

Immunomodulatory activities of Yunzhi and Danshen in post-treatment breast cancer patients.

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Breast cancer is the most common cancer among women worldwide. Discomfort and fatigue are usually arisen from anticancer therapy such as surgery, radiotherapy, chemotherapy, hormonal therapy, or combination therapy, because of the suppressed immunological functions. Yunzhi (*Coriolus versicolor*) can modulate various immunological functions in vitro, in vivo, and in human clinical trials. Danshen (*Salvia miltiorrhiza*) has been shown to benefit the circulatory system by its vasodilating and anti-dementia activity. The purpose of this clinical trial was to evaluate the immunomodulatory effects of Yunzhi-Danshen capsules in post-treatment breast cancer patients. Eighty-two patients with breast cancer were recruited to take Yunzhi [50 mg/kg body weight, 100% polysaccharopeptide (PSP)] and Danshen (20 mg/kg body weight) capsules every day for a total of 6 months. EDTA blood samples were collected every 2 months for the investigation of immunological functions. Flow cytometry was used to assess the percentages and absolute counts of human lymphocyte subsets in whole blood. Plasma level of soluble interleukin-2 receptor (sIL-2R) was measured by enzyme-linked immunosorbent assay (ELISA). Results showed that the absolute counts of T-helper lymphocytes (CD4+), the ratio of T-helper (CD4+)/T suppressor and cytotoxic lymphocytes (CD8+), and the percentage and the absolute counts of B-lymphocytes were significantly elevated in patients with breast cancer after taking Yunzhi-Danshen capsules, while plasma sIL-2R concentration was significantly decreased (all $p < 0.05$). Therefore, the regular oral consumption of Yunzhi-Danshen capsules could be beneficial for promoting immunological function in post-treatment of breast cancer patients.