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Cancer NYT NOW

Genetic Variant May Shield Latinas From Breast Cancer

By Anahad O'Connor

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A genetic variant that is particularly common in some Hispanic women with indigenous American ancestry appears to drastically lower the risk of breast cancer, a new study found.

About one in five Latinas in the United States carry one copy of the variant, and roughly 1 percent carry two.

The function of the gene is not entirely clear. But the authors of the study, which was led by a team at the University of California, San Francisco, and funded by the National Cancer Institute, said women who carry the variant have breast tissue that appears less dense on mammograms — a factor that is known to play a role in breast cancer risk. They suspect that the genetic variant may affect the production of estrogen receptors.

“This is a really important study,” said Marc Hurlbert, executive director of the Avon Foundation Breast Cancer Crusade, who was not involved in the study. “If we can understand how this is protective, it might help us to develop better treatments for those who do get breast cancer.”

The findings may also explain why Latinas have lower rates of breast cancer than other Americans. According to federal data, Hispanics have less than a 10 percent lifetime risk of breast cancer, compared with about 13 percent for non-

Hispanic whites and 11 percent for blacks.

Certain behavioral factors have been thought to account for at least part of this reduced risk. Latinas, for example, are less likely to use postmenopausal hormones, and they tend to have more children and give birth at younger ages, said Dr. Elad Ziv, a professor of medicine at the university in San Francisco and an author of the new study, which was published in Nature Communications. Both factors may decrease breast cancer risk.

But Dr. Ziv and his colleagues suspected that genetic factors might also be at work. So they scanned and compared the DNA of breast cancer patients and control subjects in various populations, carrying out a so-called genome-wide association study that can link genetic variations to disease. Altogether the study analyzed DNA from more than 3,000 women with breast cancer and about 8,200 women without the disease.

Many genome-wide association studies have looked for associations with breast cancer in women of European descent. But this was the first such study to include large numbers of Latinas, who in this case hailed mostly from California, Colombia and Mexico, said the lead author of the study, Laura Fejerman of the Institute for Human Genetics in San Francisco.

The researchers zeroed in on chromosome 6 and discovered the protective variant, which is known as a single nucleotide polymorphism, or SNP (pronounced “snip”). They also discovered that its frequency tracked with indigenous ancestry.

It occurred with about 15 percent frequency in Mexico, 10 percent in Colombia and 5 percent in Puerto Rico. But its frequency was below 1 percent in whites and blacks, and other studies have shown that it occurs in about 2 percent of Chinese people.

“My expectation would be that if you go to a highly indigenous region in Latin America, the frequency of the variant would be between 15 and 20 percent,” Dr. Fejerman said. “But in places with very low indigenous

concentration — places with high European ancestry — you might not even see it."

Women who carried just one copy of the variant were about 40 percent less likely to have breast cancer, while those with two copies had double that level of protection. Their risk was particularly lower for the type of breast cancer known as estrogen-receptor negative, a more aggressive form of the disease.

Dr. Otis W. Brawley, the chief medical officer at the American Cancer Society, said the study "is very good science" but cautioned that the genetic variant was not a silver bullet against breast cancer.

"I'm confident that this finding is going to hold, that most women who have this genetic variant are at lower risk of breast cancer," he said. "But keep in mind that some women with this variant still get breast cancer. It might be because they have this variant and something else that cancels it out."

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