Postmastectomy RT: Meta-analysis Indicates Mortality and Recurrence Advantage in Women With 1 to 3 Positive Nodes

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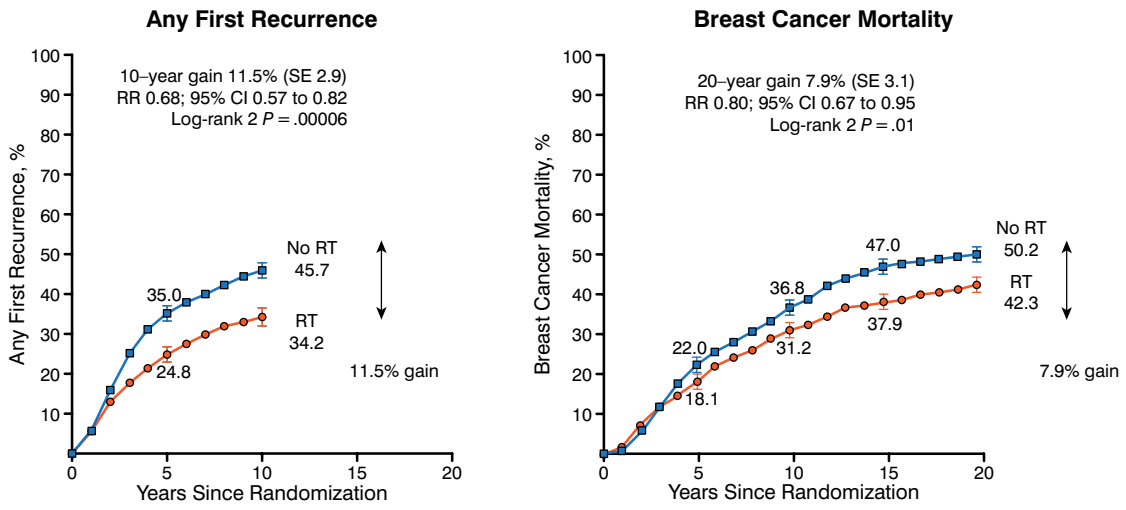
Postmastectomy radiotherapy (RT) has been shown to reduce mortality and risk of recurrence in all patients with node-positive breast cancer considered as a single group, but until now, the benefit to women with only 1 to 3 positive nodes has been unclear. Sarah Darby, PhD, Nuffield Department of Public Health, University of Oxford, Oxford, UK, presented results from the Early Breast Cancer Trialists' Collaborative Group meta-analysis of randomized clinical trials comparing postmastectomy RT to no RT where both trial arms had the same surgery and where systemic therapy, if given, was the same in both trial arms [EBCTCG. *Lancet*. 2014].

To ensure that the results would be as relevant as possible to women with breast cancer today, the analysis focused on trials where all the women received axillary dissection to at least level II and where RT, if given, included chest wall. A total of 14 trials satisfied these criteria, with the start dates ranging from 1964 to 1982. Professor Darby noted that in all of them, the RT included the axillary, supraclavicular, and internal mammary lymph nodes as well as the chest wall. Individual patient data were available for 3887 women (Table 1), and there were 44 300 years of follow-up (median, 9.0 years per woman).

Considering all 3131 women with at least 1 positive node as a single group, Prof Darby noted that, as expected, the were significant and substantial benefits from RT, with gains of 10.6 percentage points in recurrence by 10 years and 8.1 and 5.0 percentage points in breast cancer mortality and overall survival, respectively, by 20 years.

Figure 1. Significant Benefit From Radiotherapy in Patients With 1 to 3 Positive Nodes



RT, radiotherapy; SE, standard error.

Adapted from EBCTCG. *Lancet*. 2014.

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Table 1. Meta-analysis of Postmastectomy Radiotherapy Trials

Pathologic Nodal Status	No. of Women
Positive nodes (pN)	
0 (pN0)	700
At least 1 (pN+)	3131
1-3 (pN1 to pN3)	1314
4+ (pN4+)	1772
Precise no. unknown	45
Unknown status	56
Total	3887

Data source: EBCTCG. *Lancet*. 2014.

Prof Darby then presented data separately for the 1314 women with 1 to 3 positive nodes. These data demonstrate that RT was clearly of worthwhile benefit. It improved 20-year breast cancer mortality by 7.9 percentage points ($P = .00006$) and any first recurrence to 10 years by 11.5 percentage points ($P = .01$; Figure 1). Also, RT significantly ($P < .00001$) and substantially reduced the proportion of first recurrences that were locoregional, as opposed to distant metastases.

For the 1772 women with 4+ positive nodes, Darby noted that there was also worthwhile benefit from RT, with gains in 20-year breast cancer mortality of 9.3 percentage points ($P = .04$) and a gain in any first recurrence at 10 years of 8.8 percentage points ($P = .0003$).

In contrast to the women with node-positive disease, the data from the 700 women who were node negative indicated no benefit, with those randomized to receive RT actually doing slightly worse than women randomized to not receive RT in terms of first recurrence to 10 years and breast cancer mortality to 20 years, although the difference was not statistically significant.

Prof Darby concluded that RT gave significant benefit in these older trials of RT after mastectomy and axillary dissection, with RT providing women with 1 to 3 positive nodes absolute reductions in 10-year recurrence (34.2% vs 45.7%) and 20-year breast cancer mortality (42.3% vs 50.2%) and proportional reductions of 32% and 20%, respectively. In terms of how these older results might translate to the modern era, Prof Darby speculated that for women today, the absolute reductions are likely to be smaller because, due to overall advancements in breast cancer therapy, rates of recurrence and mortality are lower. However, noting that RT techniques have also improved, she said that the proportional benefits should be at least as great.

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