

Genetic test could help fight secondary breast cancer

October 25 2017



Mammograms showing a normal breast (left) and a breast with cancer (right).
Credit: Public Domain

Thousands of breast cancer patients at risk of developing aggressive secondary tumours could benefit from a potential new genetic test.

A study led by researchers at the University of Sheffield has shown women with breast [cancer](#) who lack a key genetic marker are more likely to respond to a treatment that can prevent the disease spreading to their

bones.

Secondary cancer, known as metastasis, is the most common cause of death in breast cancer patients as there are few effective treatments once it has taken root.

It occurs when cancer cells spread to another site in the body. Around 70 per cent of [secondary breast cancer](#) patients have tumours in the [bone](#).

Large scale clinical trials indicate a group of bone strengthening drugs known as bisphosphonates can help prevent the disease from spreading to bone in breast cancer patients if given early enough.

"The difficulty is identifying which patients will benefit from these drugs," said Professor Robert Coleman, emeritus professor of medical oncology who led the new study. "It only seems to be effective in some patients, particularly older women, while others show no response and in some younger women it may even be harmful."

The new study, which is published in the journal *Lancet Oncology*, has shown it may be possible to identify women who will benefit from bisphosphonates by using a test that looks for a gene known as MAF. Women who do not carry the gene - approximately 80% of women with breast cancer - were found to benefit from the bone strengthening treatment.

Professor Coleman said: "If the test is negative for this gene, then they can be offered this bone strengthening treatment, which can give them a better chance of surviving their cancer."

A test for the gene, known as MAFTest, has been developed by a Spanish medical company called Inbiomotion following work conducted at the Institute for Research in Biomedicine (IRB) in Barcelona.

The new study, which is published in the journal *Lancet Oncology*, was part of an international phase 3 clinical trial involving 3,360 women with stage II or III [breast](#) cancer.

The results need to be confirmed in a second trial, currently underway in the United States, before the test is likely to receive approval for wider use in patients. But if successful, it could be incorporated into the routine testing of [breast cancer patients](#) to see if they could benefit from bisphosphonate treatments such as zoledronic acid. Those found not to carry the gene could be given the drug after having surgery and radiotherapy for their primary tumour in an effort to prevent the cancer from spreading.

Around 50,000 women are diagnosed with [breast cancer](#) in the UK each year and the disease claims the lives of 11,500 annually.

"The discovery made at IRB Barcelona and tested in the current study could be of great use to clinicians and would avoid unnecessary treatment of patients who would not benefit or could be harmed by the treatment," added Professor Roger Gomis, leader of the growth control and cancer metastasis group at IRB Barcelona, who was a co-author on the study.

More information: Robert Coleman et al. Effect of MAF amplification on treatment outcomes with adjuvant zoledronic acid in early breast cancer: a secondary analysis of the international, open-label, randomised, controlled, phase 3 AZURE (BIG 01/04) trial, *The Lancet Oncology* (2017). [DOI: 10.1016/S1470-2045\(17\)30603-4](https://doi.org/10.1016/S1470-2045(17)30603-4)

Provided by University of Sheffield

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