Molecular tumor profile: another consideration for postmastectomy radiotherapy

I enjoyed the review article by Dr. Jeannie Shen (COMMUNITY ONCOLOGY, December 2010), both for her succinct summary of the indications for postmastectomy plastic surgical reconstruction and the optimal timing of the procedure. Her salient presentation contained some of the most contemporary indications for postmastectomy radiotherapy (PMRT).

Along with the points Dr. Shen mentioned as indicators for PMRT—tumor size, regional nodal involvement, presence of lymphovascular space invasion, and patient youth—I would add estrogen receptor-negative disease as another tumor factor to consider for adjuvant radiotherapy. Many series, including some of those referenced by Dr. Shen and the American Society of Clinical Oncology in the composition of its recommendations, have demonstrated that estrogen receptor-negative status represents an independent risk factor for locoregionally recurrent disease after mastectomy and that the risk is significantly reduced by PMRT.[1–7]

Never is a single factor without controversy, however. A retrospective review of the Danish Breast Cancer Cooperative Group 82b and 82c trials reported that patients who have tumors with high-risk molecular indices (either estrogen receptor/progesterone receptor-negative or triple-negative disease notably) benefited least from PMRT in terms of overall survival and locoregional tumor control.[8] (These two trials clearly established PMRT as beneficial in terms of locoregional tumor control and overall survival.) A global assessment of the literature suggests that a favorable molecular tumor profile translates into low locoregional failure rates after mastectomy when it is not accompanied by the other high-risk features described by Dr. Shen.

Jondavid Pollock, MD, PhD
Schiffler Cancer Center
Wheeling Hospital
Wheeling, WV

References

1. Hehr T, Budach W, Durst I, et al. Postmastectomy electron-beam-rotation irradiation in locally advanced breast cancer prognostic factors of locoregional tumor control. Strahlenther Onkol 2002;178:624–632.

2. Woodward WA, Strom EA, Tucker SL, et al. Locoregional recurrence after doxorubicin-based chemotherapy and postmastectomy: implications for breast cancer patients with early-stage disease and predictors for recurrence after postmastectomy radiation. Int J Radiat Oncol Biol Phys 2003;57:336–344.

3. Truong PT, Olivotto IA, Kader HA, Panades M, Speers CH, Berthelet E. Selecting breast cancer patients with T1-T2 tumors and one to three positive axillary nodes at high postmastectomy locoregional recurrence risk for adjuvant radiotherapy. Int J Radiat Oncol Biol Phys 2005;61:1337–1347.

4. Cheng SH, Horng CF, Clarke JL, et al. Prognostic index score and clinical prediction model of local regional recurrence after mastectomy in breast cancer patients. Int J Radiat Oncol Biol Phys 2006;64:1401–1409.

5. Yildirim E, Berberoglu U. Can a subgroup of node-negative breast carcinoma patients with T1-2 tumor who may benefit from postmastectomy radiotherapy be identified? Int J Radiat Oncol Biol Phys 2007;68:1024–1029.

6. Yang PS, Chen CM, Liu MC, et al. Radiotherapy can decrease locoregional recurrence and increase survival in mastectomy patients with T1 to T2 breast cancer and one to three positive nodes with negative estrogen receptor and positive lymphovascular invasion status. Int J Radiat Oncol Biol Phys 2010;77:516–522.

7. Wu SG, He ZY, Li FY, et al. The clinical value of adjuvant radiotherapy in patients with early stage breast cancer with 1 to 3 positive lymph nodes after mastectomy. Chin J Cancer 2010;29:668–676.

8. Kyndi M, Sørensen FB, Knudsen H, Overgaard M, Nielsen HM, Overgaard J; Danish Breast Cancer Cooperative Group. Estrogen receptor, progesterone receptor, HER-2, and response to postmastectomy radiotherapy in high-risk breast cancer: the Danish Breast Cancer Cooperative Group. J Clin Oncol 2008;26:1419–1426.

Commun Oncol 2011;8:427