The simultaneous expression of cytoplasmic HER2/Neu and Chromogranin A in breast cancer.

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Introduction: The aim of this study was to determine the expression status of two markers of Chromogranin A and cytoplasmic Her2/Neu and their simultaneous expression in invasive ductal carcinoma of breast tissue samples and finally to evaluate importance, association and the role of HER2/Neu expression in neuroendocrine differentiation of these samples which resulted in designing and performing this study.

Methods: In this cross-sectional study we included 100 breast samples with histological diagnosis of invasive ductal carcinoma of breast which had been prepared in a private department of pathology in a period of 8months between October2013 and June2014. All tissues were cut into 4 micrometer slides and were analyzed using immunohistochemical staining,and envision method. All slides were evaluated by light microscope. In a high power field (400) stained cells were counted and their percentage was calculated. For positive control we used HER2/Neu positive breast tumors and for negative control we used normal breast tissue.Tumors with>30% stained cells for HER2/Neu and tumors with>10% stained cells for Chromogranin A were considered as a positive sample.

Results: The mean age of the patients was 50.33 ± 11.53 years old. 54 (54%) patients had positive lymph node involvement and 46(46%)patients had no involved lymph node . The mean size of tumor was 2.89 ± 1.41 centimeters and most of tumors were> 2 centimeters. Breast involvement was in the right side in 51 (51%) and in the left side in 49 (49%).Of 100 cases,14(14%) cases showed grade1,69(.69 %)cases showed grade2 and 17(17%) cases were grade3.Cytoplasmic HER2/Neu expression was positive in 34 patients. Patients were classified into two groups of HER2/Neu positive and HER2/Neu negative expression and patients in two group had no significant difference.

Chromogranin A expression was positive also in 43% of cases. Simultaneous expression of two markers was 34%. There was a significant association between HER2/Neu and Chromogranin A expression (SR = 0.82, P < 0.001). Sensitivity, specificity, positive and negative predictive value of HER2/Neu in determining neuroendocrine differentiation was 70%, 100%, 100% and 86% respectively.

Conclusion: There was a significant association between Chromogranin A expression as a neuroendocrine marker and HER2/Neu. Considering these results we can admit that using HER2/Neu can play a significant role in determining neuroendocrine differentiation. Regarding reviewd role of HER2/Neu in survival and prognosis of patients, we can use this marker more and more in determining breast cancer patients.

Keywords: HER2/Neu, Chromogranin A, Breast Cancer