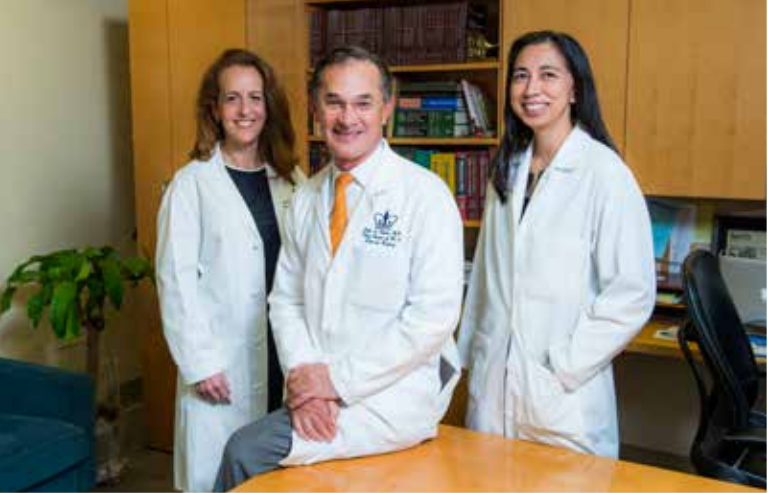


┌ NewYork-Presbyterian
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The Role of Heredity in Breast and Pancreatic Cancer





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Today, there is significant understanding of the genetic and non-genetic risk factors associated with breast cancer and pancreatic cancer. The discovery of the BRCA genes more than two decades ago and many advances in genetic technology since then are enabling oncologists to predict with greater certainty the likelihood of breast, pancreatic, and other cancers developing among family members.

Medical and surgical oncologists, geneticists and genetic counselors, and other cancer specialists at NewYork-Presbyterian/Columbia have come together in a cross-collaboration to provide critical screening, prevention, and medical and surgical interventions for patients at particular risk for breast and pancreatic cancers.

Our goal is to:

- Identify individuals who can benefit from genetic testing
- Provide genetic counseling for family members who may be at higher risk for certain cancers
- Develop an individualized prevention, screening, and/or treatment program based on medical and family history, results of genetic testing, and clinical examination

Q. What is the relevance of the BRCA1 and BRCA2 genes to cancer?

A. About one in 400 individuals in the general population may test positive for a mutation in the BRCA1 and 2 genes. Mutation in BRCA 1 and 2 are responsible for about 5 to 10% of all breast cancers, and for approximately 50% of all hereditary breast cancers.

Research conducted by faculty at The Pancreas Center, published in 2014, found that approximately 10% of pancreatic cancers seen in The Pancreas Center are associated with breast and ovarian cancer syndromes caused by BRCA 1 and 2 mutations. Other researchers have found the link between pancreatic cancer and BRCA2 mutations to be as high as 19%.

Q. When should an individual consider genetic testing?

A. As with any other cancer, early diagnosis is key. Risk assessment is an important component of early diagnosis. Genetic testing will uncover identifiable genes that are known risk factors for pancreatic cancer, some of which are shared with BRCA2 breast cancer.

To help identify the risk of developing pancreatic cancer, The Pancreas Center recommends that individuals who carry the BRCA1 or 2 gene consider genetic testing for BRCA mutations, particularly if a personal or family history of cancer suggests an increased risk of carrying a BRCA1/2 gene mutation.

Genetic screening also may be indicated if a first-degree family member – parent, sibling, child – was diagnosed with pancreas or breast cancer before age 50, or there are multiple family members affected with these cancers at any age.

“We recommend that patients who have pancreatic cancer and are identified as BRCA-positive should also be screened for ovarian and breast cancer and vice versa.”

