

Importance of functional evaluation after hematopoietic cell transplantation

Mary Evelyn Dantas Flowers

Fred Hutchinson Cancer Research Center
and the University of Washington, Seattle,
WA, USA

Substantial advances in hematopoietic stem cell transplantation (HSCT) have been accomplished in the last three decades⁽¹⁾. For example, reductions in early mortality by 60% and in overall mortality by 41% have been achieved in patients transplanted in Seattle after the introduction of high intensity conditioning between 2003 and 2007 compared to the 1993 to 1997 period⁽²⁾. According to the Center for International Blood and Marrow Transplant Research (CIBMTR), several thousands of long-term HSCT recipients are surviving worldwide from diseases considered fatal before transplantation. Nonetheless, HSCT can result in several complications resulting in impaired quality of life (QoL). Determinants of overall benefits of HSCT therefore are not limited to the eradication of the original disease and improved survival, but also to impairment of QoL with an impact on functional performance. As a matter of fact, several studies of QoL that evaluated mental and physical function, domestic and vocational role function and family and social interaction have reported impairments in functional performance in both autologous and allogeneic HSCT recipients⁽³⁻⁵⁾.

In this issue of the *Revista Brasileira de Hematologia e Hemoterapia*, Souza et al. describe the evaluation of functional performance before and after myeloablative conditioning HSCT in patients transplanted in one center in Brazil⁽⁶⁾. Evaluation of functional performance included gait performance, grip strength, spine mobility and function role in daily activities using the Human Activity Profile (HAP) questionnaire. A significant decline in functional performance was found in both autologous and allogeneic HSCT recipients, including in the two-minute walk test (gait performance), grip strength of both hands, spine mobility (Schober test) and daily activities using the maximum and adapted activity score of the HAP. These findings are consistent with studies of North American HSCT populations⁽³⁻⁵⁾. To the best of my knowledge, this is the first prospective study evaluating functional performance in a Brazilian HSCT population. Decline in functional performance depends on several factors including the presence of chronic graft-versus-host disease⁽⁵⁾, but the decline in functional performance can improve 5 years after HSCT^(3,4). Findings of the current study need to be considered as preliminary because of the small population studied and the relative short follow up. A larger population and longer follow up are needed to confirm the current study findings, and to determine if the decline in functional capacity will improve or result in further performance limitations over time.

The study of Souza et al. demonstrates the feasibility of conducting a prospective study of functional performance in recipients of HSCT in Brazil⁽⁶⁾. Moreover, it creates an opportunity to conduct larger studies to evaluate risk factors for poor functional performance in transplant recipients in Brazil and to design future intervention studies aimed at improving functional capacity and performance after HSCT.

References

1. Horowitz MM. Uses and growth of hematopoietic cell transplantation. In: Thomas ED, Blume KG, Forman SJ, eds. Hematopoietic Cell Transplantation. 2nd ed. Malden, Mass: Blackwell Science; 1999:12-18.
2. Gooley TA, Chien JW, Pergam SA, Hingorani S, Sorrow ML, Boeckh M, et al. Reduced mortality after allogeneic hematopoietic cell transplantation. *N Engl J Med*. 2010;363(22):2091-101. Comment in: *N Engl J Med*. 2010;363(22):2158-9.
3. Syrjala KL, Langer SL, Abrams JR, Storer B, Sanders JE, Flowers ME, et al. Recovery and long-term function after hematopoietic cell transplantation for leukemia or lymphoma. *JAMA*. 2004;291(19):2335-43.
4. Syrjala KL, Langer SL, Abrams JR, Storer BE, Martin PJ. Late effects of hematopoietic cell transplantation among 10-year adult survivors compared with case-matched controls. *J Clin Oncol* 2005;23(27):6596-606.
5. Mitchell SA, Leidy NK, Mooney KH, Dudley WN, Beck SL, LaStayo PC, et al. Determinants of functional performance in longterm survivors of allogeneic hematopoietic stem cell transplantation with chronic graft-versus-host disease (cGVHD). *Bone Marrow Transplant*. 2010; 45(4):762-9.
6. Souza CV, Miranda EC, Garcia Jr C, Aranha FJ, Souza CA, Vigorito AC. Functional evaluation indicates physical losses after hematopoietic stem cell transplantation. *Rev Bras Hematol Hemoter*. 2012;34(5): 345-51

Conflict-of-interest disclosure:
The author declares no competing financial
interest

Submitted: 9/23/2012
Accepted: 9/27/2012

Corresponding author:
Mary Evelyn Dantas Flowers
Fred Hutchinson Cancer Research Center D5-
290, P.O. Box 19024
98109-1024 Seattle, WA
Phone: 206-667-5191
mflowers@fhcrc.org

www.rbhh.org or www.scielo.br/rbhh

DOI: 10.5581/1516-8484.20120084

XXX