Correlation between p53 and epidermal growth factor receptor expression in breast cancer classification


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ABSTRACT. This study aimed to explore new opportunities for developing targeted therapy for triple-negative breast cancer (TNBC) by analyzing the significance and association between p53 and epidermal growth factor receptor (EGFR) expression in different molecular subtypes of breast cancer. The clinical and pathological data of 264 patients with breast cancer receiving surgery in our hospital from January 2012 to August 2013 were retrospectively analyzed. According to the expression of estrogen receptor, progesterone receptor, human epidermal growth factor receptor 2 (HER2), Ki-67, CK5/6, p53, and EGFR detected by immunohistochemical methods, breast cancer was divided into four molecular subtypes. Then, the expression of p53 and EGFR as well as their correlation in the different subtypes were determined. Among the four subtypes, luminal B breast cancer was the most common type. TNBC and HER2-enriched breast cancer had larger tumor sizes with higher expression of Ki-67 as compared with the luminal types. TNBC had a lower lymph node metastasis rate but
higher CK5/6 and EGFR expression than the other three types. The expression of p53 was higher in luminal B, HER2-enriched, and triple-negative breast cancers, and this was positively correlated with the expression of EGFR in TNBC but not in the other subtypes. p53 and EGFR expression was positively correlated in TNBC, which enables us to explore the molecular biological characteristics of TNBC, so as to provide new ideas for the treatment of TNBC.

**Key words:** Breast neoplasm; Molecular subtypes; p53; EGFR; Immunohistochemistry