

1. Cancer Invest. 2012 May;30(4):323-30.

Contribution of respiratory gating techniques for optimization of breast cancer radiotherapy.

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A comparative, nonrandomized, multicenter, and prospective analysis were performed between April 2004 and June 2008 in 20 French centers in order to compare clinical aspects of respiratory-gated conformal radiotherapy (RGRT) during breast cancer irradiation versus conventional conformal radiotherapy. The final results based on 233 evaluable patients at 48 months confirm the feasibility and good reproducibility of the RGRT systems. The main results demonstrated a marked reduction of dosimetric parameters predictive of lungs and cardiac toxicities in the RGRT group; especially the dose delivered to the heart during irradiation of the left breast; mostly observed with deep inspiration breath-hold techniques.