detection and the opportunity not only to reduce the risk of cancer, but also to save lives. Detecting cancer early is one of the most important things people can do to protect their health and significantly increase the chances of successful outcomes.

Why Risk for Some Cancer Is Inherited

Every person receives two of every gene – one from their mother and one from their father – and therefore can receive a mutated or altered gene from either parent. When a gene mutation or change occurs, genes do not function correctly, and a greater risk of cancer is inherited.

Factors Associated with Inheriting a Higher Risk of Cancer

- Cancer is diagnosed at age 50 or younger
- Multiple types of cancer occur in one individual
- Cancer develops in paired organs (both breasts, both ovaries, both kidneys)
- Multiple family members with the same type of cancer

About Genetic Testing

Genetic testing is the analysis of human DNA to detect inheritable disease-related gene mutations that may increase the risk of certain cancers. It provides an in-depth cancer risk assessment for individuals with a significant personal and/or family history of cancer. An oncologist can help decide if testing is right for a person.

- ***Medical History:*** A person first completes a personal and family medical history, along with a counseling session.
- ***Testing:*** A small blood sample is analyzed, looking for a change or mutation in the gene. While the lab test is very complex, only this blood sample is needed. Insurance companies may cover the cost of testing.
- ***Counseling:*** Following the testing, the person receives comprehensive counseling based on the results of his or her test. For those who are found to have a gene mutation and a higher risk of cancer, options for next steps are discussed.
- ***Next Steps:*** Options can include closer medical surveillance, drug/hormone therapy for prevention, or surgery. A patient's choice is strictly a personal decision and genetic counseling and testing will provide them with the tools needed to make informed decisions.

Family Risk

If a family member has tested positive for a mutation, other family members are encouraged to be tested as well – to determine which side of the family the gene mutation is from and who else has the mutation and therefore is at a higher risk for developing cancer. The information from genetic counseling and testing enables family members to make decisions that could save their lives. It also can tell family members that they do not have the mutated gene.

Confidentiality of Results

The results of genetic counseling and testing are strictly confidential. It is also against the law for insurance companies to discriminate against someone based on genetic information.

Benefits of Genetic Testing

- Relief of uncertainty
- Understand cancer risk
- Make informed medical and lifestyle decisions
- Provide helpful information to other family members

Risks of Genetic Counseling and Testing

- Difficulty coping with known cancer risk
- Impact on family and personal relationships
- Concern about the privacy of results

Risk Factors of Breast and Ovarian Cancer Syndrome (BRCA 1/2)

- Breast cancer before age of 50
- Ovarian cancer at any age
- Bilateral breast cancer
- Male breast cancer at any age
- Individuals with both breast and ovarian cancer
- Ashkenazi Jewish ancestry with breast or ovarian cancer at any age
- Mutation positive relative

Sources: Texas Oncology, American Cancer Society, and National Cancer Institute

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