

عنوان مقاله:

Predicting the Risk of Radiation Pneumonitis and Pulmonary Function Changes after Breast Cancer Radiotherapy

محل انتشار:

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نویسندگان:

PhD, Immunology research center, School of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran - - -

MSc, Department of Medical Physics, School of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran - - -

MD, Department of Radiology, Emam Reza Hospital, Tabriz University of Medical Sciences, Tabriz, Iran - - -

MD, Department of Radiology, Emam Reza Hospital, Tabriz University of Medical Sciences, Tabriz, Iran - - -

PhD, Medical Radiation Sciences Research team, Department of Medical Physics, School of Medicine, Tabriz, - - -
Iran

خلاصه مقاله:

Background: Radiotherapy plays an important role in the treatment of breast cancer. In the process of radiotherapy, the underlying lung tissue receives higher doses from treatment field, which led to incidence of radiation pneumonitis. Objective: The present study aims to evaluate the predictive factors of radiation pneumonitis and related changes in pulmonary function after 3D-conformal radiotherapy of breast cancer. Material and Methods: In prospective basis study, thirty-two patients with breast cancer who received radiotherapy after surgery, were followed up to 6 months. Respiratory symptoms, lung radiologic changes and pulmonary function were evaluated. Radiation pneumonitis (RP) was graded according to common terminology criteria for adverse events (CTCAE) version 3.0. Dose-volume parameters, which included percentage of lung volume receiving dose of d Gy (V_d-V₅₀) and mean lung dose (MLD), were evaluated for RP prediction. Pulmonary function evaluated by spirometry test and changes of FEV₁ and FVC parameters. Results: Eight patients developed RP. Among the dose-volume parameters, V₁₀ was associated to RP incidence. When V₁₀<40% and V₁₀≥40% the incidences of RP were 5.26% and 61.54%, respectively. The FEV₁ and FVC had a reduction 3 and 6 months after radiotherapy, while only FEV₁ showed significant reduction. The FEV₁ had more reduction in the patients who developed RP than patients without RP (15.25±3.81 vs. 9.2±0.93). Conclusion: Pulmonary function parameters, especially FEV₁, significantly decreased at 3 and 6 months after radiotherapy. Since most patients with breast cancer who developed RP did not show obvious clinical symptoms, so spirometry test is beneficial to identify patients with risk of radiation pneumonitis.

کلمات کلیدی:

Breast cancer, Radiation Pneumonitis, 3-D Conformal Radiotherapy, Spirometry, Lung

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