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Twice-daily Radiotherapy for Recurrence or Resistant Breast Cancer

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Abstract

Purpose

Hyperfractionated radiotherapy offers radiobiological advantages including increased biologically effective dose and more between-treatment intervals for reoxygenation and reassortment. We report on outcomes from an initial cohort of patients with resistant or recurrent breast cancer treated with a hyperfractionated radiotherapy regimen delivered twice daily.

Methods

Twenty-eight patients with breast cancer either resistant to neoadjuvant chemotherapy or recurrent after previous treatment were treated between January 2009 and December 2014. All patients received 65 Gy in 50 fractions, delivered twice daily, to the breast, chest wall, gross disease (including involved lymph nodes), and first three internal mammary chain lymph nodes, if warranted. Regional nodal irradiation to the supraclavicular/axillary lymph nodes regions was delivered to a dose of 49.4 Gy in 38 fractions, twice daily, concurrently with the first 38 fractions of the 50 fraction regimen. Recurrence and survival outcomes were calculated from the date of start of radiotherapy. Toxicity was reported based on the CTCAE version 4 criteria.

Results

Survival without local recurrence (SWLF) was 87% at 1 year and 72% at 2 years. Survival without distant failure (SWDF) was 29% at 1 year and 7% at 2 years. Median overall survival (OS) was 21 months with OS rates of 77% at 1 year and 45% at 2 years. Twenty-five of 28 patients (89%) suffered acute toxicity, all of which were dermatitis. Of these reactions, nine were classified as grade 1 dermatitis (32% of all patients treated), five were grade 2 (18%), ten grade 3 (36%), and one grade 4 (4%). Three patients (11%) had subacute or late toxicities consisting of one case each of grade 1 pneumonitis, grade 2 pneumonitis, and grade 3 radiation recall (on Eribulin).

Conclusion

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Hyperfractionated radiotherapy given as 65 Gy in 50 fractions, twice daily, is a feasible and effective treatment regimen for resistant or recurrent breast cancer with acceptable toxicity profile. Larger populations and prospective trials will better define the effectiveness and side effect profiles compared with other treatment options.

65