

# Hematopoietic Stem Cell Transplantation Based on Minimal Residual Disease with a Unified Conditioning Regimen Comprising Total Body Irradiation, Etoposide and Cyclophosphamide: Results from the JPLSG ALL-R08-II Trial, the First Nationwide Prospective Study for Children with Intermediate-Risk Relapsed Acute Lymphoblastic Leukemia in Japan

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## Abstract

**Background:** In children with intermediate-risk relapsed acute lymphoblastic leukemia (ALL), allogeneic hematopoietic stem cell transplantation (allo-HSCT) has markedly improved the outcome of patients with poor minimal residual disease (MRD) response. However, there is no consensus on the optimal conditioning regimen for allo-HSCT. **Procedure:** We prospectively analyzed the efficacy and safety of allo-HSCT with a unified conditioning regimen for children with intermediate-risk relapsed ALL, based on MRD in the bone marrow after induction, in the Japanese Pediatric Leukemia/Lymphoma Study Group (JPLSG) ALL-R08-II nationwide cohort. The conditioning regimen for allo-HSCT comprised total body irradiation (TBI),

etoposide (ETP) and cyclophosphamide (CY) (UMIN000002025). **Results:** Twenty patients with post-induction MRD  $10^{-3}$  and two with MRD that could not be evaluated underwent allo-HSCT. Engraftment was confirmed in all patients. No transplantation-related mortality was observed. The 3-year event-free survival and overall survival after transplantation were  $86.4\% \pm 7.3\%$  and  $95.5\% \pm 4.4\%$ , respectively. **Conclusion:** Allo-HSCT based on post-induction MRD with TBI + ETP + CY conditioning was highly effective and feasible for Japanese children with intermediate-risk relapsed ALL.

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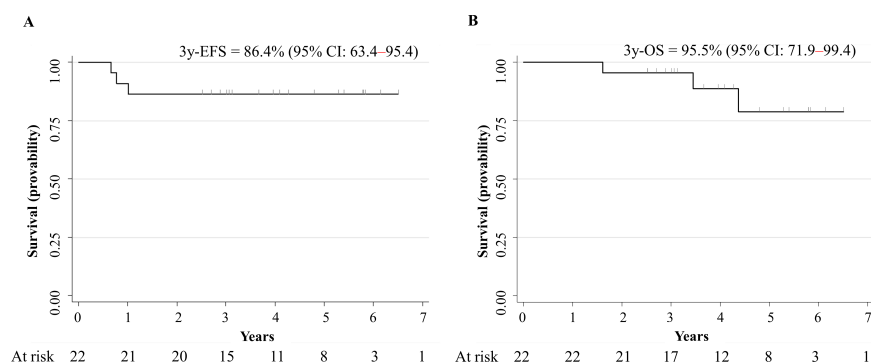
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