عنوان مقاله:

Analysis of copy number alterations (CNAs) in tamoxifen-resistant breast cancer patients

محل انتشار:

نهمین کنگره بین المللی سرطان پستان (سال: 1392)

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نویسندگان:

Sanaz Tabarestani - *Department of Medical Genetics, Faculty of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran*

Sayyed Mohammad Hossein Ghaderian - *Cellular and Molecular Biology Reasearch Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran*

Hamid Rezvani - *Department of Hematology/Oncology, Taleghani Hospital, Shahid Beheshti University of Medical Sciences,Tehran, Iran*

Reza Mirfakhraie - *Department of Medical Genetics, Faculty of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran*

خلاصه مقاله:

Background Breast cancer is a leading cause of morbidity and mortality in women worldwide. About 70% of breast cancers are estrogen receptor (ER) positive. Tamoxifen treatment can reduce the risk of recurrence in women with estrogen receptor (ER)-positive breast cancer. Unfortunately, however, efficacy of tamoxifen is limited by recurrence of disease in 30% to 40% of patients. Therefore, it is imperative to define biomarkers that can predict who will respond to tamoxifen and who will be resistant, so that alternative therapeutic strategies may be selected. Here, we set out to perform a simultaneous analysis of copy number alterations of several genes involved in the prognosis and response to therapy by multiplex ligation-dependent probe amplification (MLPA).Methods A case-control study was designed encompassing 170 non-metastatic ER positive breast cancer patients (case group=85, control group=85). All patients in the control group had received standard adjuvant tamoxifen treatment for 5 years without any evidence of recurrence. Patients in the case group had experienced early recurrences while receiving tamoxifen treatment. Gene copy number alterations detected by MLPA in both groups were compared.Results 76% of the patients of the case group and 73% of the patients of the control group had received anthracycline-based adjuvant chemotherapy. Amplification of CCND1 (p=0.006) and TOP2A (p=0.022) were significantly more prevalent in the case group, compared to the control group. In a multivariable analysis CCND1 (p=0.01) and TOP2A (p=0.041) amplifications remained significant predictors of recurrence.Conclusions Our results indicate that CCND1 amplification may serve as a useful biomarker for hormone responsiveness, and that TOP2A amplification may serve as a useful prognostic biomarker and possible predictor of response to antracyclines.

کلمات کلیدی:

Breast cancer, tamoxifen, MLPA