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COMMENTS

Perspectives in Breast Cancer Treatment: APBI and Breast-Conserving Surgery

In Regard to Moran et al and Smith et al

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To the Editor: Two articles in a recent issue of *International Journal of Radiation Oncology, Biology, Physics* discuss issues pertaining to the use of radiation therapy in patients undergoing breast-conserving surgery. We find it contradictory that, on one hand, the editorial by Moran and Truong (1) counsels caution before intraoperative radiation therapy (IORT) can be considered in place of conventional external beam whole-breast radiation therapy for any patient, whereas the scientific study by Smith et al (2) investigates whether a group of patients can be identified for whom radiation therapy can be entirely omitted.

The fact remains that, however low the perceived risk of local recurrence, omission of radiation therapy does reduce 10-year local control rates; so the obvious question that arises is, if there are patients for whom we can now reasonably omit radiation therapy (as suggested by Smith et al), why should caution be exercised (as suggested by Moran and Truong) in offering alternative forms of radiation therapy, such as intraoperative radiation therapy, to these very patients?

Although use of appropriate prognostic factors has, for many years, made it possible to identify patients with survival prospects statistically indistinguishable from those of noncancer patients, local recurrence after any form of treatment remains an issue. Even among those aged >70 years, omission of radiation therapy leads to a 7% increase in local recurrence (from 2% to 9%) (3) which could be avoided by giving Targeted Intra-operative Radiotherapy ("TARGIT"). In choosing the right treatment for any individual, a complex balance has thus to be struck between treatments that all carry some degree of side effects and toxicity, and the desire to maximize local control rates. In making such a choice, the individual patient's views are paramount. With fully informed consent, selected patients, notably (not necessarily exclusively) those aged >50 years with good-prognosis, hormone-sensitive tumors, may very well and reasonably be offered TARGIT treatment.

References

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2. Smith SL, Truong PT, Lu L, et al. Identification of patients at very low risk of recurrence after breast-conserving surgery. *Int J Radiat Onc Biol Phys* 2014;89:556-562.
3. Hughes KS, Schnaper LA, Bellon JR, et al. Lumpectomy plus tamoxifen with or without irradiation in women age 70 years or older with early breast cancer: Long-term follow-up of CALGB 9343. *J Clin Oncol* 2013;31:2382-2387.

In Reply to Morgan and Vaidya

To the Editor: We appreciate the comments from Drs Morgan and Vaidya. However, we respectfully disagree with the statement that "with fully informed consent, selected patients … may very well and reasonably be offered TARGIT treatment" in an off-protocol setting. We believe that 10- to 15-year follow-up is needed to appraise the effect of local recurrence on survival (1) and that the follow-up times in the available intraoperative radiation therapy trials are much too short to provide meaningful conclusions regarding long-term treatment efficacy and adverse effects.

We also reiterate that the work by Smith et al (2) was not intended to define patients for whom radiation therapy can now be omitted. The primary goal of this retrospective analysis was to identify clinicopathologic factors among women with stage I breast cancer treated with breast-conserving surgery and adjuvant whole-breast radiation therapy who had very low local relapse risk (<1.5% at 5 years). We re-emphasize what was stated in the original article: that the findings raise the hypothesis that selected

women may have very low risk of local relapse with adjuvant hormone therapy alone, but prospective evaluation with adequate follow-up is mandatory before routine clinical implementation.

We maintain that breast-conserving surgery followed by whole-breast radiation therapy remains the standard local management for women with early-stage breast cancer. Although alternative approaches such as intraoperative partial-breast irradiation or omission of radiation in highly selected subgroups may be promising prospects for the future, they are experimental and must undergo rigorous prospective evaluation with long-term follow-up before they can replace standard treatment.

