Paclitaxel and Platinum is Favor than Anthracyclines for Patients with HER2 Negative Breast Cancer

Abstract

BACKGROUND: The response to neoadjuvant chemotherapy (NCT) has been proven to predict long-term clinical benefits for patients. Because of the lack of target therapy such as human epidermal growth factor receptor 2 (HER2) blockade agents, the pathological complete response (pCR) rate of HER2 negative patients is relatively low. Thus, searching for individualized therapy for HER2 negative patients is essential. Anthracyclines were once considered to be the most effective agents in the treatment of breast cancer, but the use of them has been declining recently. Paclitaxel and carboplatin or cisplatin (PC) regimen is now widely used in breast cancer patients, and the agents have no overlapping toxicities. The purpose of our research is to screen appropriate NCT regimen for HER2 negative breast cancer patients.

HYPOTHESIS: The pCR rate of patients received PC regimen is higher than those received Anthracyclines based regimens.

METHODS: The relevant information of 1244 patients who received NCT from 2003 to 2015 at Fudan University Shanghai Cancer Center was collected. Patients with HER2 positive CNB samples, with metastatic disease, with missing data or with previous endocrine therapy were not eligible for this study. Univariate logistic regression was performed to screen for predictors and multivariate logistic regression was performed to identify independent predictors. Predictors that were statistically significant ($P<0.05$) in the univariate logistic analysis were included in the multivariate logistic regression analysis. Odds ratios (OR) and 95% confidence intervals (CI) were calculated.

RESULTS: Overall, 815 HER2 negative patients were enrolled. After performing the univariate logistic regression analysis, tumor size, hormone receptor (HR) status, regimens of NCT and cycles of NCT were the possible predictors for the pCR. The multivariate logistic regression analysis demonstrated that T4 status compared to T1 status ($P=0.020$, OR=0.393 [95% CI: 0.179-0.862]); HR positive patients compared to HR negative patients ($P<0.001$, OR=0.271 [95% CI: 0.173-0.423]) were the independent predictors for lower pCR rate. While receiving regimen of navelbine and epirubicin (NE) ($P=0.027$, OR=5.634 [95% CI: 1.220-26.012]) or PC ($P<0.001$, OR=15.644 [95% CI: 3.430-71.365]) compared to receiving cyclophosphamide, epirubicin and 5-fluorouracil (CEF); receiving 3 to 4 cycles of NCT compared to 1 or 2 cycles

(P=0.042, OR=4.500 [95% CI: 1.057-19.155]) were the independent predictors for higher pCR rate.

We identified tumor size, HR status and PC regimen as independent predictors of pCR. In our current research, the PC regimen achieved greater therapeutic effect than any anthracycline-based regimens. We discovered that PC was the more favored NCT regimen compared with any anthracycline-based regimens in HER2 negative patients.

Keywords: HER2 negative breast cancer; neoadjuvant chemotherapy; nomogram; pathological complete response