CORRESPONDENCE

With First Successful Allogeneic Transplantations of Apheresis-Derived Hematopoietic Progenitor Cells Reported, Can the Recruitment of Volunteer Matched, Unrelated Stem Cell Donors Be Expanded Substantially?

To the Editor:

The first successful allogeneic peripheral blood progenitor cell (allo-PBSC) transplantations in patients with leukemia and lymphoma have been reported.1,2 A posttransplant follow-up of 19 months is indicative of a functioning and sustained self-renewal capacity of allografted blood stem cells.1 Meanwhile, as confirmed by various studies,3 acute graft-versus-host disease (GVHD) has not been observed to develop at an increased rate or more severely in those patients, despite the fact that an additional log of donor-derived immunocompetent cells had been transplanted.1

Thus, it is foreseeable in the near future to include matched, unrelated donors into an allogeneic blood stem cell transplantation program with the possible donor-related advantages of (1) no use of general anesthesia for stem cell harvest, (2) easy and multiple access to the circulating stem cell pool, (3) higher yields of hematopoietic progenitor cells, and (4) no need for exact timing of blood stem cell donation and transplantation.

With cytokine mobilization treatment, one to three consecutive daily aphereses are sufficient to collect a safe CD34+ cell engraftment dose.1,3 At M.D. Anderson Cancer Center, stem cells are peripheralized using granulocyte colony-stimulating-factor (G-CSF) at a dose of 6 μg/kg subcutaneously every 12 hours, starting 3 days before the first apheresis (day 4). G-CSF treatment of normal donors is considered safe, and is routinely used for granulocyte collections.3 In a series of 62 normal donors undergoing stem cell aphereses for their HLA-matched sibling, the mean yield of CD34+ cells collected per kg_donor ranged from 51 × 10^6 to 77 years (personal observation, May 1995), and could even preferentially store and accumulate uncommon HLA types over many years on a prophylactic basis, without significant loss of stem cell viability. A larger storage volume of frozen apheresis products could be overcome by concentration of progenitor cells before freezing, using an inexpensive single step density gradient performed in a blood cell processor machine (COBE 2991; COBE BCT, Inc, Lakewood, CO).

Finally, the age limit for volunteer stem cell donation can be expanded up to 77 years (personal observation, May 1995), and probably higher with unimpaired CD34+ cell mobilization capability. This age group is usually not eligible for a multiple bone marrow aspiration procedure under general anesthesia.

Thus, one can foresee that volunteer blood stem cell donation under the control of The American Association of Blood Banks, Food and Drug Administration, and NMDP will become an easy and well-accepted apheresis procedure as for any other blood component donations, such as platelets and granulocytes.

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REFERENCES

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