Health Care

Exclusive: DNA sheds light on cancer risks

Dr. Irman Forghani is the director of genetics at Mount Sinai Medical Center.

JOCK FISTICK / SOUTH FLORIDA BUSINESS JOURNAL

By Brian Bandell – Real Estate Editor, South Florida Business Journal
Jan 19, 2024

Major advances in genetic research have allowed doctors to alert some patients that they're at greater risk of cancer after conducting genetic screening - and these tests have become more accessible than ever.

Diagnosing cancer cases in the early stages is crucial because it's easier to treat and there's less time for cancer to spread to other parts of the body. It's also less expensive to treat cancer in the early stages, which is an important factor for companies funding health insurance plans. Relatively inexpensive genetic tests can help people who otherwise wouldn't screen for cancer find the disease in time to be cured.

Between 5% and 10% of cancers are inherited based on genetic defects, said Dr. Irman Forghani, director of genetics at Mount Sinai Medical Center in Miami Beach. Not every person with a genetic defect will develop cancer, but they are at greater risk and should consult their doctors about how to manage that risk, she said.

Sara Rhode, Cleveland Clinic Florida

CLEVELAND CLINIC FLORIDA

Genetic screening has been a lifesaver for some patients, said Sara Rhode, a genetic counselor at Cleveland Clinic Florida with a master's degree in genetic counseling.

"I have multiple patients who underwent genetic testing and then did multiple screenings and identified cancer at the early stages," Rhode said. "We had a handful of individuals who we recommended surgery to remove their ovaries because of the ovarian cancer risk and some of them turned out to have early stage ovarian or fallopian tube cancer."

Best candidates to screen

While just about anyone can order a genetic test, cancer experts don't recommend screening for cancer risk to everybody.

Most people diagnosed with cancer should receive genetic screening, said Mount Sinai's Forghani. Some types of cancer have specific treatments based on their genetic line. For instance, a PARP inhibitor drug counters cancer caused by the BRCA1 gene mutation. It's also important to know whether the patient has a genetic predisposition to certain types of cancers, because other family members could share the same genetic mutation, she added.

Tammy Adar, Memorial Cancer Institute

GERLINDE PHOTOGRAPHY/MICHAEL HOPKINS

Those without a cancer diagnosis should consider genetic screening if there are certain types of cancer cases in their family. Breast, colon and kidney cancer cases at a young age raise concern about a genetic mutation in the family, said Tammy Adar, manager of the genetic counselor program at the Memorial Cancer Institute in Hollywood.

Adar, who earned a master's degree in genetic counseling, said ovarian and pancreatic cancer could have genetic causes no matter the age of diagnosis. Prostate cancer can be linked to genetic mutations as well.

Some ethnic groups are known to more frequently carry mutations with cancer risks, such as the BRCA1 gene in the Ashkenazi Jewish and Bahamian populations that increases the risk of breast cancer.

Fortunately, the cost of testing has become much more accessible. Years ago, a test for the BRCA1 gene cost $3,000, but now people can screen for dozens of known cancer mutations for $250 out of pocket, Adar said.

Dr. Carmen Calfa, Genetic Predisposition Syndrome Initiative at University of Miami's Sylvester Comprehensive Cancer Center

UNIVERSITY OF MIAMI

“We recently learned that if we test only those who fall under the rigorous guidelines, we will miss half of the people who carry a pathogenic genetic mutation,” said Dr. Carmen Calfa, leader of the Genetic Predisposition Syndrome Initiative at University of Miami’s Sylvester Comprehensive Cancer Center. “Therefore, new recommendations suggest testing everyone who has a new diagnosis of cancer as well as those with other risk factors."

Potential risk factors include family history, belonging to certain ethnic groups - such as being of Ashkenazi Jewish descent - having family members with known genetic mutations, and more, she added,

Calfa said those tested based on the criteria she described are found to have a one-in-eight chance of carrying a genetic cancer risk.

Experts said that any physician can order genetic screening for a patient, but the results are best reviewed with a genetic specialist at a cancer center. Such meetings can be conducted via telehealth.

Mount Sinai’s Forghani noted that new genes linked to cancer are discovered almost every year, so it’s worth it to check back with a specialist and see if another test is in order. In the last two years, they started testing RNA, in addition to DNA, to pick up mutations that previously may have been overlooked, she said.

“Having good family history is very important,” Forghani said. “It’s also important that a person who has a gene defect discuss it with first degree relatives to consider genetic testing.”

Protecting the family

One of the biggest challenges with recommending genetic screening is people often don’t know their family history with cancer, said Cleveland Clinic’s Rhode.

It’s crucial to know whether grandparents, aunts and uncles had cancer, especially the type of cancer and the age of onset, but some relatives are hesitant to share that

information. Once someone has cancer linked to a genetic mutation, there's a risk of other family members carrying the same mutation, so that information should be shared, Rhode said.

"They may not know why an aunt passed away, but they need to have the conversation and find out," said Adar, of the Memorial Cancer Institute. "Communication is key."

UM's Calfa said families having children through in vitro fertilization (IVF) can conduct genetic screening and choose not to pass on the genetic mutation with elevated cancer risk to the next generation by selecting an embryo without the mutation.

"This information brings smiles to patients' faces and usually erases the 'guilt' from those who feel badly about 'causing this upon' their children," Calfa said.

How genes impact planning

Dr. Louise Morrell, Lynn Cancer Institute at Boca Raton Regional Hospital

EUGENE M. & CHRISTINE E. LYNN CANCER INSTITUTE

There are actionable steps that people with genetic cancer risks can take to catch the disease early or prevent it from occurring, said Dr. Louise Morrell, medical director of the Lynn Cancer Institute at Boca Raton Regional Hospital, which is part of Baptist Health South Florida.

Pancreatic cancer is notoriously difficult to detect in the early stages, but a patient with a genetic predisposition to pancreatic cancer can undergo regular MRIs and ultrasounds to screen for the disease, Morrell said. Finding it earlier makes a huge difference in the success of treatment, she added.

For women with a genetic predisposition for ovarian cancer, it's common to remove the ovaries after they are done having children, Morrell added.

With patients at greater genetic risk of breast cancer, they would start MRIs and mammographs in their 20s and 30s, and consider preventative surgery, Morrell said.

"The BRCA gene impacts women in their late 20s and early 30s but we don't start screening for cancer until their 40s, so they should be tested [genetically] younger to start the screening process," Morrell said.

As science advances, Morrell expects more genes associated with cancer will be discovered, especially in minority populations.

"It is well understood that most of our data is coming from populations with a lot of access to health care," Morrell said. "The diverse populations and minority populations that don't have the same access have been under tested and the data is not as strong. Everybody is quite interested in trying to improve that."