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The role of topoisomerase [IIA] as a predictive factor for response to neoadjuvant anthracyclines based chemotherapy in locally advanced breast cancer

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Background: Surrogate markers may be used to assess the response to neoadjuvant chemotherapy. The purpose of the study was to evaluate topoisomerase IIα as predictive factor for response to neoadjuvant anthracyclines based chemotherapy in locally advanced breast cancer patients. Tumor grade scored according to the Elston-Ellis classification, hormonal receptor (HR) status, tumor cell proliferation evaluated by Ki-67 staining, HER-2 and topoisomerase II alpha (TopoIIa) expression evaluated by immunohistochemistry (IHC).

Method: Between January 2012 and June 2012, 50 locally advanced breast cancer patients had received 3 cycles neoadjuvant chemotherapy and were studied in Clinical Oncology Department at Tanta University. Regimens including either CEF (cyclophosphamide 500 mg/m2, epirubicin100 mg/m2, 5-fluorouracil 500 mg/m2) or FAC (cyclophosphamide 500 mg/m2, doxorubicin 50 mg/m2, 5 fluorouracil 500 mg/m2). Protein expression of HER2 and Topo IIα were determined by immunohistochemistry. The primary endpoint was pathological and clinical tumor response that assessed clinically and by mamography, then by pathological assessment.

Results: Of 50 primary locally advanced breast cancer patients had been assessed after 3 cycles of NACT, the clinical complete response was in 6% (3/50), clinical partial response was in 86% (43/50) and overall clinical response was 92% (46/50), 4 (8%) patients had clinical stable disease and no one developed disease progression. Responders had the following biomarkers criteria: Clinical (CR): 3 patients had co-expression of topo II and HER2, hormonal receptor negative and high KI-67. Clinical (PR): Out of 43 patients, majority had topo IIA overexpression. Non-responders had the following criteria: 4 (8%) patients had negative (TOPOII/HER2), low KI-67 and 2 had hormonal receptor positive and another 2 had hormonal receptor negative.

Conclusion: Our study suggests that HER2 and Topo IIα overexpression could be predictors of the response to neoadjuvant chemotherapy in both the CEF and FAC arms.

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Ovarian neoplasms and pregnancy

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The aim of our study was to investigate the incidence of ovarian malignant neoplasms in pregnancy. In the prospective study, during a 2-year period of time, we had the ethical dilemma concerning the conciliar treatment vs. the patient's wish to deliver and save the reproductive capabilities. We examined 37 pregnant women; the incidence of ovarian cancer was 13.5% vs. 6.5% in other works. Diagnoses were made by ultrasound criteria and physical examinations. Statistically significant results were obtained by student t-test. Mean gestational age was 20.1 weeks and mean age 31.1 years. Treatment depends on the neoplasms type, grade and presence of the metastatic pathways. In benign neoplasms, we used laparoscopic treatment with minor invasion. Distribution of benign neoplasms was in the same range as that in other works. In our prospective study, we found the higher incidence of ovarian malignancy in pregnancy which is 13.5%, $P<0.05$. Ultrasonographic criteria are essential for the diagnosis of ovarian neoplasms. The size, morphology and range of RI indices of the ovarian neoplasms in the second trimester are essential criteria for further treatment. The incidence of benign neoplasms in pregnancy is equal to that observed in other works. For the benign ovarian neoplasms, the method of choice for further treatment could be laparoscopy. The main decision is the termination of pregnancy due to conciliar treatment or the patient's wish to save the reproductive capabilities in such cases.

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