— Dr. John Chabot, Executive Director,
The Pancreas Center

Q. How can the results of genetic testing guide treatment?

A. Growing evidence indicates that if a patient is identified with a BRCA1 and/or 2 gene mutation, there are implications for treatment. For example, early screening for pancreatic cancer may be recommended when certain risk factors, particularly positive genetic associations, are present. Early screening can lead to early diagnosis of pancreatic cancer at a stage when it is most treatable. If a specific gene is identified, it is generally accepted that screening with an MRI or endoscopic ultrasound should begin at an age of 10 years younger than the youngest family member affected.

In addition, pancreatic tumors have increased susceptibility to certain chemotherapies. Identifying someone with pancreatic cancer with these genes may guide the type of chemotherapy recommended. At The Pancreas Center, clinicians have had improved responses to individual tailored therapy regimens based on genetic testing.

Q. What are some of the risk factors for pancreatic cancer?

A. Several factors may increase an individual's risk of developing pancreas cancer. These include:

Ancestry Certain populations are more likely to carry mutations of the BRCA genes. Individuals with Ashkenazi Jewish ancestry have a significantly higher risk than the general population – about 1 in 40. BRCA gene mutations are also more common in Norwegian, Dutch, and Icelandic populations.

Non-O (A, B or AB) Blood Type Blood type genes yet to be identified have been linked to an increased risk of pancreatic cancer.

H. Pylori Infection of the Stomach A diagnosis of certain strains of an H. pylori infection of the stomach is also associated with an increased risk of pancreatic cancer. This appears to be more significant in individuals with non-O blood types.

Long-term Use of Heartburn Medications While controversial in the scientific literature, some believe that long-term use of medications belonging to the class of Proton Pump Inhibitors or H2 antagonists, or the conditions they are treating, may lead to a higher risk for pancreatic cancer.

Pancreatitis In cases where there is no known cause for a diagnosis of pancreatitis, such as gallstones or excessive alcohol intake, a tumor within the pancreas may be present. In addition, chronic pancreatitis carries a higher risk for the development of pancreatic cancer over a lifetime.

Recent Diagnosis of Diabetes Although diabetes is relatively common, The Pancreas Center has had a disturbing number of patients diagnosed with pancreatic cancer who were diagnosed with diabetes within the prior six months. This may be significant if no other risk factors or tendencies to diabetes are present such as family history or obesity.

Q. What are some of the symptoms of pancreatic cancer?

A. A number of conditions other than pancreatic cancer can cause the following symptoms, but reporting them to a doctor is important. These include:

- New back pain, specifically mid-back in between the shoulder blades, which is the location of the pancreas
- Significant but unintentional weight loss greater than 10 pounds
- Frequent nausea or a feeling of fullness after eating very little
- Excessive diarrhea and gas
- Yellowing of the whites of the eyes or urine the color of tea

The risk factors and symptoms described above should not be cause for alarm. However, they could provide valuable insight for diagnosis and treatment and are worth a discussion with a doctor.

About The Pancreas Center

The Pancreas Center of NewYork-Presbyterian/Columbia is founded on the principle that treatment of pancreas disorders demands a commitment to collaboration in patient care. In addition to upholding an exacting standard of highly coordinated, compassionate, and dedicated patient care at The Pancreas Center, we deeply value the insights of medical research and continually pursue new avenues of diagnosis and treatment. These are some of the reasons patients come to us from all over the world.

As part of NewYork-Presbyterian/Columbia and the Herbert Irving Comprehensive Cancer Center, The Pancreas Center is fortunate to have some of the best practitioners in every medical discipline. Our patients have access to a highly experienced, multidisciplinary team of gastroenterologists, oncologists, surgeons, radiologists, nurse practitioners, geneticists, genetic counselors, and nutritionists. Together, we collaborate to meet the diagnosis, intervention, prevention, and treatment needs of each patient. Our commitment to championing the health of our patients is our defining characteristic.

For More Information or to Schedule an Appointment

If you would like additional information, guidance related to you or your family members, or would like to schedule an appointment with one of our specialists, please call The Pancreas Center and we will direct you to the appropriate specialist or service.

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