Tumori, 93: 26-30 2007

RESULTS OF A PILOT TRIAL OF IMMUNOTHERAPY WITH DENDRITIC CELLS PULSED WITH AUTOLOGOUS TUMOR LYSATES IN PATIENTS WITH ADVANCED CANCER

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Aims and background: **The purpose of the study was to test the immunological and clinical effects of infusions of dendritic cells pulsed with autologous tumor lysate in patients with advanced cancer.**

Patients and methods: **Peripheral blood mononuclear cells from 15 patients with metastatic cancer (melanoma in 10, lung cancer in 2, renal cell carcinoma in 1, sarcoma in 1, breast cancer in 1) were harvested by leukapheresis after mobilization with GM-CSF (5 μg/kg/day s.c. for 4 days). Mononuclear cells were separated and cultured in GM-CSF (1000 U/ml) and interleukin-4 (1000 U/ml) for 7 days. Phenotype was assessed by 2-color flow cytometry and immunocytochemistry. On day 6, dendritic cells were pulsed with 1 g of fresh autologous tumor lysate for 24 h and infused intravenously. Interleukin-2 (6 million IU), interferon α (4 million IU) and GM-CSF (400 μg) were injected s.c. daily for 10 days beginning on the day of dendritic cell infusion. Treatment was repeated every 21 days for 3 courses.**

Results: **The morphology, immunocytochemistry and phenotype of cultured cells was consistent with dendritic cells: intense positivity for HLA-DR and CD86, with negativity for markers of other lineages, including CD3, CD4, CD8 and CD14. More than 5×10^7 dendritic cells were injected in all patients. Nine patients developed >5 mm delayed type cutaneous hypersensitivity reactions to tumor lysate ± GM-CSF after the first immunization (larger than GM-CSF in all cases). Median delayed type cutaneous hypersensitivity to lysate + GM-CSF was 3 cm after the third immunization. One melanoma patient with skin, liver, lung and bone metastases had a partial response lasting 8 months (followed by progression in the brain). Seven patients had stable disease for >3 months, and 7 had progression.**

Conclusions: **Infusion of tumor lysate-pulsed dendritic cells induces a strong cell-mediated antitumor immune reaction in patients with advanced cancer and has some clinical activity.**

Key words: dendritic cells, immunotherapy.

Acknowledgments: Funded by Spanish research project 98/0662 of the Fund for Sanitary Research, by research project P 97/117 of the Diputacion General de Aragon and by Instituto de Ciencias de la Salud.

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Received November 24, 2005; accepted June 8, 2006.