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CHEMOSENSITIVITY TESTING OF CIRCULATING EPITHELIAL TUMOR CELLS (CETC) DOES NOT CHANGE UNDER THE INFLUENCE OF CRYOPRESERVATION

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Background. Circulating epithelial tumor cells (CETC) can be identified in blood of patients with different solid tumors. In vitro sensitivity tests of CETC could rationalize and improve the choice of chemotherapy. Cryopreservation and prolonged storage of living CETC would enable multiple testing of chemosensitivity of patients' tumor cells and may be usable for several institutions interested in testing new chemotherapeutic agents.

The aim of the current study was to test CETC before and after freeze preservation for chemosensitivity.

Methods. CETC were isolated from blood of 20 patients suffering from breast cancer. Viability analysis of the cells with eutherapeutic concentration of four chemotherapeutic agents (Cisplatin, Doxorubicin, 5-Fluorouracil, Paclitaxel) was measured using the MAINTRAC method before and after cryopreservation.

Results. No significant differences in chemosensitivity were observed before and after cryopreservation using the method developed at our institution. In vitro-vitality reduction before and after cryopreservation compared for several agents were: 30,6% ± 18,3 vs. 29,8% ± 18,8 (Cisplatin), 92,7% ± 14,0 vs. 99,1% ± 1,2 (Doxorubicin), 34,4% ± 17,5 vs. 34,0% ± 17,7 (5-Fluorouracil), 36,6% ± 22,5 vs. 34,1 ± 15,7 (Paclitaxel).

Viability of CETC after freezing-thawing procedure decreased on average by 14 % (239,7 ± 199,6 vs. 206,0 ± 162,1).

Conclusions. Circulating epithelial tumor cells can be successfully cryopreserved for further chemosensitivity tests.