EVALUATION OF LUNG VOLUME/DOSE IN BREAST CANCER IRRADIATION AFTER MODIFIED RADICAL MASTECTOMY VERSUS BREAST CONSERVATIVE SURGERY

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Purpose: The aim of this study is to compare irradiated lung volume/dose for breast cancer patients receiving adjuvant radiotherapy after modified radical mastectomy or breast conservative surgery.

Materials & Methods: Between July 2009 and October 2010, we collected 116 breast cancer patients who were referred to our department for adjuvant radiotherapy. Seventy-seven received breast conservative surgery and 39 received modified radical mastectomy. We used a treatment planning system to estimate the irradiated lung volume at different dose levels and to discover if different surgical methods or any other factors affected irradiated volume. For statistics, we used two sample t-test and one-way analysis of variance to perform the univariate and multivariate analyses, respectively.

Results: The results from the univariate analysis showed that patients receiving breast conservative surgery, with earlier stage, or without supraclavicular coverage had a significantly lower mean percentage of irradiated lung volume compared to patients receiving modified radical mastectomy, with advanced stage, or with supraclavicular coverage. Left side lesion was a borderline factor in predicting the higher mean percentages of lung volumes at higher dose levels. In the multivariate analysis; however, the stage was not a significant factor. On the other hand, lesion side and supraclavicular coverage were statistically significant factors for lung volumes, and surgical methods affected lung volumes at the higher doses.

Conclusion: Patients with breast conservative surgery appear to have a lower irradiated lung volume/dose compared to patients with modified radical mastectomy when post-operative adjuvant radiation is indicated.

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