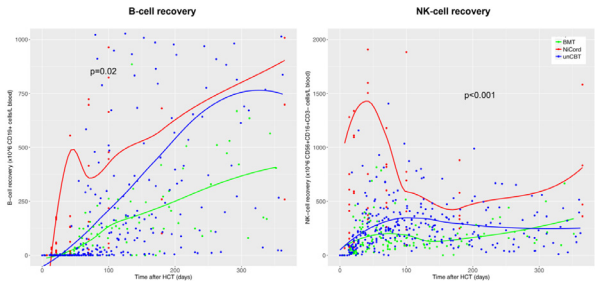

Figure 2. B- and NK-cell reconstitution after transplantation with NiCord, unCBT, and BMT.

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The Role of Donor Selection for a Second Allogeneic Stem Cell Transplantation in Patients with AML Relapsing after a First Transplant; A Study on Behalf of the Acute Leukemia Working Party of EBMT

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Introduction: Recurrent disease is the major cause of treatment failure after allogeneic stem cell transplantation (SCT) in patients with AML. Second SCT (SCT2) is a valid treatment option in this setting but outcome is relatively poor. Haploidentical (haplo) SCT is increasingly used over the last decade due to the introduction of non T-depleted methods. Prior studies have shown similar outcome when using the same or different HLA-matched donor for SCT2. However, there is relatively limited data on the use of haplo-donors in this setting.
Methods and Results: The study included 556 patients with AML relapsing after a first allogeneic SCT (SCT1) given in CR1 from sibling (sib, n= 294) or unrelated donor (UD, n=262) and given SCT2 during the years 2006-2016. The median age at SCT2 was 46 years (20-73). 247 patients were in CR2 (45%) and 309 had active leukemia (55%) at SCT2. The conditioning regimen for SCT1 was myeloablative (MAC, 66%) or reduced-intensity (RIC, 34%), and 41% and 59%, respectively for SCT2. Patients were divided into 3 groups based on the donor selected for SCT2; 1) same donor (n=163, sib/sib-112, UD/UD-51), 2) different matched donor (n=305, sib/different sib-44, sib/UD-93, UD/ different UD- 168), 3) haplo-donor (n=88, sib/haplo-45, UD/haplo-43). All haploSCT were non T-depleted. The 2-year leukemia-free survival (LFS) after SCT2 was 23.5%, 23.7% and 21.8%, respectively (unadjusted P=0.30). Multivariate analysis showed no effect of second donor type on subsequent relapse, hazard ratio (HR) 0.96 (P=0.83) and 1.20 (P=0.47) for different donor and haplo-donor compared to same donor, respectively. UD in SCT1, CR2 at SCT2 and chronic GVHD after SCT1 were associated with reduced relapse risk after SCT2, HR 0.70 (P=0.02), 0.60 (P=0.001) and 0.66 (P=0.03), respectively. Second donor type did predict for non-relapse mortality (NRM) after SCT2; HR 1.26 (P=0.41) and 2.18 (P=0.02) for different donor and haplo-donor compared to same donor, respectively. Advanced age and MAC in SCT1 also predicted for NRM, HR 1.40 (P<0.001) and 0.61 (P=0.04), respectively. The second donor predicted for LFS after SCT2; HR 1.05 (P=0.77) and 1.55 (P=0.03), respectively. Advanced age and SCT2 in CR2 predicted for LFS; HR 1.11 (P=0.06) and 0.66 (P=0.002), respectively. In all, there were no differences between same or different matched donors in SCT2 outcomes, but haploSCT2 was associated with higher NRM and lower LFS. The inferior outcome after SCT2 with haplo-donor was limited to patients given MAC in SCT1 and not observed in patients given RIC in SCT1.
Conclusions: Second SCT with the same donor or different matched donor is associated with similar outcomes in patients with relapsed AML after a first SCT. However, SCT2 with a haplo-donor is associated with higher NRM and lower LFS, mostly in patients given MAC in SCT1. Second haplo donor does not provide better GVL effect in this setting.

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Starting Cyclosporine on Day Zero and Mycophenolate on Day + 1 in Unmanipulated Peripheral Blood Haplo Transplant with Cyclophosphamide Post-Transplantation Is Feasible, Abrogate the Severity of Cytokine Release Syndrome and Achieves a Very Low Rate of aGVHD

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Introduction: The use of unmanipulated peripheral blood from haploidentical donors (UPB Haplo) with post transplantation cyclophosphamide (PT-Cy) is often associated with a higher incidence and severity of cytokine release syndrome (CRS) and aGVHD when it is compared with bone marrow source (BM haplo). Recently it has been published (1) a modification of PT-Cy protocol moving the day of administration of cyclosporine (CsA) and mycophenolate (MMF) from day +5 to zero and + 1 and using BM haplo with encouraging results. With the aim to reduce the incidence of CRS and aGVHD we did the same but keeping UPB haplo as a cellular source.
Methods and patients: The conditioning used was fludarabine 150 mg/m^2, melphalan 100-120 mg/m^2, and TBI 200-400 cGy or the same but with busulfan 4 mg/kg instead of melphalan, the CsA began on day zero and continuous until d+180, MMF was administered from d+ 1 to d+ 60 and PT-Cy 50 mg/kg on days +3 and +4 (fig 1).