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24PD. THE INITIAL RESPONSE OF CIRCULATING EPITHELIAL TUMOR CELLS (CETC) DURING PRIMARY SYSTEMIC THERAPY OF BREAST CANCER IS PREDICTIVE FOR EARLY RELAPSE

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Background: The presence of CETC present in patients with breast cancer before surgery reflects the extent of tumor cell dissemination. The question arises at what time of tumor development such cells leave the tumor and to what extent the formation of metastases occurs. We have previously shown that these cells react to the initial therapy in an identical way as the tumor itself. Subsequently the method was used to monitor therapy response later during primary systemic therapy and patients were further followed during their course of disease.

Methods: CETC were enumerated from 1 ml of anticoagulated blood after red blood cell lysis, staining of live cells with a fluorochrome labeled anti-epithelial antibody and automated microscopy before and after each chemotherapy cycle. Patients were subsequently followed during their course of disease and the response to chemotherapy correlated to tumor reduction and to disease free survival.

Results: The reduction of peripherally circulating cells of 56 patients with breast cancer treated with neoadjuvant chemotherapy varied from marginal response (<10fold reduction) to highly responsive (>1000fold reduction) already during the first three to four courses of chemotherapy. The response to therapy reflected the response of the whole tumor with a correlation of $p>0.9$. During the following therapy courses, however, cell numbers reincreased, concurrent with tumor tissue disintegration. A good initial response correlated with Estrogen-receptor negativity, a poor response with early distant relapse ($p<0,0001$, hazard ratio = 11,91.

Conclusion: Quantitative monitoring of CETC can predict therapy response in primary systemic therapy and relapse-free survival already during the first therapy courses and thus possibly prevent unnecessary treatment.

Note: This study will be presented during ECLU 2008 in the 'Hormonal-related tumors' Poster Discussion session.