ORIGINAL ARTICLE

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Evaluation of Effective Factors on Irradiated Volume of Lung, During Three-Dimensional Conformal Radiotherapy (3DCRT) for the Breast Cancer

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Abstract

Introduction: some cardio-pulmonary complications, such as lung pneumonia in the radiotherapy treatment of breast cancer are associated with several factors including the amount of irradiated lung volume. Therefore in this study, the determining factors in irradiated lung volume have been investigated.

Methods: In this study, 48 patients with early breast cancer treated with 3D CRT radiation, were chosen. All ORS and PTV were contoured based on the RTOG atlas. CLD, MLD and GPD parameters were measured and their relationship with irradiated lung volume percentage was studied by DVH curves.

Results: The correlation between CLD and GPD with a percentage of irradiated lung volume in the tangential fields was linear. For example, CLD of right lung CLD equal to 15, 25 and 35 mm accounted for 10%, 17% and 24% of lung volume in Tangential fields, respectively.

Conclusion: The correlation between CLD and lung volume in tangential fields for the left and right lung was significant. With an increase of one unit in the CLD, on average we expect that left and right lungs volume is increased 2% and 3.2%, respectively.

Keywords: Radiotherapy, Breast Cancer, CLD, GPD, Irradiated Lung Volume