

## Partial Breast Irradiation

by John R. Russell, MD, MS

In the last decade, newer analyses of pathologic material, patient follow-up data, and epidemiological studies have led to a re-examination of fundamental treatment concepts for patients with early-stage breast cancer.<sup>1</sup> Some treatment options remain controversial. Currently, accelerated partial breast irradiation is the focus of heated discussion.

Evaluation of the pathology of breast cancer, both infiltrating and in situ tissues, suggests that the entire breast may *not* be at “high risk” for recurrence in selected patients.<sup>2</sup> This, in turn, has led to treatment designs—including accelerated partial breast irradiation—that address the site of malignancy and the associated zone of risk for recurrence.

Studies in the U.S. have revealed an apparent equivalency in outcome in local control within the breast in early five-year follow-up.<sup>3</sup> The incidence of “other recurrence sites” in the ipsilateral breast seems to be the same whether whole breast irradiation is administered or only partial breast treatment is offered. Other studies have clearly established that lumpectomy alone does lead to a high failure rate within the high-risk zone.

Yet, while epidemiological studies have shown that lumpectomy in the United States is increasing, postoperative breast irradiation appears to be decreasing<sup>4</sup>—despite the fact that clinical trials have failed to identify a group of patients in which such therapy could be omitted.<sup>5</sup>

Numerous explanations have been offered for this discrepancy, including lack of easy access to a radiation facility, lack of insurance coverage, length of time required for treatment, and fear of complications in normal tissues.

Treatment options do exist that

are less time consuming, more convenient, and less invasive. Altered fractionation regimens involving whole breast treatment are attempting to reduce the number of fractions or weeks of therapy. IMRT and 3D-conformal techniques are considerations if high dose fractions will be administered to only portions of the breast. Interstitial implants with multiple catheters have been explored in pilot clinical trials with early success. A balloon catheter (MammoSite) has been approved for implantation at the time of lumpectomy for selected patients. This last option allows partial breast therapy to be completed in five days.

All of these approaches should be offered with the caveat that limited data currently exist regarding appropriateness and procedure success. While these procedures are not yet considered “standard care,” patients are electing to participate in trials and proceed with these innovative treatments and their data are being included in national data pools. For example, as the issue of accelerated partial breast irradiation heats up, discussions are underway regarding initiating a phase III prospective, randomized trial in the U.S. The trial would evaluate the equivalency of different treatment methods.

The proliferation of potential treatment options makes this an exciting time in breast cancer treatment. It is also a time of some uncertainty. For cancer centers, the uncertainty is reflected in difficult decisions about equipment acquisition, personnel hires, and physician and staff training. Compressed treatment schedules may place additional burdens on many centers already struggling to meet patient needs. The uncertain reimbursement environment makes

acquiring new technologies even more difficult. Current critical shortages of radiation therapists, medical physicists, and certified medical dosimetrists have left many centers scrambling to meet ever-increasing quality assurance requirements associated with the new technologies. And, of course, the costs of these technologies continue to escalate.

Should your cancer center begin offering these new breast treatments? Are your physicians confident that they will yield the same outcomes for their patients with similar long-term risks? These central issues will be the subject of intense debate over the next several years. In the meantime, patients are demanding a change in their care management *now*. ☐

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### References

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