

# Hormonal therapy has a long-term effect in breast cancer

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Researchers at Karolinska Institutet in Sweden have investigated the long-term effect of hormonal therapy in women with the most common types of hormone-sensitive breast cancer. The results, presented in the journal *JAMA Oncology*, show that the treatment has a protective effect against distant metastatic cancer for both so-called Luminal A and Luminal B breast cancer subtypes, and a long-term effect for women diagnosed with Luminal A cancer.

Estrogen receptor-positive (hormone sensitive) [breast cancer](#) is the most common form of [breast cancer](#) and means that the tumor grows in response to the female hormone estrogen. Women who develop this form of breast cancer have a long-term risk of distant metastatic spread of the disease and dying from breast cancer. There is however insufficient knowledge of how biological factors in the tumor and hormonal therapy affect this long-term risk.

Researchers at Karolinska Institutet have now investigated the long-term effect of hormonal therapy in women with the two most common types

of estrogen receptor-positive breast cancer. The researchers analyzed long-term data with follow-up for at least 20 years for patients in the Stockholm Tamoxifen trial (STO-3) randomised to receive either tamoxifen treatment or no hormonal therapy. In summary, 336 women were diagnosed with so-called Luminal A breast cancer subtype and 126 women with Luminal B subtype.

The results show that patients with Luminal A breast cancer had a relatively small but prolonged risk increase for metastatic cancer, and that tamoxifen treatment significantly reduced this risk for as long as 15 years after diagnosis. Patients with Luminal B subtype were at high risk for metastatic breast cancer during the first five years after diagnosis. In these patients, tamoxifen treatment led to a significantly reduced risk during the first five years, but after that the protective effect of hormonal therapy decreased.

"Our conclusion is that tamoxifen treatment is beneficial for both groups of patients, but that it has a long-term protective effect for patients with Luminal A breast cancer," says Dr. Linda Lindström, a research group leader at Karolinska Institutet's Department of Biosciences and Nutrition, who coordinated the study. "Patients with Luminal B breast [cancer](#) should also be offered hormonal therapy, and our results show a reduced risk of metastatic disease during the first years when the risk is the highest for these patients. We will now proceed to investigate the long-term benefits of hormonal [therapy](#) in patients with Luminal A and Luminal B subtype who have been diagnosed with larger and aggressive tumours with spread to the lymph nodes."

The study was funded by the Swedish Research Council, Forte, the Gösta Milton Donation Foundation, the California Breast Cancer Research Program Award, Iris, Stig and Gerry Castenbäck's Foundation for Cancer Research and King Gustaf V's Jubilee Foundation from Radiumhemmet

Research Foundation. Co-author Laura van't Veer holds a patent for "Mammaprint 70-gene risk signature" and is co-founder, shareholder and part-time employee at Agendia.

**More information:** Nancy Y. Yu et al. Assessment of Long-term Distant Recurrence-Free Survival Associated With Tamoxifen Therapy in Postmenopausal Patients With Luminal A or Luminal B Breast Cancer, *JAMA Oncology* (2019).  
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