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Effects of therapeutic cancer vaccine composed with dendritic cell and IL-2 in renal cell carcinoma or breast cancer patients

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Six renal cell carcinoma and four breast cancer patients were treated twice with autologous CD34+ hematopoietic stem cell-derived, GM-CSF/IFN-γ-differentiated DCs and low-dose (200MIU) IL-2 as an immune-adjuvant, by 4-week interval in a phase I/II study to evaluate the DC vaccine-related toxicity and antigen-specific immune alteration. To determine the DC vaccine-induced immunological alterations, the antigen-specific lymphocyte proliferation, number of IFN-γ secreting T cells (ELISPOT assay), NK activity and the cytokine modulation were measured. Cultured-DCs expressing HLA-DR, CD11c, CD83, and B7.1/B7.2 produced IL-12p70. After the vaccination, the patients tolerated well. Clinical response was observed in one RCC patient as stable disease. However DC-vaccine related antigen-specific immune responses including peripheral blood lymphocyte proliferation and the number of IFN-r secreting cells were induced in six patients without clear correlation with clinical responses. Also NK activity was induced significantly in six patients after vaccination. DC vaccine-related decrease of TGF-β level or increase of IL-12p70 level and decline of $CD4^+CD25^+$ T cells were observed in three patients. However only in the RCC patient whose disease stabilized, combination of stimulatory as well as inhibitory immune alterations including induction of IFN-γ secreting T cell with reduction of $CD4^+$ $CD25^+$ T cell were correlated with clinical responses. Data indicated that DC vaccine combined with IL-2 is well tolerated without major side effects. DC vaccine induced the specific immunity against introduced antigen. Combinatorial antigen-specific immune induction along with reduction of inhibitory immunity were correlated with clinical responses in DC vaccine treated patients.

Biography

Hyunah received her Ph.D. degree from PURDUE University, Indiana in 1992 and did postdoctoral research in the Institute of Chemical Toxicology at Wayne State University, Michigan, USA on the tumor immunology. Since 1995, she is working as Chief scientist and professor in research at Samsung Medical center, Sungkyunkwan University School of Medicine, Seoul, KOREA. Currently she serves as Secretary General for DC2012 (The 12th International Symposium on Dendritic cells) which will be held on Oct 7~11, 2012 at DAEGU, South KOREA.

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