Current Adjuvant Radiation Therapy Techniques: A Survey of Plastic Surgeons and Radiation Oncologists

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Abstract

Background: Radiation therapy has a known deleterious influence on breast reconstruction. Whether specific aspects of radiation therapy result in less favorable results, however, remains controversial. Outcomes, especially cosmetic, are difficult to measure, rendering comparison of radiation and surgical technique difficult. The aim of this study was to survey plastic and reconstructive surgeons and radiation oncologists to determine variation in radiation therapy technique, and association of radiation technique with breast reconstructive cosmetic outcome.

Methods: A survey was developed by breast specialists practicing in Plastic Surgery and Radiation Oncology (1). Electronic solicitations were sent to physicians, and responses were accepted for 10 weeks. Statistical analysis included Mann-Whitney and Kendall Tau tests ($p<0.05$.)

Results: Responses were obtained for 30 out of 51 identified institutions (58.8%). Radiation therapy treatment preferences varied – more than 1/3 of physicians chose not to use boost, and chest wall dose ranged from 45-60 Gy. Regarding comparison of radiated reconstruction and radiation technique, several radio-therapeutic variables were associated with negative outcome: irradiated autologous reconstruction and internal mammary lymph node treatment ($p=0.038$), irradiated autologous reconstruction and higher boost dose ($p=0.036$), irradiated prosthetic reconstruction and higher chest wall dose ($p=0.012$).

Conclusions: Treatment of breast cancer with mastectomy and subsequent reconstruction of the breast involves a delicate balance between tissue preservation and tumor eradication, demanding the coordinated efforts of multiple care teams. In our survey, we found that the treatment preferences of radiation oncologists varied, and that several treatment variables were associated with negative outcomes. The literature remains inconsistent on the influence of radiotherapy techniques on breast reconstructive results. Our results align with those who have found a negative association of boost, radiation dose and internal mammary lymph node radiation, and highlight the importance of a multicenter study to better develop a consensus on breast reconstructive practices.

References

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