

عنوان مقاله:

Bax/Bcl- γ expression ratio in prediction of response to breast cancer radiotherapy

محل انتشار:

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خلاصه مقاله:

Objective(s): Radiotherapy is one of the most effective modalities of cancer therapy, but clinical responses of individual patients varies considerably. To enhance treatment efficiency it is essential to implement an individual-based treatment. The aim of present study was to identify the mechanism of intrinsic apoptosis pathway on radiosensitivity and normal tissue complications caused by the radiotherapy. Materials and Methods: Peripheral blood mononuclear cells from ten breast cancer patients were exposed to 6MV X-rays to deliver 1 and 2 Gy. Expression levels of Bax, Bcl- γ , and Bax/Bcl- γ ratio were examined by relative quantitative RT-PCR. All the patients received similar tangential irradiation of the whole breast and conventional fractionation. Skin dosimetry was done by GAFChromic EBT-3 film and clinical radiosensitivity was determined using the acute reactions to radiotherapy of the skin according to Radiation Therapy Oncology Group score. All statistical analyses were performed using GraphPad Prism, version 7.01. Results: In the in-vitro experiment, Bax and Bax/Bcl- γ ratios were significantly increased with 1 and 2 Gy doses ($PP < 0.0001$, respectively). Herein, the notable result was a significant correlation between dose-response curve slope (as an in-vitro radiosensitivity index) and acute skin toxicity score following irradiation (as a clinical radiosensitivity index). There was no significant relationship between skin dose and reactions ($P > 0.05$ for all patients). Conclusion: Significant correlation between Bax/Bcl- γ ratio determined before radiation therapy and clinical response in the patients, can be used as a biomarker to identify radiosensitive individuals. However, further studies are required to validate radiation-induced apoptotic biomarkers.

کلمات کلیدی:

Bax, Bcl- γ , Breast Cancer, Radiotherapy, Radiosensitivity

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