

# Metformin may have dual effect in breast cancer

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(HealthDay) -- For women without diabetes and with operable breast cancer, administration of metformin prior to surgery does not significantly affect the proliferative marker Ki-67 overall, but drug effects are observed according to homeostasis model assessment (HOMA), particularly in luminal B tumors, according to a study published online May 7 in the *Journal of Clinical Oncology*.

Bernardo Bonanni, M.D., of the European Institute of Oncology in Milan, and colleagues conducted a randomized trial involving 200 women without diabetes and with operable early-stage [invasive breast cancer](#) who were given either metformin or placebo. The authors sought to investigate the effect of metformin given before surgery on Ki-67.

The researchers found that metformin did not significantly affect Ki-67 compared with placebo. However, in women with HOMA index of greater than 2.8, Ki-67 decreased nonsignificantly, by 10.5 percent, compared with a nonsignificant increase of 11.1 percent in those with HOMA index of 2.8 or lower. In luminal B tumors, metformin had a different effect according to HOMA index ( $P_{\text{interaction}} = 0.05$ ). Drug effect modification was demonstrated, with similar trends seen for [body mass index](#), waist/hip girth-ratio, [moderate alcohol consumption](#), and C-reactive protein.

"In conclusion, our results suggest a heterogeneous effect of metformin on breast cancer proliferation depending on insulin resistance and other factors reflecting altered energy balance, with a trend to a decreased proliferation in women with elevated HOMA index and an opposite trend in women with normal insulin sensitivity," the authors write.

The metformin and placebo used in the study were donated by Laboratori Guidotti in Pisa, Italy.

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