

The effect of neoadjuvant chemotherapy on hormone receptor status, HER2/neu and prolactin in breast cancer

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ABSTRACT

Aims and background. Histological and immunohistochemical findings may vary in cases of breast cancer. Possible changes in tumor markers between biopsies performed before and after neoadjuvant chemotherapy are controversial and pose a challenge when a clinical decision is needed. The objectives of the present study were: (i) to compare the immunohistochemical expression of estrogen, progesterone and prolactin receptors and HER-2/neu in breast cancer before and after neoadjuvant chemotherapy; and (ii) to correlate the expression of these tumor markers with partial tumor response to neoadjuvant chemotherapy.

Methods and study design. Immunohistochemical staining for breast tumor markers was performed in 90 cases of breast cancer. Statistical analysis was carried out using Fisher's exact test, McNemar's test, Spearman's correlation and the Kappa index with linear weighting (κ).

Results. Agreement between markers before and after neoadjuvant chemotherapy was fair to moderate ($\kappa = 0.37-0.51$). The immunohistochemical expression of HER-2/neu and prolactin receptors showed a significant, albeit weak correlation before and after neoadjuvant chemotherapy (HER-2/neu, $\rho = 0.34$; $P = 0.0009$; $\kappa = 0.35$ [95% CI, 0.19-0.51]). Prolactin status changed in 28/90 cases ($P = 0.001$; McNemar's test), whereas no changes were found in estrogen or progesterone receptors. No association was found between tumor marker expression and tumor response.

Conclusions. It seems prudent to reevaluate immunohistochemical markers such as HER-2/neu after neoadjuvant chemotherapy, since the findings will guide the strategy for implementation of adjuvant systemic treatment. No correlation was found between the tumor markers analyzed in the present study and partial tumor response to neoadjuvant chemotherapy.

Key words: breast cancer, estrogen receptor, HER-2/neu, neoadjuvant chemotherapy, progesterone receptor, prolactin receptor.

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