PREDICTIVE BIOMARKERS

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ANALYSIS OF CD80 AND CD86-EXPRESSING B LYMPHOCYTE LEVELS IN THE BLOOD OF WOMEN WITH LOCALLY ADVANCED TRIPLE NEGATIVE BREAST CANCER

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Introduction: Breast Cancer was the second most common malignant neoplasm and the leading cause of cancer-related deaths in women worldwide in 2018; it can be classified according to the immunohistochemical pattern in four main tumor subtypes, with triple negative breast cancer (TNBC) being the most aggressive subtype with the worst prognosis, representing a public health problem. With the advancement of knowledge about the biology of tumors, the importance of understanding the interactions between the tumor, the tumor microenvironment and immune system cells has come to light, especially the role of CD80 and CD86 co-stimulator molecules in the activation of TCD4+ lymphocytes, cytokine production and proliferation of these cells against tumor antigens. **Objectives:** To assess the levels of CD80 and CD86-expressing B lymphocytes in the blood of women with locally advanced triple negative breast cancer. **Methods:** This is a prospective and exploratory cohort study of 30 women with triple negative breast cancer and 30 healthy controls, conducted in 2018–2019. Peripheral blood collection was performed prior to chemotherapy. Immunophenotyping of B lymphocytes and CD80 and CD86 molecules was performed by flow cytometry. Women were evaluated for the degree of pathological response to chemotherapy, and were divided into groups with full (RC) or partial (RP) pathological response. Nonparametric Mann-Whitney tests were used for comparison between the two groups. Values of $p<0.05$ were considered significant. Analyzes were performed using Graphpad v7.0 software. **Results:** We analyzed 30 patients with locally advanced triple-negative breast cancer. The age of the patients ranged from 27 to 59 years, median age was 44.5 years (35.5–51.7), most patients were in the age group ≤50 years (43.3%). Regarding menopausal status, 62.1% were premenopausal and 37.9% postmenopausal. Regarding the nuclear grade, 63% of the tumors were grade 3, followed by 27% grade 2. In relation to clinical stage, 30% were in stage IIIA, 63.4% stage IIIB and 6.6% stage IIIC. In the evaluation of response to neoadjuvant treatment, 56.7% of patients had complete pathological response, and 43.3% partial response. TNBC patients had high levels of CD86 + B lymphocytes when compared to controls ($p<0.0001$). Regarding total B and CD80 + B levels - no significant differences were observed between the groups. In the analysis of CD86 and CD80 expression and total B cell levels, no significant differences were observed between the RC and RP groups. **Conclusions:** This study showed that the immune system of patients with triple negative breast cancer is able to regulate costimulatory molecules in circulating B.