

P1393 HIGHER DOSE OF CD34+ CELLS PROMOTES EARLY RECONSTITUTION OF NATURAL KILLER CELLS AND IS ASSOCIATED WITH BETTER OUTCOMES AFTER UNMANIPULATED HEMATOPOIETIC STEM CELL TRANSPLANTATION FOR MYELOID MALIGNAN

Topic: 22. Stem cell transplantation - Clinical

Fei Zhao¹, Erlie Jiang¹

¹ State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Institute of Hematology & Blood Diseases Hospital, Chinese Academy of Medical Sciences & Peking Union Medical College, Tianjin 300020, China, TianJin, China

Background: Natural killer (NK) cells are potent effectors for eliminating myeloid leukemia and this effect is particularly robust after T-cell-deplete allogeneic hematopoietic stem cell transplantation (allo-HSCT). The significance of NK cells after unmanipulated transplantation is less clear and factors affecting early NK reconstitution remain elusive.

Aims: To evaluate early NK reconstitution and its effects on HSCT outcomes and related factors.

Methods: This study retrospectively analyzed a cohort of 180 allo-HSCT recipients who received unmanipulated grafts between June 2012 and May 2020. All patients have acute myeloid leukemia or myelodysplastic syndrome, and most of the patients and donors (99%) are serologically positive for cytomegalovirus (CMV). NK counts in the peripheral blood at 30 days after allo-HSCT (NK30) are strongly associated with all-cause mortality and a cut-off value at 90 cell/ μ l is determined for further prognostic analysis.

Results: Higher NK30 is associated with reduced disease relapse (HR 0.56, $P = 0.02$), lower CMV reactivation (HR 0.41, $P = 0.001$) and better survival (HR 0.43, $P = 0.01$). Further analysis finds that NK30 is associated with the dose of CD34⁺ cells ($r = 0.739$, $P < 0.001$) and not the numbers of mature NK cells in the graft. In flow cytometric analysis of cryopreserved day +30 bone marrow samples, patients in continuous complete remission ($N = 6$) demonstrate higher frequencies of CD34⁺CD7⁺ progenitor cells and CD56^{bright} NK cells as compared to patients with disease relapse within 1 year ($N = 6$). No suppressive effect of T cells on NK recovery is found since the majority of patients (131/180, 72.8%) received rabbit anti-thymocyte immunoglobulin (ATG) in the conditioning regimen.

Summary/Conclusion:

Higher dose of CD34⁺ cells promotes early recovery of NK cells after allo-HSCT with unmanipulated graft and NK30 represents a valuable prognostic marker of better outcomes. Our data thus provide new information for the therapeutic manipulation of NK cells for the promotion of transplant outcome.

Copyright Information: (Online) ISSN: 2572-9241

© 2022 the Author(s). Published by Wolters Kluwer Health, Inc. on behalf of the European Hematology Association. This is an open access Abstract Book distributed under the Attribution-NonCommercial-NoDerivs (CC BY-NC-ND) which allows third parties to download the articles and share them with others as long as they credit the author and the Abstract Book, but they cannot change the content in any way or use them commercially.

Abstract Book Citations: Authors, Title, HemaSphere, 2022;6:(S3):pages. The individual abstract DOIs can be found at <https://journals.lww.com/hemasphere/pages/default.aspx>.

Disclaimer: Articles published in the journal HemaSphere exclusively reflect the opinions of the authors. The authors are responsible for all content in their abstracts including accuracy of the facts, statements, citing resources, etc.