

Antibodies from rabbits improve survival and relapse outcomes of leukemia and myelodysplasia

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Researchers at Virginia Commonwealth University (VCU) Massey Cancer Center's Bone Marrow Transplant Program have demonstrated that the use of antibodies derived from rabbits can improve the survival and relapse outcomes of leukemia and myelodysplasia patients receiving a stem cell transplant from an unrelated donor.

Recently published in the journal [Bone Marrow Transplantation](#), a study led by Amir Toor, M.D., hematologist-oncologist in the Bone Marrow Transplant Program and member of the Developmental Therapeutics program at VCU Massey Cancer Center, retrospectively compared the outcomes of 50 [patients](#) who received rabbit anti-thymocyte globulin (ATG) before receiving a transplant of stem cells from an unrelated donor to the outcomes of 48 patients who received a transplant of stem cells from a related donor. While unrelated [stem cell transplants](#) typically have poorer outcomes than related stem cell transplants, the results from this study showed similar outcomes for each group in terms of mortality, relapse and the development of graft-versus-host disease (GVHD), a common complication that can occur after a stem cell or [bone marrow transplant](#) in which the newly transplanted material attacks the transplant recipient's body.

"Unfortunately, we can't always find a related (genetically similar) donor for patients in need of stem cell transplantation," says Toor, who is also associate professor of internal medicine in the Department of Hematology, Oncology and Palliative Care at VCU School of Medicine. "Obtaining better outcomes with unrelated donor stem cell transplants could represent a significant advancement in extending the lives of more patients with [blood cancers](#)."

Unrelated donor stem cell transplants are generally considered a high-risk treatment due to historically higher rates of disease relapse and GVHD in comparison to [stem cells](#) transplanted from donors related to the patients. The results of the study indicated no survival differences between the two groups of patients regardless of age or diagnosis. Relapse rates and incidence of GVHD were also similar. Chronic GVHD, on the other hand, was diagnosed less frequently in patients in the ATG group. In addition, the researchers noticed a higher rate of infections in patients receiving the highest dose of ATG, but this risk was diminished in patients who received slightly lower doses.

This study is one of the first to use ATG in [stem cell transplantation](#). ATG works by reducing the number of circulating T-lymphocytes, a key component of the immune system. It is primarily used in organ transplantation to prevent patients' immune systems from rejecting transplanted tissue. It is also used to treat aplastic anemia, a condition where the [bone marrow](#) does not create enough new cells. Currently, there are two types of ATG agents available for clinical use. The one used in this study is derived from rabbit antibodies while the other is derived from horse antibodies.

"Our study results should serve as a guide for designing future clinical trials using ATG to improve outcomes in unrelated donor stem cell transplants," says Toor. "Our findings are encouraging. If many of the risks commonly associated with unrelated donor stem [cell transplants](#) are reduced, transplantation becomes an option for more patients."

More information: The full manuscript of the study is available online at: [hospitalmedicine.ucsf.edu/download ... antation_portier.pdf](http://hospitalmedicine.ucsf.edu/download_portier.pdf)

Provided by Virginia Commonwealth University

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