No difference in survival between leukaemia patients 10 years after undergoing stem-cell or marrow transplant

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Patients transplanted with peripheral blood stem cells (PBSC) have no difference in survival compared with patients given bone marrow after 10 years, according to the largest randomised study comparing the effect of type of transplant on survival, published Online First in The *Lancet Oncology*.

Bone marrow transplants involve the collection of stem cells from the bone marrow. In peripheral blood stem cell transplantation (PBSCT) stem cells are collected from the donor's blood and this avoids the complications of bone marrow collection such as surgery and anaesthesia.

Results from previous studies have been relatively short (follow-ups of 3 to 4 years), and have shown that PBSC patients experience more severe graft versus host disease (GvHD) in which the donor immune cells attack the tissues of the recipient, but lower rates of relapse and spend less time in hospital. However, little is known about the long-term outcomes and late effects of PBSC transplantation compared with bone marrow transplant (BMT).

In this study, The European Group for Blood and Marrow Transplantation (EBMT) compare the long-term outcomes of patients 10 years after undergoing a marrow or stem-cell transplant. Between 1995 and 1999, 329 patients with leukaemia recruited from 42 transplant

centres were randomly assigned to receive either peripheral blood or bone marrow from a matched sibling donor. For all patients who survived longer than 3 years questionnaires about long-term events, specifically chronic GvHD, late effects, and secondary cancers were completed by the treating transplantation centres.

Results showed that 10 years after transplantation overall survival was similar—49.1% for PBSC recipients and 56.5% for BMT recipients. Despite an increased risk of developing chronic GvHD after PBSCT (PBSCT 73% vs BMT 54%) and more PBSC recipients needing immunosuppressive treatment 5 years after transplantation (PBSC 26% vs BM 12%), this did not result in significantly more deaths or affect general health status, return to work, or late events.

Importantly, researchers found a trend towards improved, but not statistically significant, leukaemia-free survival and overall survival after BMT in patients with acute leukaemias. Patients with acute lymphoblastic leukaemia (ALL) had a leukaemia-free survival probability at 10 years of 28.3% after BMT compared with 13.0% after PBSCT. In patients with acute myeloid leukaemia (AML) this was 62.3% for BMT and 47.1% for PBSCT. Whereas patients with chronic myeloid leukaemia (CML) had similar results with BMT (40.2%) and PBSCT (48.5%).

The authors say: "This update comparing two important stem-cell sources did not find differences in survival after 10-year follow-up. However, subgroup analyses did reveal notable differences in survival in patients with acute leukaemias between those who received allogeneic blood cells and those who received bone marrow, while no differences were seen in patients with CML."

They conclude: "Our observations support previous reports that different patient groups might still benefit from transplantation with bone

marrow."

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