

Diabetes drug metformin may cut breast cancer risk in older women

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But evidence isn't strong enough yet to change clinical practice, experts note.

(HealthDay) -- A widely prescribed drug, metformin, may lower the risk of invasive breast cancer in postmenopausal women with diabetes, a new study indicates.

The research, published online June 11 in the *Journal of Clinical Oncology*, echoes other recent studies that have suggested the [diabetes drug](#) may help cut the chances of prostate, pancreatic, liver and [oral cancer](#), as well as certain forms of melanoma.

The researchers found that the incidence of [invasive breast cancer](#) was 25 percent lower in women with diabetes who were taking [metformin](#) than it was in women who weren't taking the [drug](#).

Approximately 25.8 million people in the United States have diabetes, according to the U.S. [Centers for Disease Control and Prevention](#). Between 90 percent and 95 percent of these cases are [type 2 diabetes](#), in

which the body's ability to make and use insulin deteriorates.

"Type 2 diabetes is a disease of [insulin resistance](#)," said study co-author Dr. Rowan Chlebowski, a medical oncologist with the Los Angeles Biomedical Research Institute at Harbor-UCLA Medical Center, in Torrance, Calif.

Insulin is a hormone that helps regulate the level of glucose (sugar) in the body. With type 2 diabetes, the body manufactures larger quantities of insulin to maintain normal levels of glucose in the blood.

Metformin, commonly used to treat type 2 diabetes, increases [insulin sensitivity](#) and improves the control of blood sugar. "It makes the insulin you have more effective," Chlebowski explained. The drug, approved in the United Kingdom in 1958 and in Canada in 1972, was introduced in the United States in 1994.

The new research looked at relationships among diabetes, metformin use and breast cancer among over 68,000 women between 50 and 79 years old in the national Women's Health Initiative project. In this group, 3,401 had diabetes and 3,273 invasive breast cancers were diagnosed during the study.

Because of the design of the Women's Health Initiative trials, detailed information was available for this large and diverse population in many areas, including breast cancer risk factors, baseline mammograms, clinical breast exams and verification of breast cancers when they occurred. Researchers were also able to know which participants had diabetes -- along with their use of diabetes medication.

The trials excluded women who had already had breast cancer. Women who had developed diabetes before adulthood (suggesting they were type 1 diabetics) were also excluded from the study.

How can a drug that treats people with high blood sugar play a role in reducing breast [cancer risk](#)? Chlebowski suggested that metformin "may inhibit the master regulator of the cell, 'mTOR,' changing critical pathways involved in cancer."

The mTOR pathway is affected by a wide range of cellular signals, including growth factors, hormones such as insulin, nutrients including glucose and amino acids, cellular energy levels and stress. A key cell pathway associated with mTOR is critically involved in cell reproduction and survival.

Chlebowski and other experts cautioned against looking to metformin as a cancer prevention drug just yet.

"It's too soon to change clinical practice," said Jennifer Ligibel, a medical oncologist in the Women's Cancer Program at the Dana-Farber Cancer Institute in Boston. "While a number of other studies have suggested metformin has a role in preventing breast cancer and its recurrence, I would not recommend women take metformin for breast cancer prevention based on the data we have now."

As to the question of whether metformin could ever be used more broadly beyond diabetic patients to reduce the risk of breast cancer, Chlebowski said the answer is unclear and more studies are necessary to further analyze the linkage.

While the study uncovered an association between metformin use and lower [breast cancer](#) risk in diabetic postmenopausal women, it did not prove a cause-and-effect relationship.

The U.S. Food and Drug Administration has issued warnings about metformin in recent years. It requires product inserts for physicians and patients to say that the drug has been associated with increased

cardiovascular risks, including heart attack and stroke, and lactic acidosis, which causes fatigue, muscle pain, difficulty breathing and other symptoms. The FDA also stipulates that the drug literature include a warning that the drug should only be used by patients with type 2 [diabetes](#) who cannot control their blood sugar with lifestyle or other medications.

More information: The U.S. National Library of Medicine has more on [type 2 diabetes](#).

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