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Correlation of ^{18}F-FDG PET Avid Volumes on Pre—Radiation Therapy and Post—Radiation Therapy FDG PET Scans in Recurrent Lung Cancer

In Regard to Shusharina et al

To the Editor: We would like to thank and commend the authors for their investigation of the spatial correlation between high-uptake regions of ^{18}F-labeled fluorodeoxyglucose positron emission tomography (FDG PET) before and after therapy in recurrent lung cancer. The authors showed that for patients with local recurrence, regions of $\geq$50% of maxium standard uptake value (SUV_{max}) on pretherapy [^{18}F]FDG PET scans correlate with regions of $\geq$80% of SUV_{max} on posttherapy scans. The authors concluded that SUV_{max} of $\geq$50% isocontour may be a biological target volume for boost treatment to avoid tumor recurrence (1).

The authors base this conclusion on the overlap of pre- and posttreatment volumes of increased SUV uptake. In this study, the pretherapy [^{18}F]FDG PET scans were rigidly aligned with repeated posttherapy [^{18}F]FDG PET scans at defined time points. The registration was performed according to large-scale anatomy, primarily the rib cage and the spine. Interestingly, registrations of high SUV volumes on pretreatment and posttreatment scans resulted in decreasing volume overlap with time (overlap fractions at 10 days, 3 months, and 6 months posttreatment were 0.8, 0.63, and 0.38 respectively). The increased SUV uptake on posttherapy scans overlapped in 15 patients; however, in 2 patients, posttherapy SUV increase was outside the pretherapy high-SUV volume. The authors did not elaborate on these patients' recurrence characteristics and locations with respect to the initial

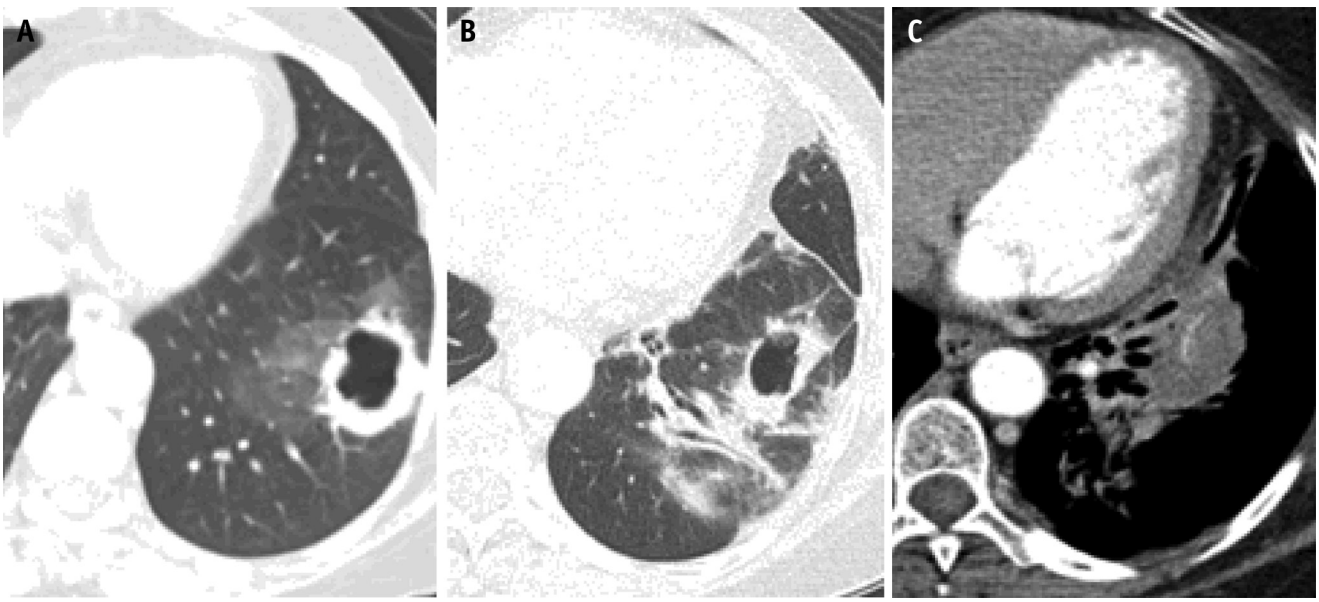

Fig. 1. (A) Tumor location before therapy. (B) Tumor shift and shrinkage over time. (C) Eventual recurrence of tumor.