An international randomised controlled trial to compare TARGeted Intraoperative radioTherapy (TARGIT) with conventional postoperative radiotherapy after breast-conserving surgery for women with early-stage breast cancer (the TARGIT-A trial)

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Plain English summary

The TARGIT-A trial

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Plain English summary

About 70% of patients with breast cancer are eligible for breast-conserving surgery (a lumpectomy), after which the remaining breast is treated with radiotherapy; this avoids a full mastectomy.

Traditionally, external beam radiotherapy (EBRT) is delivered to the entire breast in small doses every day for 3–6 weeks, necessitating patients to travel to and from the radiotherapy centre every working day. This can be impractical and strenuous.

The TARGIT (TARGeted Intraoperative radioTherapy) procedure precisely delivers radiation in a single dose during the lumpectomy operation over 15–35 minutes, using a ball-shaped device that is placed in the space where the tumour was. This way, unnecessary potentially harmful radiation to healthy tissues (skin, heart, lungs, etc.) is avoided and the areas nearest to the tumour site receive the most radiation. In this way, four-fifths of patients avoid EBRT altogether.

The TARGIT-A (TARGeted Intraoperative radioTherapy Alone) trial compared TARGIT with EBRT in 3451 patients who were aged ≥ 45 years and found that, when TARGIT is given with lumpectomy, the control of breast cancer is much the same as with EBRT. The chances of being alive without return of cancer in the breast at 5 years were 93.9% with TARGIT during lumpectomy and 92.5% with EBRT. Compared with EBRT, TARGIT had fewer side effects and fewer deaths from heart attacks or other cancers. TARGIT would be less expensive than EBRT, potentially saving the NHS up to £9.1 million a year, without considering the cost savings to patients.

Targeted intraoperative radiotherapy during lumpectomy is an effective, safer and less expensive option for eligible patients.

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