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Titel des Beitrags: Anti-tumor activity of patient-derived NK cells after cell-based immunotherapy--a case report.

Abstract:
BACKGROUND: Membrane-bound heat shock protein 70 (Hsp70) serves as a tumor-specific recognition structure for Hsp70-peptide (TKD) plus IL-2 activated NK cells. A phase I clinical trial has shown that repeated re-infusions of ex vivo TKD/IL-2-activated, autologous leukapheresis product is safe. This study investigated the maintenance of the cytolytic activity of NK cells against K562 cells and autologous tumor after 6 plus 3 infusions of TKD/IL-2-activated effector cells.

METHODS: A stable tumor cell line was generated from the resected anastomotic relapse of a patient with colon carcinoma (pT3, N2, M0, G2). Two months after surgery, the patient received the first monthly i.v. infusion of his ex vivo TKD/IL-2-activated peripheral blood mononuclear cells (PBMNC). After 6 infusions and a pause of 3 months, the patient received another 3 cell infusions. The phenotypic characteristics and activation status of tumor and effector cells were determined immediately before and at times after each infusion.

RESULTS: The NK cell ligands Hsp70, MICA/B, and ULBP-1,2,3 were expressed on the patient's anastomotic relapse. An increased density of activatory NK cell receptors following ex vivo stimulation correlated with an enhanced anti-tumoricidal activity. After 4 re-infusion cycles, the intrinsic cytolytic activity of non-stimulated
PBMNC was significantly elevated and this heightened responsiveness persisted for up to 3 months after the last infusion. Another 2 re-stimulations with TKD/IL-2 restored the cytolytic activity after the therapeutic pause. CONCLUSION: In a patient with colon carcinoma, repeated infusions of ex vivo TKD/IL-2-activated PBMNC initiate an intrinsic NK cell-mediated cytolytic activity against autologous tumor cells.