

# Study: Antibiotics may raise risk for breast cancer in women

By Rob Stein  
THE WASHINGTON POST

Antibiotic use is associated with an increased risk for breast cancer, a new study has found, raising the possibility that women who take the widely used medicines are prone to one of the most feared malignancies.

The first-of-its-kind study of more than 10,000 women in Washington state concluded that those who used the most antibiotics had double the chances of developing breast cancer, that the association was consistent for all forms of antibiotics and that the risk went up with the number of prescriptions, a powerful indication that the link was real.

A variety of experts quickly cautioned, however, that the findings should not stop women from taking the often lifesaving drugs when needed to treat infections. There could be other explanations for the association, and much more research is needed before scientists understand what the surprising results mean, they said.

"This is not saying that women should stop taking antibiotics. Women should take antibiotics for infections," said Stephen H. Taplin, a senior scientist at the National Cancer Institute who helped conduct the study. "We need to follow up and find out if this is a real association."

Nevertheless, the consistency of the findings in a study with such careful methodology could indicate that antibiotic use is an important, previously unrecognized risk factor for breast cancer, experts said.

Antibiotics could increase the risk for breast cancer by, for example, affecting bacteria in the digestive system in ways that interfere with the way the body uses foods that protect against cancer, experts said. Another possibility is that antibiotics increase the risk by affecting the immune system.

Even if it turns out that antibiotics do not increase the risk for breast cancer, the finding is likely to be important because it could lead to the discovery of whatever it is about women who use the drugs that appears to make them prone to the disease, researchers said. "This has opened up a picture that peo-

ple had not been thinking about," Taplin said. "The important thing is more research and asking more questions about what it could be."

Until the results are sorted out, experts said, the findings provide yet another reason for doctors to more judiciously prescribe antibiotics, which are often used unnecessarily.

"It's a very provocative finding, but it's not entirely clear what it means," said Roberta B. Ness, an epidemiologist at the University of Pittsburgh who co-authored an editorial accompanying the study in this week's *Journal of the American Medical Association*. "The first thing you have to ask is if it's real. I think a cautious interpretation is very reasonable."

The researchers tried to find other explanations for the association, such as the possibility that breast cancer is more likely to be diagnosed in women who take antibiotics because they see doctors more often. But the association remained even after they excluded that and the other most likely possibilities.

The study's design, however, made it impossible to rule out the chance that women who tend to use the medicines are biologically predisposed to breast cancer for other reasons, such as by having weak immune systems or a hormonal imbalance that could be the cause of both their increased risk for breast cancer and for infections that prompted antibiotic use.

Scientists first proposed that antibiotics may increase the risk for breast cancer in 1981, but the only other study to examine the question was in Finland in 2000. That study also found an association, but it was not as well designed, prompting the new research.

"Antibiotics are used extensively in this country and in many parts of the world. The possible association between breast cancer and antibiotic use was important to examine," said Christine M. Velicer, an epidemiologist with Group Health Cooperative's Center for Health Studies who was

the lead author of the study.

Breast cancer strikes more than 211,000 women each year in the United States and kills more than 40,000, making it the leading cause of cancer and the second leading cancer killer among women.

Velicer, Taplin and their colleagues examined computerized pharmacy and cancer screening records of 2,266 women in the Group Health Cooperative, a Seattle area health plan, who developed breast cancer, and 7,953 similar women who did not.

Women who had more than 25 individual prescriptions for antibiotics over an average period of 17 years had twice the risk of breast cancer as those who had taken no antibiotics. The risk was lower for women who took fewer antibiotics, but even those who had between one and 25 prescriptions were about 50 percent more likely to develop breast cancer, the researchers found.

"It was surprising for me that there was an association," Velicer said. "The overall robustness and the consistency across a number of common antibiotics was really notable."

The researchers tried to explain the results by looking at other known risk factors, such as a family history of breast cancer and hormone use. But none could. They also did an analysis comparing women who were taking large amounts of antibiotics because of a skin condition associated with a hormonal imbalance with those taking antibiotics because of respiratory infections to see if the real cause might be the hormonal imbalance. That, too, failed to explain the findings, though it could not completely rule it out.

One finding that cast doubt on the possibility that antibiotics increase the risk for breast cancer was that the study found the risk for all types of antibiotics, said Debbie Saslow, director of breast and gynecologic cancer for the American Cancer Society. That makes it unlikely it is the antibiotics because different types work in very different ways, she

said.

"There are a lot of things associated with cancer risk that have absolutely nothing to do with causing cancer," she said.

Jeanne Calle, the society's director of analytical epidemiology, called the study important because "it appears to be the first major work to describe a possible association between antibiotic use and the increased risk of cancer."

But "it is critical to realize we cannot say with any certainty how valid these results are until and unless they are replicated in additional studies," she said.

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