Clinical research on dendritic cell vaccines to prevent postoperative recurrence and metastasis of liver cancer

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ABSTRACT. We aimed to evaluate dendritic cell (DC) tumor vaccines for preventing liver cancer recurrence and metastasis. DCs were induced from mononuclear cells in the peripheral blood with recombinant human granulocyte macrophage colony stimulating factor (rhGM-CSF) and recombinant human interleukin 4 (rhIL-4), followed by sensitization with lysis of autologous liver cancer cells. One hundred and sixty patients with hepatocellular carcinoma were randomly divided into two groups of 80. One group was treated postoperatively with six cycles of the DC tumor vaccine. The other group was treated postoperatively with six cycles of FOLFOX 6, beginning 1 week after surgery. After treatment with DC tumor vaccines, the levels of CD3+, CD4+, and CD8+, the ratio of CD4+ to CD8+ DC, and the serum levels of IL-12 and IFN-γ were significantly increased both in comparison to the pre-treatment levels (P < 0.001) and to the chemotherapy group (P < 0.001). After a postoperative follow-up of 18 months, the metastatic recurrence rate in the DC tumor vaccine group was significantly lower than that in the chemotherapy group (17.50 vs 48.75%, P < 0.005), and the survival rate of the patients in the DC tumor vaccine group was higher than that of the chemotherapy treatment group (86.25 vs 52.50%, P < 0.005). Treatment with DC tumor vaccines was safe and...
feasible. It can enhance the immunity of the patients, reduce the rates of metastasis and recurrence, and improve survival rates. This is a promising treatment for the prevention of postoperative recurrence in patients with liver cancer.

**Key words:** Liver; Dendritic cells; Immune treatment; Chemical treatment; Recurrence; Metastasis