Iron Overload in Hematopoietic Stem Cell Transplantation
Hematopoetik Kök Hücre Transplantasyonunda Aşırı Demir Yüklenmesi

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To the Editor,

We read the publication entitled “Current Review of Iron Overload and Related Complications in Hematopoietic Stem Cell Transplantation” with great interest [1]. As summarized by Atilla et al. [1], “Organ dysfunction due to iron overload may cause high mortality rates and therefore a sufficient iron chelation therapy is recommended”. We would like to share the experience from our settings where there is a very high prevalence of thalassemia and transplantation is the only curative treatment.

Iron overload is common among transfusion-dependent thalassemia patients and transfusion during transplantation might increase the risk of the complication of iron overload. However, in clinical practice, the problem is not common and improvement of the patients after transplantation is reported. According to the recent report by Inati et al. [2], with standard chelation therapy, the outcome of thalassemic patients undergoing stem cell transplantation is usually favorable. The use of the standard dosage of deferoxamine, with or without phlebotomy, accompanied with close iron status monitoring can be effective [2,3]. It can be seen that stem cell transplantation can be problematic despite there being a need of hypertransfusion during the process even though the patient might have an underlying severe iron overload condition such as thalassemia.

Keywords: Iron, Overload, Hematopoietic stem cell, Transplantation

References
1. Atilla E, Toprak SK, Demirer T. Current review of iron overload and related complications in hematopoietic stem cell transplantation. Turk J Hematol 2016 [Epub ahead of print].
2. Inati A, Kahale M, Sheiti N, Cappellini MD, Taher AT, Koussa S, Nasr TA, Musallam KM, Abbas HA, Porter JB. One-year results from a prospective randomized trial comparing phlebotomy with deferasirox for the treatment of iron overload in pediatric patients with thalassemia major following curative stem cell transplantation. Pediatr Blood Cancer 2017;64:188-196.
3. Angelucci E, Pilo F. Management of iron overload before, during, and after hematopoietic stem cell transplantation for thalassemia major. Ann N Y Acad Sci 2016;1368:115-121.
Reply

Dear Sora Yasri,

Thank you very much for your valuable comments and sharing your experience. We agree for your contribution. In thalassemia patients, several transplantation centers categorised risk factors prior to allogenic hematopoietic stem cell transplantation. Pesaro classification assigned patients to three arms according to the absence or presence of one, two or three risk factors: hepatomegaly > 2 cm, portal fibrosis, and irregular chelation history [1]. It should be kept in mind that in a study by Ghavamzadeh et al., liver iron overload did not change after transplant (p=0.61) but hepatic fibrosis progressed (p=0.01) [2]. Allogeneic stem cell transplantation did not reduce liver iron overload and in fact liver fibrosis increased. Also steps for reducing iron overload should be taken in the post transplant setting [3]. Iron overload is still an essential issue in both pre and post transplant settings. Survival in transfusion-dependent thalassemia patients can be improved with proper understanding of the pathophysiology of thalassemia and iron toxicity.

Regards,

Erden Atilla, Selami K. Toprak, Taner Demirer

References

1. Lucarelli G, Weatherall DJ. For debate: bone marrow transplantation for severe thalassaemia (1). The view from Pesaro (2). To be or not to be. Br J Haematol 1991;78:300-303.
2. Ghavamzadeh A, Mirzania M, Kamalian N, Sadghi N, Azimi P. Hepatic iron overload and fibrosis in patients with beta thalassemia major after hematopoietic stem cell transplantation: a pilot study. Int J Hematol Oncol Stem Cell Res 2015;9:55-59.
3. Bayanzay K, Alzoebie L. Reducing the iron burden and improving survival in transfusion-dependent thalassemia patients: current perspectives. J Blood Med 2016;7:159-169.