Larger patient numbers are needed to better understand disease-specific factors that may impact engraftment and immune reconstitution kinetics as well as phenotype reversal to understand the breadth of applicability of this novel radiation-free, serotherapy-free platform.

426

CD3+ Graft Cell Count Predicts Chronic Gvhd Incidence in Haploidentical Allogeneic Transplantation Using Post-Transplant Cyclophosphamide

Alberto Mussetti [1], *Chiara De Philippis* [2], *Cristiana Carniti* [1], *Mariana Bastos-Oreiro* [3], *Jorge Gayoso* [4], *Nicoletta Cieri* [5], *Fabio Ciceri* [6], *Raffaella Greco* [7], *Jacopo Peccatori* [7], *Francesca Patriarca* [8], *Jacopo Mariotti* [9], *Luca Castagna* [10], *Paolo Corradini* [11]. [1] *Division of Hematology, Fondazione IRCCS Istituto Nazionale dei Tumori, Milan, Italy;* [2] *Oncology and Hemato-oncology, University of Milano, Milan, Italy;* [3] *Hematology, HGU Gregorio Marañón, Madrid, Spain;* [4] *HGU Gregorio Marañón, Madrid, Spain;* [5] *Oncology and Hemato-oncology, University of Milan, Milan, ID, Italy;* [6] *Hematology and Bone Marrow Transplantation Unit, San Raffaele Scientific Institute, Milan, Italy;* [7] *Hematology and Bone Marrow Transplantation Unit, IRCCS San Raffaele Scientific Institute, Milan, Italy;* [8] *Hematology, DAME, University Hospital, University of Udine, Udine, Italy;* [9] *Hematology and Oncology, Humanitas Cancer Center, Humanitas Clincal and Research Center, Rozzano, Milan, Italy;* [10] *Hematology Department, Humanitas Cancer Center, Milano, Italy;* [11] *Oncology and Hematology, University of Milano & Fondazione IRCCS Istituto Nazionale dei Tumori, Milan, Italy*

Background: Haploidentical hematopoietic cell transplantation (HCT) using post-transplant cyclophosphamide (PT-Cy) as graft-versus-host disease (GVHD) prophylaxis has shown promising results. We conducted a multicenter retrospective study on haploidentical HCT using PT-Cy according to graft source, donor characteristics and graft cell composition.

Methods: In the present study, we analyzed the correlations between graft cell composition (CD34, CD3) and donor features on transplant outcomes in 234 patients who underwent HCT between 2010 and 2016. On multivariate analysis, peripheral blood stem cells (PBSC) were associated with an increased incidence of grade 2-4 acute GVHD [HR 2.00, 95% Confidence Interval (CI) = 1.01-3.98, $P = .046$]. The use of PBSC or marrow-derived stem cells did not influence the incidence of chronic GVHD (Figure 1). A higher CD34+ graft content had a protective role on Non-Relapse Mortality [HR .77 (95%CI = .62-0.97), $P = .025$] and on grade 3-4 acute Graft-versus-Host Disease (GVHD) [HR .69 (95%CI = .50-0.96), $P = .029$]. An elevated CD3+ graft content was associated with an increased incidence of chronic GVHD [HR 1.38 (95%CI = 1.30-8.49), $P = .011$]. A $.9 \times 10^8$ CD3+/kg cut off was able to split both all grade chronic GVHD (33% versus 6%, $P < .001$) and extensive chronic GVHD (19% versus 2%, $P < .001$) incidence (Figure 2). Donor characteristics did not influence any of the transplant outcomes.

Conclusion: PT-Cy Mediated T cell repletion abrogates the effects of donor characteristics on survival outcomes as opposed to ATG-based haploidentical platforms (*Yu Wang, Blood 2014*). The higher incidence of chronic GVHD is probably explained by a higher number of graft CD3+ cells ($>.9 \times 10^8$/kg) and not merely by graft type (BM versus PBSC). These results could help in adapting GVHD prophylaxis for those high-risk patients who infused high CD3 content grafts.

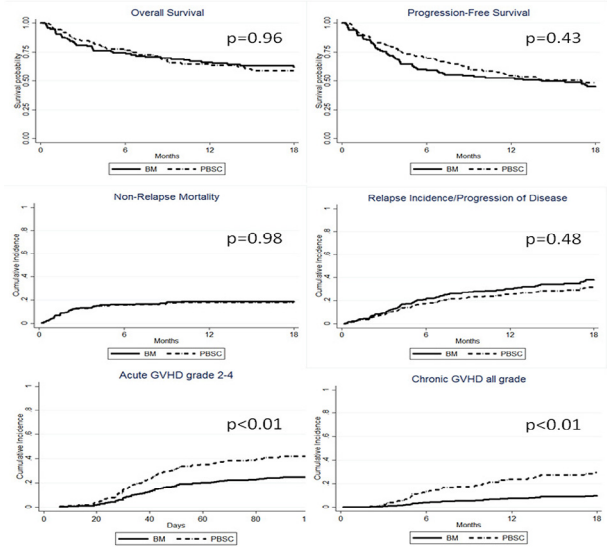

Figure 1.

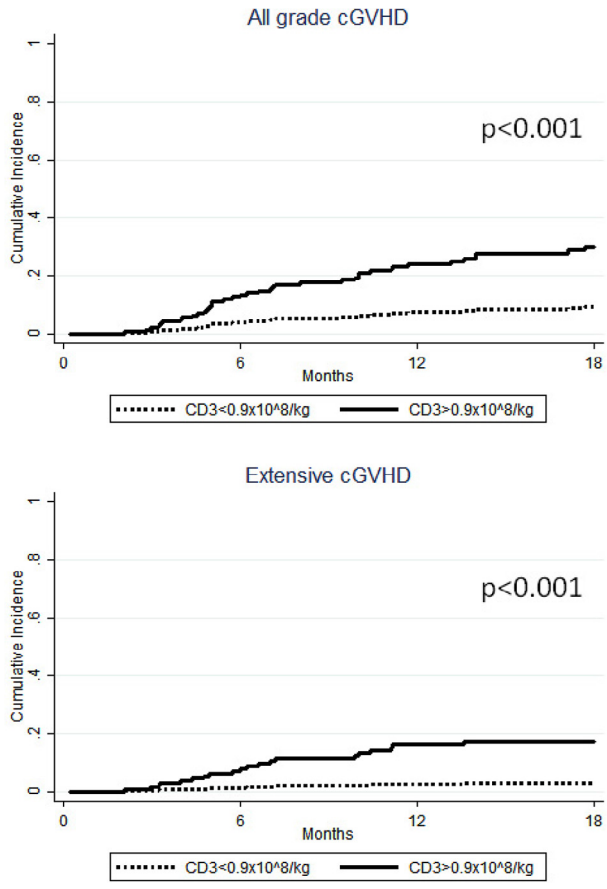

Figure 2.