

p85 protein expression is associated with poor survival in HER2-positive patients with advanced breast cancer treated with trastuzumab.

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Abstract

To investigate the immunohistochemical expression of p85 in a cohort of trastuzumab-treated HER2-positive and HER2-negative metastatic breast cancer patients. The medical records of all patients with metastatic breast cancer treated with trastuzumab-based regimens between 1998 and 2010 were reviewed and clinical information was obtained. Formalin-fixed paraffin-embedded tumor tissue samples with adequate material were retrospectively collected from 183 patients. Samples were evaluated by immunohistochemistry for p85, estrogen receptors (ER), progesterone receptors (PgR), HER2, Ki67, PTEN and phosphorylated Akt (S473 and T308). HER2 status was studied by fluorescence in situ hybridization, as well. PIK3CA mutational status was also evaluated. Median follow-up for all patients was 72 months. Central re-evaluation for HER2 revealed only 111 HER2-positive cases, with the remaining 72 patients being HER2-negative. Median survival was longer in HER2-positive patients (50.7 months) compared to HER2-negative patients (36.6 months) both treated with trastuzumab, but this difference has not reached significance ($p = 0.068$). In total, 62% of the patients were found positive for p85, however the p85 protein was not found to be differentially expressed in HER2-positive versus HER2-negative cases. There were no significant associations between protein expression of p85 and any of the markers under study, or with time to progression. Positive p85 protein expression was however associated with poor survival in trastuzumab-treated HER2-positive patients. In our cohort of trastuzumab-treated HER2-positive breast cancer patients, positive p85 protein expression appears to be a prognostic factor of poor survival and, if validated, might have important implications in the treatment of such patients.