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A comparative immunohistochemical analysis of steroid receptors, basal markers, breast stem cell markers, adhesion molecules and Ki67 expression in primary breast cancer and in lymph node metastases

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Abstract

Neoplastic tissue is heterogeneous and consists of different cell clones. Hence, it is possible that metastases are formed by a subclone characterized by an immunophenotype that differs from the majority of tumour cells. The differences between marker expression in primary and metastatic tumour cells could influence the results of therapy selected on the basis of primary tumour analysis.

That prompted us to investigate potential differences between primary tumours and corresponding synchronous lymph node metastases in the group of 108 T≥1/N≥1/M0 invasive ductal breast cancer patients. Expression of estrogen receptor (ER), progesterone receptor (PR), human epidermal growth factor receptor 2 (HER2), cytokeratin 5 and 6 (CK5/6), P-cadherin, epidermal growth factor receptor (EGFR), Ep-CAM, CD24, CD44, Ki67 was assessed immunohistochemically.

Over 90% of cases showed the same level of ER, PR, HER2, CK5/6, and EGFR expression in the primary tumour and nodal metastasis. A significant variation in staining results was found for Ep-CAM (33% of cases), P-cadherin (29%), CD24 (19%), and CD44 (23%). We also noted the difference of the percentage of Ki67 positively stained cells (MIB-1 LI) in 43% of cases. The difference between MIB-1 LI in primary tumour and nodal metastasis in those cases exceeded 10%.

Our data suggest that ER, PR, HER2, EGFR, CK5/6 are expressed conservatively in primary tumour and simultaneous lymph node metastases, contrarily to Ep-CAM, P-cadherin, CD24, CD44, Ki67 that show variable expression.

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Biography

Agnieszka Adamczyk has completed her PhD at the age of 35, at the Department of Applied Radiobiology, Maria Skłodowska-Curie Memorial Institute, Cracow Branch, Poland *(thesis: The assessment of predictive significance of stromal fibroblast and peripheral lymphocytes radiosensitivity in cervical cancer patients)*, where she works as an assistant researcher. She has published more than 15 papers in reputed journals and was a project manager and principal investigator of research grants awarded by the Polish Ministry of Science and Higher Education. Agnieszka Adamczyk is a member of Polish Radiation Research Society, Polish Histochemical and Cytochemical Society, Polish Society of Oncology.