Comparison of Hormone Receptor Status in Primary and Recurrent Breast Cancer

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Abstract

Background: Systematic treatments such as hormone and chemotherapy are selected according to tumor characteristic after major therapeutic approaches such as surgery. This study attempted to analyze and compare the status of Estrogen Receptor (ER) and Progesterone Receptor (PR) in primary and recurrent sites of breast cancer in patients.

Methods: We reviewed all medical records of breast cancer women who were treated between January 1995 and December 2008. One hundred eighty two out of 2241 patients (8.12%) had a metastatic breast cancer. Amongst them 48 patients had tumor and biopsy-driven samples, however 13 samples were destroyed and only 35 samples were investigated in this study, therefore 35 malignant biopsy specimens of breast cancer patients were examined by immunohistochemistry essay for ER and PR. Binominal proportional test and Chi square test were conducted to determine the significant correlation between positive cases of hormone receptors among primary and metastatic sites.

Results: Hormone Receptor in the primary tumor (HR1) of 9 patients (25.7%) was positive (ER1 and/or PR1) and in the recurrent areas (HR2) of 8 patients (22.9%) was positive (either ER2 or PR2 positive). Kappa coefficients of diagnostic agreement in primary and recurrent cases were 0.077 and 0.125 for estrogen and progesterone, respectively which indicated that the amount of coefficient of agreement is not considerable between primary and recurrent sites.

Conclusion: The current study indicated that receptor status in recurrent tumors did not pose predictable value based on the analysis of hormone receptors in primary stage, so it is not an appropriate basis to set up therapeutic protocol in the metastatic patients. Therefore, tissue sampling and hormone receptor re-analyzing of metastatic sites should be considered in these cases.

Keywords: Breast neoplasm; Progesterone receptors; Estrogen receptors; Metastasis


Introduction

Diagnosis of metastatic breast cancer is usually made by combination of clinical signs and symptoms and by imaging evaluation. In most cases, tumor biopsy is not used to confirm the suspected metastatic lesion. Therefore, systematic management such as hormone therapy and chemotherapy are performed after treatment approaches such as surgery. It is accepted that certain features of tumors such as Estrogen Receptor (ER) and Progesterone Receptor (PR) might vary during the recurrence of the disease. Retrospective studies for estrogen and progesterone receptors status suggest 15-40% discordance between primary tumor and metastatic tissue in breast cancer patients [1].

Hormone receptor statuses are considered to be the most valuable and effective predictive factors in breast cancer patients while other studies have indicated that patients with tumors presenting no ER and PR receptors will not benefit from hormone therapy. Currently some techniques such as immunohistochemistry are employed for these patients with several advantages including: non-affectability of internal estrogens, possibility of...