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## Adjuvant Therapy Reduces Rate of Dissemination but Shortens Survival Thereafter

We thank Xu et al. [1] for their answer to our letter [2] concerning the publication of Seidman et al. [3]; however, they may have misunderstood our letter, assuming a contradiction to classical papers of Bonadonna et al. [4] and the overviews of the Early Breast Cancer Trialists' Collaborative Group [5]. This is not the case, and we absolutely agree that adjuvant treatment increases the cure rate, but in the subgroup of patients who suffer from metastases despite adjuvant therapy, survival after dissemination is shortened. This is partially due to an adjuvant chemotherapy-induced resistance to previous treatment and may be similar after hormonal therapy and immunotherapy [6].

The gain in survival due to adjuvant chemotherapy for all patients is clearly greater than the loss of survival in the mentioned subgroup. If we assume a reduction of the dissemination rate after adjuvant treatment from 30% to 20% and an additional life expectancy of 20 years for this additional 10% of cured patients, the gain for the average patient is 2 years. In contrast, 20% of patients develop metastases despite adjuvant chemotherapy, and in these patients, life expectancy after dissemination is reduced by 7 months [7]. At least two of these months are due to the higher risk of patients who get adjuvant treatment compared with patients who do not need this therapy [2]. Consequently, adjuvant therapy reduces survival in 20% of patients by 5 months, and the average reduction of life expectancy for all patients is 1 month. After adjuvant taxane therapy, which may induce particular resistance to this class of agents [3, 6, 8], loss of survival after dissemination could be 2 months. Xu et al. [1] criticized studies of this question for not being randomized, but that is difficult because an indicated adjuvant therapy should not be the object of randomization.

We should observe what happens after dissemination following adjuvant therapy because this is the first step of therapeutic consequences. Even if this loss of survival due to adjuvant treatment is much smaller than the gain, the ratio of 24:1 mentioned above is not mirrored by the literature on this question. If we search Medline for "breast cancer and adjuvant therapy," we get more than 21,000 hits. In contrast, the reduction of survival after adjuvant therapy, which is partially iatrogenic and thus should be scrutinized even more, is described in fewer than 50 publications [6], and these are difficult to search because an adequate search term is lacking. Consequently, we suggested the acronym ATRESS for "adjuvant therapy-related shortening of survival," which particularly includes survival after dissemination.

Finally, we would like to encourage Xu et al. [1] to believe their own findings because after adjuvant taxane treatment, they described a reduction of survival time after dissemination by one-third [3], which is identical with our results [6].

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## Disclosures

The authors indicated no financial relationships.

## REFERENCES

1. Xu B, Seidman A, Chan S. In reply. The Oncologist 2015;20:88.

2. Fink MK, Kleeberg UR, Bartels S. Adjuvant therapy-related shortening of survival (ATRESS): An underrated phenomenon. *The Oncologist* 2015;20:88.

**3.** Seidman AD, Chan S, Wang J et al. A pooled analysis of gemcitabine plus docetaxel versus capecitabine plus docetaxel in metastatic breast cancer. *The Oncologist* 2014;19:443–452.

**4.** Bonadonna G, Brusamolino E, Valagussa P et al. Combination chemotherapy as an adjuvant treatment in operable breast cancer. N Engl J Med 1976; 294:405–410.

5. Palmieri C, Jones A. The 2011 EBCTCG polychemotherapy overview. Lancet 2012;379:390–392.

**6.** Kleeberg UR, Fink M, Tessen H-W et al. Adjuvant therapy reduces the benefit of palliative treatment in disseminated breast cancer - own findings and review of the literature. Onkologie 2013;36:348–356.

**7.** Pierga J-Y, Asselain B, Jouve M et al. Effect of adjuvant chemotherapy on outcome in patients with metastatic breast carcinoma treated with first-line doxorubicin-containing chemotherapy. Cancer 2001;91:1079–1089.

**8.** Miller K, Wang M, Gralow J et al. Paclitaxel plus bevacizumab versus paclitaxel alone for metastatic breast cancer. N Engl J Med 2007;357: 2666–2676.

http://dx.doi.org/10.1634/theoncologist.2015-0116