

عنوان مقاله:

Compare the organs at risk in breast-conserving three- dimensional conformal radiotherapy (3D-CRT) based on patient's breast size

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خلاصه مقاله:

Introduction: Breast cancer is the most common cancer among women. Radiotherapy plays an important role in the treatment of breast cancer and essential part of the standard treatment after breast-conserving surgery, routinely done to eliminate the microscopic residual cancer. The heart and lungs are one of the most important organs at risk of breast cancer radiotherapy that their exposure are unavoidable. Pneumonia and Pericardia are the most common complications of lung and heart radiation exposure, respectively. **Materials and Methods:** In this study, 20 patients undergoing radiotherapy after breast-conserving surgery were studied. The mean age of patients was 45 years old in the range of 30-60 years. Patients were treated by 3D-CRT with a single-isocenter tri-field technique including two apposite tangent fields and a supraclavicle field. To optimize the dose distribution, the wedge with suitable angle was placed in front of the beam for each field. The heart and right and left lung in each slice were contoured based on RTOG by oncologist and physicist, and was reconstructed in three dimensions by treatment planning system (Isogry version 4.1). Dose-volume histogram (DVH) for organs at risk were calculated and extracted. Parameters V5, V10, V20, V30, V40 and also Dmax and Dmean for organs at risk were extracted. Patients were classified into two groups, large and small breasts; then statistical analysis was performed with the SPSS software. **Results:** At all levels of the dose for the large breast group, a greater percentage of the heart was involved, but there was no significant statistical difference between the small breast group ($p > 0.05$). In lungs, at all levels examined, the received dose of large breast group was higher than those of the small breasts, but this difference was not statistically significant ($p > 0.05$). Only the Dmax parameter between the two groups was significant ($p = 0.01$). **Conclusion:** The received dose of organs at risk, better results were obtained in a small breast; but no threshold of exposure risks. Therefore, paying attention to this group of patients is more clinically important. It is recommended that treatment planning for patients with large breast size more carefully done.

کلمات کلیدی:

Breast Cancer, Three- dimensional radiotherapy, Organs At Risk, Breast size, Dose- volume histogram

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