more homogeneous myeloid leukemia. Therefore, altered activity of these factors in erythroid progenitors led to pure erythroid phenotypes and to mixed erythroid and myeloid phenotypes upon expression in multipotent progenitors.

Summary/Conclusion: We report that, in addition to previously described genetic alterations including TP53 and chromatin regulator mutations, human AEL is also characterized by aberrant expression of several genes interfering with GATA1 including ETS factors, ET02 and SK1. Modeling their ectopic expression in different murine progenitors suggests that the prevalence of the erythroid phenotype is dependent on the targeted cell type. Together, alterations of the GATA1 transcriptional activity and targeting of different stages of the hematopoietic differentiation may explain the continuum of phenotype between MDS and pure erythroid in human AEL.

Alternative Donor Transplantation

S114 POST-TRANSPLANT CYCLOPHOSPHAMIDE VS ATG FOR GRAFT-VERSUS-HOST DISEASE PROPHYLAXIS IN T-REPLETE HAPLOIDENTICAL TRANSPLANTATION FOR ACUTE LYMPHOBLASTIC LEUKEMIA: A REPORT OF THE ALWP/EBMT


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Background: The two leading strategies for Graft-versus-Host Disease (GvHD) prophylaxis in the setting of non-F-cell-depleted (Treplet) haploidentical stem cell transplantation (HaploSCT) are post-transplant cyclophosphamide (PTCy) and anti-thymocyte globulin (ATG). We have previously compared outcomes between these two approaches in patients undergoing HaploSCT for acute myelogenous leukemia (AML) in the registry of the Acute Leukemia Working Party (ALWP) of the European Society for Blood and Marrow Transplantation (EBMT; Ruggeri A, Hematologica, 2017), however results may differ in patients treated for acute lymphoblastic leukemia (ALL).

Aims: To compare PTCy with ATG-based GvHD prophylaxis in patients undergoing HaploSCT for ALL.

Methods: We analyzed all adult patients (≥ 18 years) reported to the EBMT with ALL in first or second complete remission (CR) or advanced disease at time of transplantation who underwent HaploSCT between 2011-2015, respectively. Haplo was defined as related donor with ≥ 2 mismatched HLA alleles. Outcomes were compared using multivariable Cox regression analysis (MVA).

Results: A total of 434 ALL patients were included; 336 received PTCy-based regimen and 98 received ATG. Median follow-up was 24 months (interquartile range 12–40). Median age was 35.6 (range 18–76) years, and 63% of patients were male. B-ALL predominated (69%), with 32% of patients Philadelphia (Ph)-negative, 36% were Ph+ while 32% had T-ALL. The majority of patients (48%) was in first CR, with 20% of patients in advanced disease. Karnofsky performance status ≥ 90 was observed in 72% of patients. 53% of patients received peripheral blood (PB) grafts while 47% BM graft, and 75% of patients were treated with myeloablative conditioning while 25% reduced intensity conditioning. Patients who received ATG were treated earlier than those who received PTCy, with median year of transplantation 2011 and 2015, respectively (p < 0.0001), and were more likely to have advanced disease (31% vs 16%, p = 0.01). Patients treated with PTCy were more likely to have received PB grafts (68% vs 48% ATG, p < 0.001) and TBI-based conditioning (45% vs 26%, p < 0.001).

Similar outcomes were seen for engraftment (92.7% ATG vs 93.54% PTCy), as for 100 day incidence of acute GvHD both > Gr II and severe (Gr II+, 32.7% vs 30.5%; Gr III+, 11.6% vs 14.1%), and chronic GvHD (27.7% vs 31.7%). In both groups, infection accounted for 32% and 30% of deaths. In MVA, relapse incidence was lower in PTCy vs ATG: 2 year RI: 33.8% vs 43%; hazard ratio [HR] 0.61 [95% CI: 0.59–0.94], p = 0.03, with a trend toward lower non-relapse mortality (NRM) as well [26.7% vs 32.9%; HR 0.68 [0.42–1.11], p = 0.12]. Both 2 year leukemia-free (LFS) and overall survival (OS) were higher for PTCy when compared with ATG (40.3% vs 24.1%; HR 0.67 [0.46–0.96], p = 0.03, and 48.4% vs 27.4%; HR 0.60 [0.42-0.84], p = 0.003, respectively) (Fig). Active disease and lower KPS were associated with lower LFS, OS and GRFS, while PB grafts were associated with higher incidence of both acute and chronic GvHD.