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The role of topoisomerase II- α (TOPO IIA) as a predictive factor in response to neoadjuvant anthracyclines based chemotherapy in locally advanced breast cancer

Mohamed M Gamea¹, Ashraf F Barakat² and Fatma Z Hussein²

¹Aswan University Hospital, Egypt

²Tanta 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, patients 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 observed between clinical and pathological response with topo IIA, HER2 and KI-67 with p value (≤ 0.001), (0.005) and (0.015) respectively. Two types of patients were classified in relation to clinical and pathological response: 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 2 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.

Biography

Mohamed M Gamea is a Medical Oncologist and working in Aswan University Hospital as an Assistant Lecturer. He is interested in management of gynecological cancer especially breast and ovarian cancer. His research focus is in detection of biomarkers for chemotherapy sensitivity or resistance in both breast and ovarian cancers.

mohammed.game3@hotmail.com

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