Let us think about lymphocyte counts!

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In this issue of our journal, our colleagues Juliane Morando, Sérgio Costa Fortier, Ricardo Pasquini, José Zanis Neto and Carmem Maria Sales Bonfim from the Bone Marrow Transplantation Unit of the Hospital de Clinicas, Universidade Federal do Paraná describe an interesting retrospective study of 137 under 21-year-old acute leukemia patients accumulated over 23 years (1995 to 2008)[1]. Previous studies have already shown that lymphocyte recovery is correlated to transplant-related mortality (TRM), relapse rate and overall survival[2-4]. The authors analyzed the outcome of their patients considering the lymphocyte counts on Days +30 and +100.

Inadequate recovery of lymphocytes on Days +30 and +100 was associated with worse overall survival while there was impairment of disease-free survival based on the lymphocyte recovery on Day +100.

The TRM was higher in patients with inadequate recovery on Day +30. A higher relapse rate was found in patients with compromised recovery on Day +100.

This study shows that by a simple marker (lymphocyte count) we can identify two groups of patients estimating outcome and thus establishing the need for different levels of care.

There are several markers of immune recovery in patients after bone marrow transplantation with most requiring more complex lab tests. The best example is immunophenotyping to determine natural killer and $CD8^+$ cells. The authors conclude that the comparative analysis of prospective studies may establish the real importance of lymphocyte counts as an outcome marker.

A study of our group presented at the 2012 American Society of Hematology (ASH) meeting[5] showed the outcome of lymphopenia of 101 patients on Day +15 after autologous bone marrow transplantation. Of the total, 26% had cytomegalovirus (CMV) infection; this infection was associated with decreased survival. CMV infection and concomitant lymphopenia on Day +15 appears to indicate a subgroup of patients with very poor outcomes. It is possible that CMV infection does not lead directly to increased mortality, but is rather a surrogate marker of reduced immune function after autologous bone marrow transplantation.

Simple prognostic markers may help us in the analysis of patient care in the bone marrow transplantation setting. Treating lymphopenia with any immunomodulatory drug is not yet possible. However, we can monitor infections more closely in these patients to decrease morbidity and mortality.

Neutrophil counts are our main concern after bone marrow transplantation. Now, let us think also in lymphocyte counts.

References

1. Morando J, Fortier SC, Pasquini R, Zanis Neto J, Bonfim CM. Early lymphocyte recovery as a predictor of outcome, including relapse, after hematopoietic stem cell transplantation. Rev Bras Hematol Hemoter. 2012;34(6):430-5
2. Savani BN, Mielke S, Rezvani K, Montero A, Yong AS, Wish L, et al. Absolute lymphocyte count on day 30 is a surrogate for robust hematopoietic recovery and strongly predicts outcome after T cell-depleted allogeneic stem cell transplantation. Biol Blood Marrow Transplant. 2007;13(10):1216-23.
3. Kim DH, Kim JG, Sohn SK, Sung WJ, Suh JS, Lee KS, et al. Clinical impact of early absolute lymphocyte count after allogeneic stem cell transplantation. Br J Haematol. 2004;125(2):217-24.
4. Kumar S, Chen MG, Gastineau DA, Gertz MA, Inwards DJ, Lacy MQ, et al. Effect of slow lymphocyte recovery and type of graft-versus-host disease prophylaxis on relapse after allogeneic bone marrow transplantation for acute myelogenous leukemia. Bone Marrow Transplant. 2001;28(10):951–6.
5. Almeida AM, Macedo EM, Mac Donald Bley C, MD, Kerbauy FR, Campregher PV, Odone V, Lima MM, Sobrinho J, Fernandes JF, Rodrigues M, Hamerschlak N, Santos FP. Cytomegalovirus infection and lymphopenia are associated with increased mortality post autologous stem cell transplantation [Internet] Poster session presented at: 54th ASH Annual Meeting and Exposition; 2012 Dec 8-12. Atlanta, Ga: American Society of Hematology; 2012. [cited 2012 Nov 23]. Available from: https://ash.confex.com/ash/2012/webprogram/Paper48918.html.

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