

New directions in hematopoietic stem-cell transplantation

Stefan O. Ciurea

University of Texas MD Anderson Cancer Center, USA

Allogeneic hematopoietic stem-cell transplantation (HSCT) is the only curative treatment for a variety of hematologic malignancies. However, the success of this treatment modality has been limited by donor availability, morbidity associated with transplantation, and disease relapse post-transplant. The challenges moving forward are improving treatment-related complications, extending this form of treatment to all patients in need including those who do not have a matched donor, and prevent disease relapse post-transplant.

Graft failure has been a potential complication of allogeneic stem-cell transplantation with high treatment-related mortality, the etiology of which remained elusive until recently. We have shown for the first time that donor specific anti-HLA antibodies (DSA) associate with primary graft failure in HSCT. Testing for DSA has now been incorporated in donor selection for transplantation.

Lack of a matched donor has been associated with higher treatment-related mortality. We have recently developed a safer approach using half-matched related donors, and dramatically improved the safety of haploidentical transplantation. This extends transplantation to virtually all patients in need, including minorities and mixed race individuals for whom a matched unrelated donor was very difficult to identify. Preliminary results with this approach have been recently reported in abstract format (American Society of Hematology Meeting 2011).

As outcomes of transplantation have improved over time, preventing disease relapse post-transplant has become the main focus of our research. Cellular therapy is one of the most promising approaches. Recently, our group has successfully generated in the lab large numbers of NK cells in the presence of IL-21 which will be used for adoptive transfer post-transplant in a new clinical trial for patients with acute myeloid leukemia

Biography

Stefan O. Ciurea is Assistant Professor in the Department of Stem Cell Transplantation and Cellular Therapy at the University of Texas MD Anderson Cancer Center and the leader of the Haploidentical Transplant Program. Dr. Ciurea attended medical school in Romania, and completed training in the United States in Internal Medicine, Hematology-Oncology at the University of Illinois at Chicago under the mentorship of Dr. Ronald Hoffman, and in Hematopoietic Stem Cell Transplantation at MD Anderson Cancer Center, where he remained a Faculty member since. He has made important contributions in the biology of myelofibrosis and hematopoietic stem-cell transplantation. He has documented for the first time the association between anti-HLA antibodies and graft rejection in hematopoietic stem-cell transplantation, and, under his leadership, haploidentical stem-cell transplantation has transformed in a viable option for patients without a matched donor

stefan.ciurea@gmail.com