Hypofractionated accelerated whole breast irradiation for early breast cancer: randomized clinical trial of cosmetic outcome and safety

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Purpose: To compare the cosmetic outcome and cutaneous, cardiac, and pulmonary toxicity profile of hypofractionated accelerated and standard whole breast irradiation (WBRT).

Experimental Design: Women with early stage invasive breast cancer after breast-conserving surgery with clear margins were randomly assigned to receive whole-breast irradiation either at a standard dose of 50.0 Gy in 25 fractions (the standard WBRT group) or at a dose of 42.5 Gy in 16 fractions (the hypofractionated WBRT group).

Results: Forty one patients in the standard WBRT arm and 45 patients in the hypofractionated WBRT group were enrolled. No significant difference was observed in term of left and right ventricle systolic dysfunction and diastolic dysfunction. Pulmonary function tests after 6 and 12 months follow up, were comparable in both groups (p=0.2). Acute skin toxicity during and after treatment were acceptable in both groups. With a median follow up of 16 months, breast shrinkage in the standard and the hypofractionated WBRT groups was 14.3% and 7.1%, respectively (p=0.6). Cosmetic outcome was excellent or good in both groups.

Conclusion: Our results provide support for the use of accelerated, hypofractionated, WBRT in women with invasive breast cancer less than five cm and node-negative after breast conserving surgery which provide a shorter course of radiotherapy with a comparable cosmetic outcome and cutaneous, cardiac, and pulmonary toxicity profile.

References: