

Shorter herceptin breast cancer treatment may produce better results

March 1 2017



Micrograph showing a lymph node invaded by ductal breast carcinoma, with extension of the tumour beyond the lymph node. Credit: Nephron/Wikipedia

Breast cancer patients who receive the drug Herceptin for nine weeks as part of their post-surgery chemotherapy regime may enjoy better health outcomes, according to new research led by UCL, compared to those who receive it for 12 months, the period currently recommended in the English NHS.

The researchers calculated that switching to the nine-week course of Herceptin could also save the NHS over £100 million a year. The study, a cost-effectiveness analysis of Herceptin, was published in the journal *PLOS ONE*.

Breast cancer is the most common cancer in women in several countries, including the UK and US. Around a quarter of women diagnosed with early-stage [breast cancer](#) have HER2-positive tumours, meaning that their tumours have an overactive human epidermal growth factor receptor 2 (HER2) gene and are more aggressive.

In these patients, adding Herceptin to the post-surgery chemotherapy regime has led to significant increases in survival rates and the amount of time before patients suffer a recurrence of the disease. However, Herceptin is expensive and can cause side effects, the most serious of which is potentially life-threatening heart problems.

The drug's manufacturer Roche recommends that women take the drug for a year after surgery, based on their trial information, and this is the current recommendation in the UK.

When the National Institute for Health and Care Excellence (NICE) approved the drug in 2006, the Evidence Review Group's report stated that it wished to see further evidence included on the effect of using the drug for shorter lengths of time. In 2014, there were 46,085 new breast cancer cases in women and the researchers estimated that 5,678 of these patients were eligible for Herceptin. Switching these patients to the nine-

week treatment would have saved the NHS £132 million at 2014 prices.

In addition, there was a gain of 4,773 quality-adjusted life-years, which are often measured in terms of the person's ability to carry out the activities of daily life, and freedom from pain and mental disturbance.

This study, which was carried out with City, University of London, analysed three options—giving Herceptin after surgery for 12 months, 9 weeks, or not at all.

The researchers considered eight studies carried out mainly in Europe and the US, and were able to perform an analysis that combined the results from two of these studies, which each followed patients for five years after they received Herceptin. These two studies covered 2,149 patients who received the drug for a year, 54 who received it for nine weeks and 1,131 who weren't given Herceptin.

The scientists looked at three outcomes in the five-year period - overall [survival rates](#), the rates of secondary cancer and whether any patients died of a heart attack. The analysis involved extrapolating patients' disease status and quality of life for 50 years into the future, to see what the long-term effects were.

"This work provides additional evidence for Herceptin as a drug for [breast cancer treatment](#). Where it differs from other work is that it shows the potential benefits of nine weeks of treatment instead of 12 months, in terms of both reduced costs and improved patient outcomes," said Dr Caroline Clarke (UCL Institute of Epidemiology and Health Care), who led the research.

"Overall, our results suggest that the 9-week option could be the best option for both patients and the NHS, as it is apparently just as effective as the 12-month duration, safer in terms of leading to fewer cardiac side

effects, and cheaper."

The analysis had limitations including the fact that it was based on a model that incorporated two similar trials, rather than on a single trial directly comparing the three different options, so the results should be viewed with caution. Also, the trial used for the 9-week data had a relatively small number of [patients](#) in it and hence there is some uncertainty in the results.

Provided by University College London

Citation: Shorter herceptin breast cancer treatment may produce better results (2017, March 1) retrieved 25 April 2024 from

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