

Intraoperative radiation therapy deserves to be made more readily available to patients

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Whole breast external beam radiotherapy is an effective adjuvant treatment for early breast cancer, and was a key factor in the move from mastectomy to breast-conserving surgery for women with low-risk disease. The logical development from partial surgical removal of the breast is partial breast radiotherapy. Several methods of delivery have been investigated, but as yet none has been widely accepted.

The article by Vincent Vinh-Hung and colleagues describes very well their experience with the use of a single dose of low kilovoltage X-rays delivered intra-operatively from within the breast using Intrabeam® (the TARGIT technique) (1). Although the results are from a single site with a relatively small number of patients and short follow-up (median 370 days), their data are consistent with the results from the short and intermediate term (median 2.4 y) follow-up data from the TARGIT A randomised controlled trial (2). In particular, it is noteworthy that the reported toxicities with Intrabeam® are less than the institution's own retrospective control group that received external beam radiotherapy.

It has been shown that TARGIT can be applied to a large proportion of patients with early breast cancer, either as sole (TARGIT alone) or as a replacement for the tumour-bed boost (TARGIT boost) (3), regardless of age (4). This is important, as evidence is growing for the long-term toxicities of whole-breast radiotherapy, as normal tissues are inevitably exposed to radiation. For example, conventional radiotherapy delivers a mean dose of 5.2 Gy to the heart (5). Even with modern radiotherapy techniques, the heart receives an appreciable dose of radiation. Mean heart dose for intensity modulated radiotherapy (IMRT) was 12.9±3.9 vs. 4.5±2.4 Gy for 3D conformal radiation therapy (3DCRT).

Heart volumes receiving >40 Gy were 2.6% (3DCRT) vs. 1.3% (IMRT); doses were >50 Gy with 3DCRT (6). Breath-holding techniques and prone positioning of the patient are effective and can reduce the volume of heart in the radiotherapy field, but there is limited data on late cardiac events (7). Even a single fraction of external beam radiotherapy can produce measurable changes to the DNA of circulating lymphocytes (8). Exposing women with small, focal, screen-detected lesions to these risks should be questioned more widely.

There are several other reasons why the use of Intrabeam® should be considered; for reviews, see (9-11). Ultimately, we agree with the author's final sentence: "*The technique deserves to be made more readily available to our patients.*"

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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