

# THE LANCET

## Press Release

EMBARGO: 00:01H (London time) Friday December 16, 2005

### RADIOTHERAPY IMPROVES 15-YEAR SURVIVAL AFTER BREAST-CONSERVING SURGERY (LUMPECTOMY)

After lumpectomy for breast cancer, radiotherapy to the remaining breast tissue can improve the chances of long-term survival, according to a study published in this week's issue of *The Lancet*. This is one of the main new findings from a worldwide overview of detailed data from 40 000 women with early breast cancer in randomised trials of radiotherapy, and of different types of surgery, carried out by the Early Breast Cancer Trialists' Collaborative Group (EBCTCG).

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Breast-conserving surgery removes just the cancer and a little of the normal tissue around it, leaving behind as much healthy tissue as possible. A few cancer cells may, however, also be left behind. Doctors already knew that giving patients breast radiotherapy soon after they recover from surgery reduces the chances of local recurrence. The new study shows that the chances of dying from breast cancer are also reduced by breast radiotherapy soon after surgery. On average, for every four local recurrences avoided by radiotherapy, about one breast cancer death is avoided. The main effect of radiotherapy on local recurrence is seen during the first few years after treatment, but the main effect on mortality is seen in later years. The effects of radiotherapy add to the known improvements in long-term survival produced by chemotherapy and hormone therapy.

EBCTCG, *Lancet* 2005;  
365:1687

Although guidelines in America and Europe already recommend radiotherapy after breast-conserving surgery they are not always followed. This is partly because of the side-effects of radiotherapy, and partly because recurrence in a conserved breast can usually be removed by further surgery, but it may also be because there was no definite evidence on survival.

Professor Sarah Darby, who helped co-ordinate the collaboration, states: "We already knew that radiotherapy to a conserved breast substantially reduces the chances of local recurrence of breast cancer, and now we know that it also reduces the long-term chances of dying from the disease." After breast-conserving surgery the 5-year risks of local recurrence were 7% with radiotherapy versus 26% without (a reduction of 19%), while the 15-year breast cancer mortality was 30.5%

with radiotherapy versus 35.9% without (a reduction of 5.4%). These reductions are highly statistically significant.

Another main finding concerns the lymph nodes in the armpit. Instead of breast-conserving surgery, the entire breast may be removed surgically (mastectomy). If breast cancer has already spread to the lymph nodes in the armpit then radiotherapy can again produce a substantial reduction in the chances of local recurrence and improve the chances of long-term survival, and, again, for every four local recurrences avoided by radiotherapy, about one breast cancer death is avoided. In women whose breast cancer had already spread to the nodes in the armpit, the 5-year risks of local recurrence, after mastectomy and surgery to the armpit, were 6% with radiotherapy versus 23% without (a reduction of 17%), while the 15-year breast cancer mortality was 54.7% with radiotherapy versus 60.1% without (again a reduction of 5.4%).

Dr Paul McGale, another study co-ordinator, states: "In Europe and North America many women whose breast cancer has spread to several nodes in the armpit do not get radiotherapy, partly because of the side-effects, even though it reduces the risk of dying from the disease."

If the entire breast has been removed and there is no spread to the nearby lymph nodes, then the risk of local recurrence is so small that there is little need for radiotherapy and it is generally not given, because of its side-effects. Dr Carolyn Taylor, a clinical oncologist who worked on the study, states: "The present study shows that radiotherapy occasionally caused life-threatening diseases such as heart attack, or a new cancer in the lung or opposite breast. But, radiotherapy techniques have improved considerably in recent years, and the heart and lungs receive less radiation than in the past."

Study co-ordinator Professor Sir Richard Peto comments: "These results may also be relevant to some previous patients who did not get radiotherapy. Most local recurrences are seen in the first two or three years, so there would probably be little point in offering radiotherapy to women who have been free of cancer for the past few years. But, it might be worth considering radiotherapy for some women who, within just the last year or two, have had lumpectomy for breast cancer or mastectomy for cancer that had spread to the armpit, and who didn't get radiotherapy after surgery because of the side-effects."

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#### Note to editors

A PDF of the full report is available from *The Lancet* press office [pressoffice@lancet.com](mailto:pressoffice@lancet.com) and the text, figures and tables are available on the CTSU website <http://www.ctsu.ox.ac.uk/projects/ebctcg>

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