

Increased regulatory T cells in acute lymphoblastic leukemia patients

ABSTRACT

Introduction: Regulation in adaptive immune response balances a fine line that prevents instigation of self-damage or fall into unresponsiveness permitting abnormal cell growth. Mechanisms that keep this balance in check include regulatory T cells (Tregs). Tregs consist of a small but heterogeneous population which may be identified by the phenotype, CD3+CD4+CD25+CD127-. Role of Tregs in pathogenesis of cancers is thus far supported by evidence of increased Tregs in various cancers and may contribute to poorer prognosis. Tregs may also be important in acute leukemias. **Objective:** A review of the literature on Tregs in acute leukemias was conducted and Tregs were determined in B-cell acute lymphoblastic leukemias (ALLs). **Results:** Studies on Tregs in B-cell ALL are few and controversial. We observed a significantly increased percentage of Tregs (mean \pm SD, $9.72 \pm 3.79\%$ vs. $7.05 \pm 1.74\%$; $P = 0.047$) in the bone marrow/peripheral blood of ALL ($n = 17$) compared to peripheral blood of normal controls ($n = 35$). A positive trend between Tregs and age ($R = 0.474$, $P = 0.055$, $n = 17$) implicates this factor of poor prognosis in B-cell ALL. **Discussion:** Tregs in cancer are particularly significant in immunotherapy. The manipulation of the immune system to treat cancer has for a long time ignored regulatory mechanisms inducible or in place. In lymphoma studies tumor-specific mechanisms that are unlike conventional methods in the induction of Tregs have been hypothesized. In addition, tumor-infiltrating Tregs may present different profiles from peripheral blood pictures. Tregs will continue to be dissected to reveal their mysteries and their impact on clinical significance.

Keyword: Age; B-cell acute lymphoblastic leukemia; CD127; Regulatory T-cells

