Bridging the Gap: PTCy Levels the Field for Matched and Mismatched Blood or Marrow Transplants

WHAT?

A research study examining the effect of post-transplant cyclophosphamide (PTCy) on survival outcomes in adults with blood cancers receiving blood or marrow transplant (BMT) from human leukocyte antigen (HLA)-matched and mismatched donors.

WHY?

To determine if PTCy can eliminate disparities in graft-versus-host disease-free, relapse-free survival (GRFS) and overall survival (OS) between matched (8/8) unrelated donors (URD), single mismatched (7/8) URDs and haploidentical (half matched)-related donors.

WHEN?

The study analyzed patient data from first unrelated or haploidentical-related donor BMTs conducted in the U.S. between 2017 and 2020.

WHO?

Adult patients with blood cancers such as acute lymphoblastic leukemia (ALL), acute myeloid leukemia (AML), and myelodysplastic syndromes (MDS) undergoing their first 8/8 matched (1,517 patients) or 7/8 (540 patients) mismatched URD or haploidentical (2,772 patients) BMT and receiving PTCy.

RESULTS

- No significant differences in GRFS or OS for patients who had aBMT with an 8/8 or 7/8 URD.
- 8/8 URD BMT showed a lower rate of moderate/severe chronic graft-versus-host disease (GVHD) compared to 7/8 URD.
- 8/8 URD BMT had better GRFS and OS than haploidentical-related BMT, mainly due to higher rates of non-relapse mortality (NRM) and chronic GVHD in patients who received a haploidentical-related BMT.
- Larger numbers for 7/8 URD BMT are needed to compare outcomes between 7/8 URD and haploidentical-related BMT.

Read the 8/8 versus 7/8 PTCy study abstract published in BLOOD and presented at the 65th ASH Annual Meeting & Exposition in December 2023: https://doi.org/10.1182/blood-2023-172722

IMPACT

- PTCy-based GVHD prevention has the potential to level the playing field for patients with mismatched donors.
- This approach could significantly expand access to BMT for patients of various ancestries, as finding a fully matched donor is no longer crucial for successful outcomes.
- The study suggests that 8/8 URD BMT remains the best option if available, but 7/8 URD and haploidentical-related BMT are viable alternatives that warrant further comparison.

FROM THE EXPERTS

Historically, transplant outcomes following mismatched unrelated donor (MMUD) BMT have been poor, given the use of calcineurin inhibitor-based GVHD prophylaxis. However, PTCy has transformed the allogeneic BMT landscape, enabling successful use of mismatched related and unrelated donor BMT by transcending the HLA barrier. This research not only confirms the efficacy of PTCy, but also alludes to its promise to provide allogeneic BMT to all patients irrespective of their ancestry. That promise is a message of hope to our patients.

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