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732.ALLOGENEIC TRANSPLANTATION: DISEASE RESPONSE AND COMPARATIVE TREATMENT STUDIES

Outcomes of Haplo-Cord and Dual-Cord Transplants: A Single-Center Retrospective Analysis

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Background: Despite the concurrent use of tandem haploidentical-umbilical cord (haplo-cord) and dual-umbilical cord (dual-cord) allogeneic hematopoietic stem cell transplant (HSCT) approaches for over a decade, there have been few comparisons of their outcomes (van Besien et al. *Hematologica*, 2016). No previous studies have evaluated differences following identical conditioning regimens. We report a retrospective analysis comparing patients treated with haplo-cord or dual-cord HSCTs at our institution following the same conditioning regimen.

Methods: Between 10/2012-10/2022, 70 haplo-cord and 133 dual-cord transplants were performed following 50 mg/kg of IV cyclophosphamide, 150 mg/m ^{2} of IV fludarabine, 10 mg/kg of IV thiotepa, and 4 Gy total body irradiation conditioning. Cyclosporine and mycophenolate mofetil were used for graft versus host disease (GVHD) prophylaxis. Patient selection, infectious disease prophylaxis, and donor selection were per institutional standards. Patient characteristics between groups were compared using Fisher's exact test. Kaplan-Meier estimates were used to evaluate OS and RFS. Cumulative incidence estimates were used to compare relapse, aGVHD, cGVHD, and neutrophil and platelet engraftment. Two-tailed t-test was used to compare average in-hospital stays for transplant admissions.

Results: There were no significant differences between median age at transplant (51.6 vs 50.3), female representation (41.4% vs 45.1%), or disease types (47.1% vs 51.1% acute myeloid leukemia (AML), 25.75% vs 17.3% acute lymphoblastic leukemia (ALL), 17.2% vs 15.1% myelodysplastic syndrome/myeloproliferative neoplasm (MDS/MPN), 10% vs 16.5% other; p=0.373). With a median follow-up of over 2 years, there was no difference in or OS (p=0.96) or RFS (Figure 1, p=1) for all patients, or for the MDS/MPN and AML subset (OS p=0.47, RFS p=0.43). There was a significant increase in grade 3-4 acute GVHD (aGVHD) in haplo-cord recipients (Figure 2, p=0.007), but no difference in grade 2-4 aGVHD (p=0.11), all chronic GVHD (p=0.8), and moderate-severe cGVHD (p=0.3). Time to neutrophil recovery was faster in haplo-cord recipients (p=0.021), but there was no difference in platelet recovery to 20,000/uL (p=0.12). Average days admitted for haplo-cord HSCTs was 20.61 days compared to 27.56 days for dual-cord HSCTs (p<0.0001).

Conclusion: In our experience, there were no differences in survival, relapse, or cGVHD between haplo-cord and dual cord HSCT. Haplo-cord HSCTs were associated with faster neutrophil engraftment and shorter hospital stays compared to dual-cord HSCTs; however, haplo-cord SCTs had significantly higher grade 3-4 aGVHD. When both are options, the choice of haplo-cord versus dual-cord HSCTs should consider these opposing factors.

Reference:

1. Koen van Besien, Parameswaran Hari, Mei-Jie Zhang, Hong-Tao Liu, Wendy Stock, Lucy Godley, Olatoyosi Odenike, Richard Larson, Michael Bishop, Amittha Wickrema, Usama Gergis, Sebastian Mayer, Tsiporah Shore, Stephanie Tsai, Joanna Rhodes, Melissa M. Cushing, Sandra Korman, Andrew Artz. Reduced intensity haplo plus single cord transplant compared to double cord transplant: improved engraftment and graft-versus-host disease-free, relapse-free survival. Haematologica 2016;101(5):634-643; https://doi.org/10.3324/haematol.2015.138594.

Disclosures Haverkos: *Viracta Therapeutics:* Consultancy, Membership on an entity's Board of Directors or advisory committees. **Schwartz:** *Novartis:* Consultancy; *Jazz Pharmaceuticals:* Consultancy. **McMahon:** *Kura Oncology:* Membership on an entity's Board of Directors or advisory committees; *Arcellx:* Membership on an entity's Board of Directors or advisory committees; *Syros Pharmaceuticals:* Research Funding; *Syndax Pharmaceuticals:* Research Funding.

Figure 1: Relapse free survival comparing all haplo-cord and dual-cord recipients

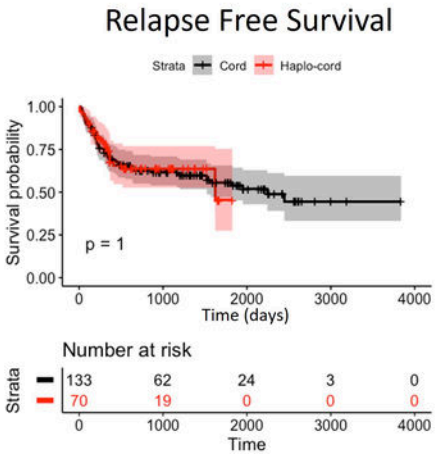

Figure 2: cumulative incidence of acute GVHD comparing haplo-cord vs dual-cord recipients

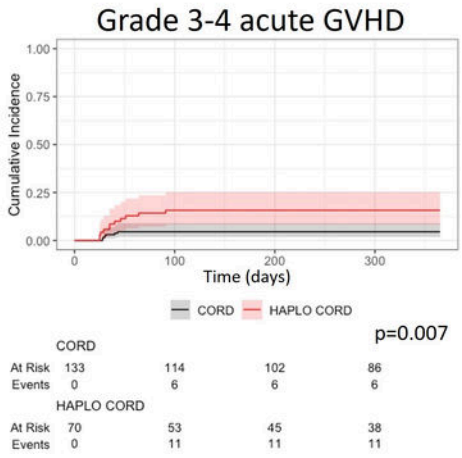

Figure 1

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