Quest Diagnostics®

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Hereditary Breast and Ovarian Cancer

Hereditary cancer

About 5% to 10% of all cancers are inherited.[1] In the case of hereditary breast and ovarian cancer (HBOC) syndrome, a parent passes on an altered *BRCA1* or *BRCA2* gene to a child. Daughters will have an increased risk for getting cancer of the breast and ovary. Sons have an increased risk for getting prostate cancer. And both have an increased risk for cancer of the pancreas and melanoma.

Changes in other genes can cause HBOC syndrome too. But changes in the *BRCA1* and *BRCA2* genes are more common than changes in the other genes.

Who's at risk for HBOC syndrome?

People at risk usually have close relatives with one or more of these cancers. But it's not quite that simple. There are many people who have close relatives with one of these cancers but don't have HBOC syndrome. So experts have developed a list of things that help identify those at risk. Risk factors include:

- Breast cancer before the age of 50
- 2 separate (primary) breast cancers at any age
- Triple negative (ER, PR, and HER2 negative) breast cancer
- Ovarian cancer at any age
- Male breast cancer
- A strong family history of breast and/or ovarian cancer
- A blood relative with a *BRCA1* or *BRCA2* mutation
- Ashkenazi Jewish ancestry

What if I have a patient at risk for HBOC syndrome?

The first step is to decide if he/she meets the criteria for *BRCA* mutation testing. Quest Diagnostics has created a quiz based on criteria from the National Comprehensive Cancer Network (NCCN). It's available at BRCAvantage.com/take-the-quiz/. There is a quiz for women and one for men. Patients who answer "yes" to any of the questions meet the NCCN criteria for testing.

The next step is to help the patient decide whether to be tested. Quest Diagnostics has written a Patient Support Guide that can help. It includes facts about HBOC syndrome and mutation testing. You can order copies at BRCAvantage.com/order-guide/.

If the patient decides to be tested, you can order the BRCAvantage™ test from Quest Diagnostics. The test looks for mutations in the *BRCA1* and *BRCA2* genes. If the test result is positive, the patient has HBOC syndrome.

HBOC syndrome and cancer risk[3-7]

Cancer	Risk of Cancer: With *BRCA1* Mutation	With *BRCA2* Mutation	Without *BRCA* Mutation
Women			
Breast cancer[a]	55–65%	45–47%	9%
Ovarian cancer[a]	39%	11–17%	1%
2nd breast cancer[b]	83%	62%	15%
Men			
Breast cancer[a]	1%	7%	0.06%

[a] Risk of developing cancer by age 70.
[b] Lifetime risk of developing a second breast cancer.

What if my patient has HBOC syndrome?

People with HBOC syndrome are at increased risk of getting certain cancers. These include cancer of the breast, ovary, fallopian tube, peritoneum, prostate, and pancreas. Risk of melanoma is also increased.

But this doesn't mean the patient will actually get cancer. Not everyone with HBOC syndrome gets cancer. And there are things you can do to help your patient stay healthy. Options include:

- Increased cancer screening
- Surgery
- Medicines (chemoprevention)

Genetic counselors and doctors skilled in managing patients with HBOC syndrome may be of help to you and your patient.

What about other family members?

Blood relatives of a patient with HBOC syndrome may have the syndrome too. Their risk varies based on their relationship to the patient. Risks are:

- 100% for identical twins
- 50% for a parent, sibling, or child
- 25% for a grandparent, uncle, aunt, niece, or nephew
- 12.5% for a first cousin

These relatives meet NCCN criteria for testing. They should be counseled so they can decide whether to be tested.

References

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