Radiotherapy after mastectomy benefits women with breast cancer in 1-3 lymph nodes

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Glasgow, UK: Women whose breast cancer has spread to just a few lymph nodes under their arm are less likely to have their disease recur or to die from it if they have radiotherapy after mastectomy, according to new research to be presented at the European Breast Cancer Conference (EBCC-9) on Thursday and published in *The Lancet* today.

Dr Paul McGale will tell the meeting that, until now, there has been uncertainty over whether women with early breast cancer that has spread to just one, two or three lymph nodes under the arm gain any benefit from radiotherapy after surgery. However, his findings show that radiotherapy improves their chances of remaining disease-free and reduces their risk of dying from breast cancer.

"Another result from our study is that the proportional benefits of radiotherapy were similar in women regardless of whether or not they had also received chemotherapy or hormonal therapy. This is important because most women today receive these therapies. Our results suggest that women being treated today are likely also to benefit from radiotherapy if they have any positive lymph nodes," he told an EBCC-9 news briefing for journalists on Wednesday.

Dr McGale (PhD), a senior statistician in the Early Breast Cancer Trialists' Collaborative Group at the Clinical Trial Service Unit (Oxford, UK), analysed results from 3786 women in 14 randomised trials starting between 1964-1982, who had been given mastectomies along with the surgical removal of lymph nodes under the arm (axillary dissection) and

who were then randomised to receive either radiotherapy to the chest wall and surrounding regions or to no radiotherapy. The women fell into three categories: those with no cancer in the lymph nodes, those with cancer in one, two or three lymph nodes, and those with cancer in four or more lymph nodes. The women were followed up for an average of just over 11 years, and data on the number of recurrences and deaths were available up to 2009.

"In 700 women in whom the pathologists could find no sign that the nodes were affected, radiotherapy did not reduce the risk of recurrence or of dying from breast cancer," said Dr McGale. "However, in the 1314 women who had between one and three positive nodes, radiotherapy reduced the recurrence rate by nearly a third (32%) and the breast cancer death rate by a fifth (20%). Giving radiotherapy to these women led to nearly 12 fewer recurrences of breast cancer per 100 women after ten years, and eight fewer deaths per 100 women after 20 years."

He found that the percentage reductions in the recurrence and death rates in the 405 women who had only one positive node were similar to those for the women who had two or three positive nodes.

For the 1772 women with four or more positive nodes, radiotherapy also reduced the recurrence rate (by 21%) and the breast cancer death rate (by 13%). Here, radiotherapy for these women led to nine fewer recurrences of breast cancer after ten years and nine fewer deaths after 20 years per 100 women.

"It is already accepted that women with four or more positive nodes benefit from radiotherapy after mastectomy, and these findings confirm this benefit," he said. "However, it is for women with between one and three positive nodes where the previous evidence has been unclear."

The benefit occurred regardless of whether or not the women were in

trials where chemotherapy or hormonal therapy was given to all women. Sixty-five percent of women with one, two or three positive nodes received chemotherapy, and a further 21% with hormone sensitive tumours received hormonal therapy.

Speaking before the conference, Dr Carolyn Taylor (FRCR), a clinical oncologist in the Early Breast Cancer Trialists' Collaborative Group, said: "In the past, most women with many positive lymph nodes were given chemotherapy, but usually those with few positive nodes were not. In recent years, larger numbers of women with just a few positive lymph nodes have received chemotherapy, and the types of chemotherapy have changed. Also the vast majority of women with hormone-sensitive tumours are now given hormonal therapy. We will have to wait for results from new trials to observe directly the long-term effects of modern radiotherapy in women who are given modern chemotherapy and hormonal therapy. However, it is likely that the percentage reductions in disease recurrence and breast cancer mortality from today's radiotherapy will be at least as big as the benefits seen here."

Dr McGale concluded: "Since the time when the women in these trials were randomised there have been advances in radiotherapy and also in breast screening, surgery, lymph node staging, and systemic therapy. So the absolute benefits from post-mastectomy radiotherapy today may be smaller than those we have reported here. But the proportional benefits from radiotherapy are likely to be at least as big."

To investigate this and follow up on their findings, Dr McGale, Dr Taylor and their colleagues are inviting investigators of more recent trials comparing different radiotherapy regimens to contribute data to the Early Breast Cancer Trialists' Group.

Professor David Cameron, from the University of Edinburgh (Edinburgh, UK), who is a member of the EBCC-9 executive scientific

committee, commented: "These data highlight the power of combining information from individual patients recruited into a number of different clinical trials. The benefit of radiotherapy in women who needed a mastectomy for node positive breast cancer is now becoming clear; more data will emerge in a few years from the UK-led SUPREMO trial which prospectively addresses this question for the exact same group of women that are the subject of this study."

The 3786 women were part of a larger group of 8135 women in 22 randomised trials starting before 2000. During the follow-up period, 5424 (67%) were known to have died, and the extent of surgery was know for all but 183 (2%) of the women.

More information: "Effect of radiotherapy after mastectomy and axillary surgery on 10-year recurrence and 20-year breast cancer mortality: meta-analysis of individual patient data for 8135 women in 22 randomised trials", by EBCTCG (Early Breast Cancer Trialists' Collaborative Group). Published online in *The Lancet*, March 19, 2014, dx.doi.org/10.1016/S0140-6736(14)60488-8

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