

Low-dose estrogen shown safe and effective for metastatic breast cancer

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When estrogen-lowering drugs no longer control metastatic breast cancer, the opposite strategy might work. Raising estrogen levels benefited 30 percent of women whose metastatic breast cancer no longer responded to standard anti-estrogen treatment, according to research conducted at Washington University School of Medicine in St. Louis and collaborating institutions.

The results are reported in the Aug. 19, 2009, issue of the [Journal of the American Medical Association](#). Not only did estrogen treatment often stop disease progression, in some patients metastatic tumors became resensitized and again responded to anti-estrogen treatments.

"The women in the study had all experienced a relapse while on estrogen-lowering drugs, and their disease was progressing," says lead author Matthew J. Ellis, M.D., Ph.D., an oncologist with the Siteman Cancer Center at Washington University and Barnes-Jewish Hospital. "So they were faced with undergoing chemotherapy. We found that estrogen treatment stopped disease progression in many patients and was much better tolerated than chemotherapy would have been."

About 40,000 women die of metastatic breast cancer each year, and estrogen therapy could potentially help thousands of women, Ellis says. Furthermore, he points out that the therapy is inexpensive, costing less than a dollar a day.

Sixty-six postmenopausal women with breast cancer that had spread

beyond the breast participated in the study. All participants were originally diagnosed with [estrogen receptor](#) positive (ER⁺) breast tumors, meaning estrogen stimulated tumor growth. Seventy-five percent of [breast cancer](#) cases are ER⁺. All participants had received aromatase inhibitor treatment, which severely lowers estrogen levels, but their metastatic tumors had later reappeared or resumed growing.

The study compared a high 30-milligram daily dose of estrogen to a low 6-milligram daily dose, and evaluated how well the treatments controlled the women's metastatic cancers and how the treatments affected their quality of life. The high dose results in estrogen levels in the blood comparable to that of pregnant women, while the low dose gives estrogen levels similar to that of women who are ovulating, Ellis indicates.

In both the high- and low-dose groups about 30 percent of participants experienced a clinical benefit — their tumors either shrank or stopped growing. Interestingly, the researchers demonstrated that they could predict fairly accurately which patients would have this positive response. They conducted standard positron emission tomography (PET) scans before estrogen treatment and 24 hours later. If metastatic tumors flared, or glowed more brightly, in the PET scans after estrogen was started, they were much more likely to be affected by estrogen therapy. In 80 percent of women with PET flare reactions, tumors responded to estrogen therapy, and in 87 percent of women without PET flares, tumors did not respond to estrogen.

The participants filled out questionnaires to indicate whether they had adverse reactions to estrogen during the study. Adverse reactions could include headaches, bloating, breast tenderness, fluid retention, nausea and vomiting. Patients receiving the high estrogen dose had more severe side effects.

"The older women in the study were, the fewer estrogen-related symptoms they had," says Ellis also professor of medicine in the Division of Oncology. "But overall, we demonstrated clearly that the low dose was better tolerated than the high dose and was just as effective for controlling metastatic disease."

In the 30 percent of participants who responded to [estrogen](#), tumors often began to grow again after a period of months or years. But in a third of these recurring cases, the researchers showed that the women's tumors had become resensitized to anti-estrogen therapy. The tumors shrank or stopped growing when the patients went back on their original aromatase inhibitor treatment.

Source: Washington University School of Medicine ([news](#) : [web](#))

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