

Value of FOXP3 Expression in Prediction of Neoadjuvant Chemotherapy Effect in Triple Negative Breast Cancer

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Abstract : Background: Response of breast carcinoma to neoadjuvant chemotherapy (NAC) varies regarding many factors including hormonal receptor status. Breast cancer is a heterogenous disease with different outcomes, hence a need arises for new markers predicting the outcome of NAC especially for the triple negative group when estrogen, progesterone receptors and Her2/neu are negative. FOXP3 is a promising target with unclear role. Aim: To examine the value of FOXP3 expression in locally advanced triple negative breast cancer tumoral cells as well as tumor infiltrating lymphocytes (TILs) and to elucidate its relation to the extent of NAC response. Material and Methods: Forty five cases of immunohistochemically confirmed to be triple negative breast carcinoma were evaluated for NAC (Doxorubicin, Cyclophosphamide AC x 4 cycles + Paclitaxel x 12 weeks, patients with ejection fraction less than 60% received Taxotere or Cyclophosphamide, Methotrexate, Fluorouracil CMF) response in both tumour and lymph nodes status according to Miller & Payne's and Sataloff's systems. FOXP3 expression in tumor as well as TILs evaluated in the pretherapy biopsies was correlated with NAC response in breast tumor and lymph nodes as well as other clinicopathological factors. Results: Breast tumour cells showed FOXP3 positive cytoplasmic expression in (42%) of cases. High FOXP3 expression percentage was detected in (47%) of cases. High infiltration by FOXP3+TILs was detected in (49%) of cases. Positive FOXP3 expression was associated with negative lymph node metastasis. High FOXP3 expression percentage and high infiltration by FOXP3+TILs were significantly associated with complete therapy response in axillary lymph nodes. High FOXP3 expression in tumour cells was associated with high infiltration by FOXP3+TILs. Conclusion: This result may provide evidence that FOXP3 marker is a good prognostic and predictive marker for triple negative breast cancer (TNBC) indicated for neoadjuvant chemotherapy and can be used for stratifications of TNBC cases indicated for NAC. As well, this study confirmed the fact that the tumour cells and the surrounding microenvironment interact with each other and the tumour microenvironment can influence the treatment outcomes of TNBC.

Keywords : breast cancer, FOXP3 expression, prediction of neoadjuvant chemotherapy effect, triple negative

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