1) At least one 8/8 HR matched donor exists on BTMR
2) No potential 8/8 HR donors exist
3) Potential 8/8 HR donors exist

PP searches falling into category 3 (accrued until N = 200 per race) then had an HLA search strategy expert rank potential donors within BTMR in order of their matching likelihood. Previously stored donor samples were HR HLA tested in order of ranking and evaluated to determine match status. Consecutive rounds of donor sample testing were performed until either an 8/8 matched donor was identified or no potential donors with stored samples remained.

Results: The table below shows the 8/8 HR match rate of cases to be 68% for CAU, 42% for HIS, 45% for API, and 27% for AFA. Careful review of the cases "Pending further testing; no stored sample" suggests that few additional cases would yield 8/8 HR matches.

	CAU PP	HIS PP	API PP	AFA PP
8/8 HR Matched	258 (68%)	128 (42%)	122 (45%)	105 (27%)
Pending Further Testing; No Stored Sample	48 (13%)	65 (21%)	57 (21%)	54 (14%)
No 8/8 HR Match	71 (19%)	114 (37%)	91 (34%)	231 (59%)
TOTAL	377	307	270	390

Conclusions: This study provides a true 8/8 HR match rate estimate for CAU, HIS, API, and AFA patients through BTMR, which has not been accomplished previously. These results demonstrate the racial disparity in HLA match rates and can be used to inform patients searching BTMR. This study also provides vital information for donor recruitment and availability efforts. Results provide a baseline match rate that can be further supplemented using the additional worldwide URD inventory.

52

A 2 STEP APPROACH TO MYELOABLATIVE HAPLOIDENTICAL HEMATOPOIETIC STEM CELL TRANSPLANATION (HSCT): REPORT OF A PHASE II TRIAL WITH 18 MONTHS OF FOLLOW-UP FOR ALL PATIENTS

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Haploidentical HSCT using post transplant cyclophosphamide (CY) for elimination of alloreactive lymphocytes has been reported as a safe option for patients lacking an HLA identical donor. We report an alternate approach with the following salient differences: myeloablative vs non-myeloablative conditioning, peripheral blood rather than marrow stem cell source, no exposure vs exposure of HSC to cyclophosphamide, higher fixed number of CD3 cells versus a lower variable number of CD3 cells in each graft. Results are reported now with a followed up of 18-46 months.

Table 1. Patient Characteristics-2 Step Approach

Age		52 (19-67)
AML		16
	Remission	7
	Resistant/PIF	9
Biphenotypic Leukemia (Active Disease)		1
ALL		4
	CR2 (ph-)	3
	Persistent Disease (PH+)	1
MDS		2
NHL Resistant		3
SAA		1
HLA MM (GVH Direction)		
	4	13
	3	11
	2	2
	0	1

Patients received 12 Gy of total body irradiation (TBI), followed by a donor lymphocyte product (DLI) containing 2 × 10e8 CD3+ cells/kg (Step 1). This large dose of haploidentical lymphocytes resulted in fever (median temperature 103.8°f), diarrhea and rash. CY 60 mg/kg was given on days -3 and -2 resulting in resolution of symptoms. Tacrolimus and MMF were begun on day-1. A CD 34 selected donor product was infused on day 0 (Step 2). Two of the 27 patients died of toxicity and infection before day 14. Of the remaining 25 patients, 23 had complete engraftment while two with pre-existing anti-donor HLA antibodies failed to engraft. Only 2 of 25 (8%) patients developed severe acute GVHD, 3 of 25 (12%) developed limited chronic GVHD, and no patient died of GVHD. Only two of 25 patients (8%) died of infection. Of 16 disease-free patients surviving 6 months from HSCT, median CD4+ count at day 100 was 105 cells/μl (range 10-403). Eight of 25 (32%) patients relapsed after HSCT. Probability of survival (OS) at 1 and 3 years post transplant is 52% and 48% respectively. All surviving patients are disease-free. OS at 3 years is 75% for patients transplanted in CR, but only 27% for patients transplanted with active disease. KIR mismatching was not correlated with relapse rates. In contrast, child to mother transplants for AML appear to be relapsing at higher rates than other combinations (66% vs 14%). In the context of CY tolerization, a dose of 2 × 10e8/kg T-cells resulted in consistent engraftment, prompt immune reconstitution, little severe GVHD, acceptable toxicity, and encouraging overall survival, particularly in patients transplanted in CR. Using this 2-step platform allows us to explore the use of alternate agents for the elimination of alloreactive lymphocytes, increase the length of time between DLI and CY, and to employ two donor strategies to improve outcomes in high risk patients.

53

UNMANIPULATED HAPLOIDENTICAL STEM CELL TRANSPLANTATION USING MYELOABLATIVE OR REDUCED-INTENSITY PRECONDITIONING REGIMEN

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Background: Related haploidentical donors, as cord blood, can be alternative donor sources in stem cell transplantation (SCT). Severe GVHD, however, has interfered the progress of haploidentical SCT (haploSCT). To deal with this strong GVHD, T cell depletion has usually been used in US and European countries. In order to pursue the controllable GVL effect by T cells, we have performed unmanipulated haploSCT using myeloablative or reduced intensity preconditioning regimen accompanied with intensified GVHD prophylaxis. In this meeting, we will summarize our experience of haploSCT for more than ten years.

Patients: From August 1998 to September 2010, we have performed 351 cases of haploSCT (all cases were HLA 2-3 antigen mismatched in GVH direction). Patients' characteristics are sex: male 186, female 168, age: 16-65 years old (median 39), disease: AML/MDS 149, ALL 81, ML 67, others 54. 83% of cases underwent SCT in non-complete remission (non-CR) state. Patients under 45 years old underwent myeloablative preconditioning regimen consisting of FLU/CA/CY/TBI8Gy (haplo-full, n = 100), and patients over 45 years old or with comorbidities or repetitive SCT (including second to fifth SCT) underwent reduced intensity preconditioning regimen consisting of FLU/(CA)/BU/ATG or FLU/(CA)/MEL/ATG (haplo-mini, n = 251). High dose Ara-C (CA) was optional to reduce tumor burden. As ATG, ATG (Fresenius) 8mg/kg, or thymoglubulin (genzyme) 2-4mg/kg were used. GVHD prophylaxis consisted of taclolimus (TAC), methylprednisolone (mPSL) 2mg/kg/day, short term MTX, and mycophenolate mofetil (MMF) 15mg/kg/day in haplo-full, and TAC, mPSL 1mg/kg/day in haplo-mini, respectively. For elderly patients over 50 years old in haplo-mini, MMF was added.

Results: Hematopoietic engraftment in haploSCT was as rapid as that in HLA-identical SCT, except ten cases of graft rejection. Acute GVHD (grade II-IV) was observed in 30%. Overall survival in five years is 30% in haplo-full and 40% in haplo-mini, respectively. If limited to CR cases, overall survival reached over 60% in haplo-mini. There is no difference in survival rate among patients' diseases.

Discussion: Unmanipulated haploSCT is feasible and effective for refractory diseases. ATG dose used in haplo-mini is critical, and rather low compared with that of European cases reported so far.