

## Vaskina et al. (Abstract)

Cellular Therapy and Transplantation (CTT), Vol. 3, No. 9

doi: 10.3205/ctt-2010-No9-abstract36

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Abstract accepted for "4th Raisa Gorbacheva Memorial Meeting on Hematopoietic Stem Cell Transplantation", Saint Petersburg, Russia, September 18–20, 2010

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## Relapses of acute lymphoblastic leukemia in children

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### Abstract

**Introduction:** 158 patients with newly diagnosed ALL were monitored in the children's hematology department of the Kirov Institute of Hematology and Blood Transfusion in the period from 1991 to 2009. Thirty-four children (21%) experienced relapses at different stages of observation.

**Patient characteristics and results:** The age of patients ranged from 2 to 18 years (median 7.5 years), and the ratio of girls and boys was 12/22. Fourteen (41%) of the relapses were classified as very early, 5 (14.7%) as early, and 15 (4%) as late. The structure of recurrences was as follows: isolated bone marrow relapse, 23 cases, combined, 4, and isolated extramedullary, 7. In the first acute period 24 (70%) patients were treated with the ALL-BFM-90 protocol, 5 (14.7%) with ALL-MB-2002, and 5 (14.7%) with other protocols. Anti-recurrence therapy was conducted in 30 patients; the remaining four did not receive treatment due to parent refusal. Twenty-two patients were treated with the ALL-REZ-BFM-90 protocol, 4 patients with ALL-REZ-BFM-2002, 13 patients with American protocol-3, and 1 patient with the Heltser protocol. The second complete remission (PR) was obtained in 60% of cases (18 patients). A refractory result to therapy was recorded in 3 (10%), patients with early relapse. Nine (30%) patients died of various complications and progression of the disease before reaching remission. Of the 18 patients with the second PR, 1 patient died of various complications during remission, 8 developed a second relapse (3 patients are alive in one-third complete remission, and a third relapse was recorded in 1 patient, which ended lethally). Eleven (36%) patients are in long remission.

**Conclusion:** The overall survival of children with recurrent ALL at their 18-year follow-up was  $0.28 \pm 0.09$ , with a median observation time of 52 months.

**Keywords:** children, acute lymphoblastic leukemia, relapse, treatment, survival

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