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Distribution of podoplanin labelled tumor vessels, MIB-1 LI, Basal markers, and CD44/CD24 expression as prognostic parameters in node-positive breast cancer patients treated with anthracyclines and/or taxanes

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Abstract

The assessment of ER/PR/HER2 expression and MIB-1 labelling index (MIB-1 LI) in primary tumor are strongly recommended in breast cancer patients as prognostic and predictive factors. However, it remains controversial if the above-mentioned parameters can be used to predict sensitivity to chemotherapy. Among other markers with potentially prognostic/predictive value, lymphatic vessel density as well as CD44/CD24 expression are considered.

Disease-free survival (DFS) of 102 invasive ductal breast cancer patients (T□1, N□1, M0), treated with radical mastectomy and adjuvant chemotherapy with anthracyclines and/or taxanes was analysed according to selected immunohistichemically assessed parameters: (i) MIB-1 labelling index (MIB-1 LI), (ii) distribution of podoplanin labelled vessels (DPV), as well as expression of (iii) basal markers (P-cadherin, cytokeratin 5/6 – CK5/6, smooth muscle actin – SMA), and (iv) CD44/CD24.

We found significantly longer DFS in patients with tumors characterized by: (i) MIB-1 LI□28% or expression of all basal markers (DFS 91% *vs.* 63% for MIB-1 LI>28% and basal markers negativity, p=0.001), (ii) lack of lymphatic vessels or high tumor DPV (DFS 80% *vs.*44% for DPV ranging from 1% to 50%, p=0.005), (iii) CD44+/CD24- (DFS 80% *vs.* 44% for other CD44/CD24 expression patterns, p=0.005). Cox multivariate analysis revealed that both low DPV and high proliferation index/basal markers negativity were significant negative prognostic factors (CD44/CD24 expression was at significance border). Our results suggest that these markers could be considered predictors of resistance to chemotherapy based on taxanes and/or anthracyclines.

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Biography

Joanna Niemiec has completed her Ph.D at the age of 32 years from Department of Applied Radiobiology, Maria Skłodowska-Curie Memorial Institute Cracow Branch, Poland (thesis: Prognostic significance of biological parameters in surgically treated squamous cell lung cancer patients). She is the assistant researcher. She has published more than 20 papers in reputed journals and was a project manager and principal investigator in grants of Polish Ministry of Higher Education and Science. Joanna Niemiec is a member of Polish Radiation Research Society, Polish Histochemical and Cytochemical Society, Polish Society of Oncology.