Expression of TRAIL and its receptor DR5 and their significance in acute leukemia cells

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ABSTRACT. We investigated the roles of tumor necrosis factor-related apoptosis-inducing ligand (TRAIL) and its receptor death receptor 5 (DR5) in the onset of acute leukemia and changes in their expression during chemotherapy. Bone marrow samples from 16 patients newly diagnosed with acute leukemia were collected before chemotherapy. Bone marrow samples from patients with non-hematologic malignancies served as the control group. Peripheral blood samples of patients with acute leukemia were also collected before chemotherapy and at 1 and 3 days after chemotherapy. Mononuclear cells in the bone marrow and peripheral blood were isolated and used to detect the expression of TRAIL and DR5 by flow cytometry. Compared with mononuclear cells from the control group, mononuclear cells from newly diagnosed patients with acute leukemia showed no significant difference in the expression of TRAIL (P > 0.05) but showed significantly increased expression of DR5 (P < 0.05). TRAIL and DR5 expression in peripheral blood mononuclear cells after chemotherapy was significantly increased compared to expression before chemotherapy (P < 0.05). Patients showing high expression of DR5 had a higher remission rate. One of the mechanisms underlying the treatment of leukemia with chemotherapy drugs may be the induction of TRAIL and DR5, which may promote...
apoptosis in leukemia cells. TRAIL-mediated apoptosis is regulated by DR5 expression.

**Key words:** Acute leukemia; Chemotherapy; DR5; TRAIL