

Autologous Peripheral Blood Cells Enhance Hematopoietic Recovery after Autologous Bone Marrow Transplantation: a Randomized Prospective Study in Patients with Hematological Malignancies

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Aim. To test the hypothesis that the addition of peripheral blood cells (PBC) to autologous bone marrow (BM) enhances hematopoietic recovery following supralethal chemotherapy in patients with acute myeloid leukemia (AML), acute lymphocytic leukemia (ALL) or Hodgkin's lymphoma (HL).

Methods. A total of 30 patients (20 AML, 8 ALL, 2 HL) were included in the randomized prospective study. Fifteen received bone marrow only (the BM group), while another 15 received peripheral blood cells in addition to bone marrow (the BM+PBC group). PBC were collected in a steady state by one to three leukaphereses and given to patients in a median dose of 1.5 (range, 0.4-2.8) $\times 10^8$ /kg.

Results. Patients in the BM+PBC group had a shorter hematopoietic recovery and shorter hospitalization period and shorter median times to reach the levels of 10^9 /L leukocytes, 0.5×10^9 /L neutrophils, and 20×10^9 /L and 50×10^9 /L platelets in the blood, but the differences did not reach statistical significance. The significant finding was the increase in the *in vitro* number of CFU-GM produced by bone marrow harvested on day 40 following transplantation in comparison to day 25 in the BM+PBC group ($p < 0.001$), but not in the BM group.

Conclusion. The addition of small doses of PBC to bone marrow may be beneficial for patients' immunohematologic recovery. The effect is not due to the transfer of hematopoietic precursor cells.

Key words: *bone marrow transplantation; hematopoiesis; leukapheresis; randomized controlled trial*

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