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THE ROLE OF TOPOISOMERASE II-α (TOPO IIA) AS A PREDICTIVE FACTOR FOR RESPONSE TO NEOADJUVANT ANTHRACYCLINES-BASED CHEMOTHERAPY IN LOCALLY ADVANCED BREAST CANCER

Mohamed M Gamea[1], Ashraf F Barakat[2] and **Fatma Z Hussein[2]**
[1]Aswan University Hospital, Egypt
[2]Tanta University Hospital, Egypt

Background: Topoisomerase II-α is a molecular target of anthracyclines; several studies have suggested that topoisomerase II-α expression is related to response to anthracycline treatment. The objective of this study was to evaluate if topoisomerase II-α overexpression predicts response to anthracycline treatment in locally advanced breast cancer patients.

Material & Methods: This prospective study included 50 patients with primary non metastatic locally advanced breast cancer according to American Joint Committee for cancer staging (T3-4; N0-3) were treated between January 2012 and June 2012 at Clinical Oncology Department, Tanta University Hospital. Topoisomerase II-α, HER2, estrogen receptor (ER), progesterone receptor (PR) expression and KI-67 were evaluated by immunohistochemistry in formalin-fixed, paraffin-embedded breast tumors from 50 patients presenting with locally advanced breast cancer.

Results: Tumors from 50 patients, 45 (90%) showed topoisomerase II-α overexpression, 34 (68%) for ER positive, 32 (64%) for PR positive and 10 (20%) for HER2 overexpression and 16 (32%) for high KI-67. Significant correlation was seen between clinical and pathological response with topo IIA, HER2 and KI-67. P value (≤0.001), (0.005) and (0.015) respectively. 1- Responders: Clinical (CR): 3 patients had co-expression of topo II and HER2, hormonal receptor negative and high KI-67. Clinical (PR):43 patients, majority of them had topo IIA overexpression. 2-Non responders: 4(8%) patients all had negative (TOPOII/HER2), low KI-67 and 2 had hormonal receptor positive and another two had hormonal receptor negative.

Conclusions: Our data support a correlation between topoisomerase II-α expression in locally advanced breast cancer patients and improved clinical benefit with neoadjuvant anthracyclines based therapy.

mohammed.game3@hotmail.com