Basal cytokeratin expression in relation to immunohistochemical and clinical characterization in breast cancer patients with triple negative phenotype

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ABSTRACT

Aims and background. To evaluate the immunohistochemical characterization of CK5/6 and CK17 and whether the expression level of the two markers was correlated with clinical outcome or pathological feature in triple negative (ER-, PR-, HER-2-) patients with breast cancer.

Methods and study design. We carried out an immunohistochemical assay for CK5/6 and CK17 markers on formalin-fixed invasive carcinoma samples from 112 patients who were diagnosed between 2000 and 2002. All of them had an immunohistochemical triple negative status and follow-up information available.

Results. Of the 112 patients characterized by triple negative immunohistochemical status, 82 (73.2%) were disease free with no relapse or metastasis. In total, CK5/6 and CK17 were both determined positive in 33.9% (38/112) of the 112 tumor samples, and 46.4% (52/112) were regarded as positive for CK5/6 or CK17. The Kaplan-Meier curve showed that positive staining for CK5/6, CK17, or CK which means CK5/6 positive or CK17 positive, was associated with worse disease-free survival ($P = 0.020$, $P = 0.032$, $P = 0.003$), and positive staining for CK5/6 or CK was associated with worse overall survival ($P = 0.027$, $P = 0.015$). When we considered 91 patients whose pathological type was invasive ductal carcinoma, we found that there was also an association between CK5/6 or CK17 immunostaining and high grade ($P = 0.030$). In addition, these two markers were also associated with axillary lymph node status ($P = 0.044$). The Cox regression multiple-factor analysis showed that pathological stage, grade and expression of CK were the factors affecting both disease-free and overall survival, whereas age and menopausal status were independent factors affecting disease-free and overall survival, respectively.

Conclusions. Positive staining for CK5/6 or CK17 was associated with a worse prognosis, high tumor grade and positive axillary lymph nodes.