

The future of breast cancer prevention

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Drugs could be used to prevent breast cancer in women at high risk of the disease in the same way that statins are used for heart disease if trials looking at ways of predicting risk are successful, according to an international panel of cancer experts.

In a review published in the journal *Lancet Oncology* the panel - including Professor Jack Cuzick from Queen Mary, University of London - agreed that all [women](#) with a greater than four per cent above average risk of getting breast cancer in the next ten years should be offered preventive measures and closer monitoring.

The density of breast tissue as seen on a mammogram is one of the strongest indicators of breast cancer risk. Women with dense breast tissue are around four times more likely to be at risk of cancer than those with the least dense breasts.

This could be used to identify women at high risk of getting breast cancer, much in the same way that cholesterol is used to identify people who could benefit from statins to reduce their heart disease risk.

A reduction in [breast density](#) could also be used as an indication of response to treatment, like the use of blood lipid levels to predict whether a patient's [heart disease](#) risk has been lowered in response to statins.

Chairman of the panel Professor Jack Cuzick, a Cancer Research UK epidemiologist based at Queen Mary, University of London, said:

“There’s strong evidence to show that drugs such as tamoxifen are effective at preventing breast cancer in women with greater than average risk of the disease. But it’s important to find ways of predicting who will respond, so drugs like this can be targeted at those most likely to benefit and least likely to experience side effects.

“Increased breast density is one of the leading risk factors for breast cancer and early trial results suggest that where tamoxifen is shown to decrease density the risk of cancer decreases. If this is confirmed in long-term studies, breast density could become a powerful way to identify high-risk women who could benefit from preventive treatments.”

A range of drugs have been considered for breast cancer prevention, including tamoxifen and raloxifene – which are licensed in the US – and newer drugs such as lasofozifene, arzoxifene and aromatase inhibitors such as anastrozole and exemestane – which have also shown promise but need further investigation.

Large international trials have shown that tamoxifen reduces the risk of oestrogen receptor positive breast cancer (the most common kind) by around a third in women at increased risk of the disease. But the treatment can cause side-effects - such as hot flushes, blood clots and in some cases womb cancer.

Prof Cuzick added: “Although drugs such as tamoxifen and raloxifene are licensed in the US, we know that neither is widely used, mainly due to concern around the potential side effects, and an inability to predict breast cancer risk accurately. We hope that in the future it may be possible to assess women’s breast cancer risk as part of routine breast screening and offer personalised advice about risk reduction and medicines for preventing breast cancer.”

Dr Lesley Walker, Cancer Research UK’s director of cancer

information, said: “Our scientists were behind some of the first trials showing the long term benefits of tamoxifen for preventing breast cancer in women with a greater than average risk of the disease.

“This research paved the way for the IBIS-II trial which is recruiting thousands of high-risk postmenopausal women to see if a new generation of breast cancer drugs, called aromatase inhibitors, could be even more effective and have fewer side effects.

“Being able to accurately predict [breast cancer](#) risk and who will respond to preventative drugs like these is a crucial step in ensuring women get the most suitable treatment.”

Provided by Queen Mary, University of London

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