Supplements

Table S1. Posttransplant immunosuppression in groups of patients receiving transplants from MUDs and MMRDs.

Donors	CNI*	CNI/Mtx	CNI/MMF	Bortezomib**	steroids (alone or in combination)	CNI+/-Mtx +abatacept
MUD, n=75	33	20	8	3	2	9
MMRD, n=23	16	5	0	1	1	0
n	49	25	8	4	3	9

** CNI - calcineurin inhibitor, Mtx - methotrexate 5 mg/m^2 on days +1, +3, and +6, MMF - mycophenolate mofetil 30 mg/kg*

*** bortezomib 1,4 mg/m^2 on days -5, -2, +2, and +5 (3 due to myelodysplastic syndrome (undefined PID, 1; SCN, 1; PAMI syndrome, 1) 1- refractory autoimmune hemolytic anemia before HSCT), abatacept 10 mg/kg on days -1, +7, +14, and +28.*

Table S2. Kinetics of CD3+, CD19+, CD3+TCRαβ+, CD3+TCRγδ+, and CD3+CD45RA+CD197+ lymphocyte recovery (medians with range).

day +30	**day +60**	**day +90**	**day +120**	**day +180**	**day +360**
CD3+, x10*9/l, MMRD					
0.012 (0-0.344)	0.097 (0-0.626)	0.186 (0.005-0.820)	0.354 (0.126-1.325)	0.858 (0.092-2.618)	1.907 (0.138-4.375)
CD3+, x10*9/l, MUD					
0.070 (0-1.755)	0.064 (0-1.502)	0.180 (0-2.568)	0.220 (0-2.920)	0.825 (0.003-3.918)	1.728 (0.130-3.054)
CD3+, p value					
0.08	0.95	0.38	0.38	0.99	0.78
CD19+, x10*9/l, MMRD					
0 (0-0.003)	0 (0-0.072)	0 (0-0.385)	0.018 (0-0.501)	0.271 (0.056-0.822)	0.245 (0.020-0.516)
CD19+, x10*9/l, MUD					
0 (0-0.047)	0 (0-0.423)	0 (0-0.440)	0.044 (0-0.447)	0.117 (0-0.931)	0.321 (0.039-1.128)
CD19+, p value					
0.4	0.66	0.13	0.48	0.6	0.62
CD3+TCRαβ+, x10*9/l, all patients					
0.049 (0-1.685)	0.064 (0-1.427)	0.094 (0-1.258)	0.262 (0.014-1.810)	0.600 (0.003-3.644)	1.643 (0.124-4.287)
CD3+TCRγδ+, x10*9/l, all patients					
0.018 (0-0.560)	0.024 (0-0.916)	0.034 (0-1.258)	0.038 (0.004-1.110)	0.105 (0-1.374)	0.156 (0.001-1.092)
CB3+CD45RA+CD197+, mcl, all patients					
	1 (0-20)	2 (0-53)	13 (0-102)	64 (0-939)	615 (1-2397)

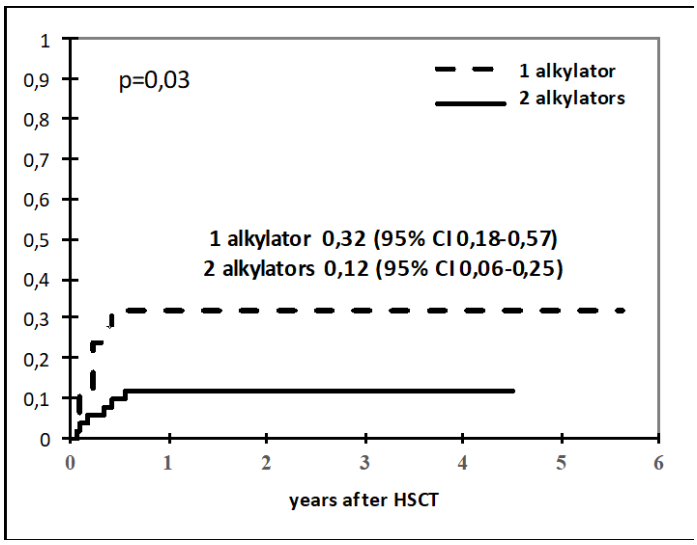
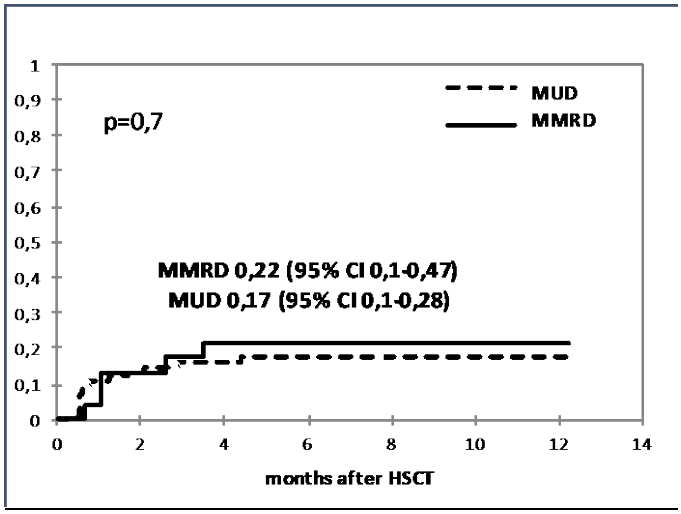


Figure S1. The cumulative incidence of graft failure after HSCT from MUDs and MMRDs with conditioning regimens containing 1 (n=25) or 2 (n=56) alkylating agents.

(A)



(B)

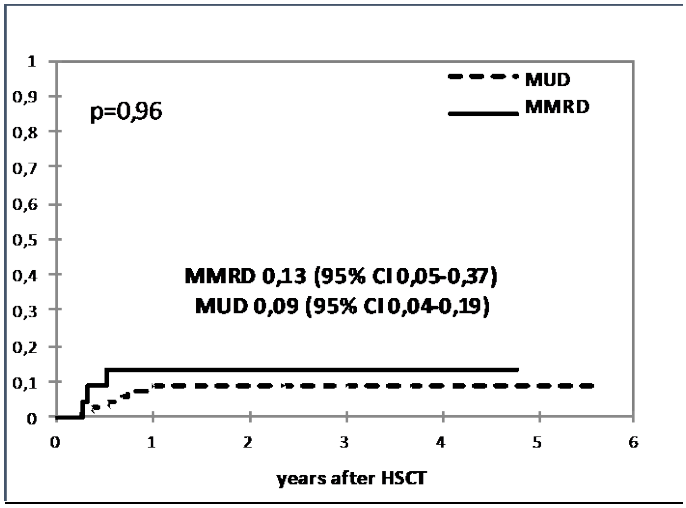


Figure S2. The cumulative incidence of acute (A) and chronic (B) GVHD after HSCT from MUDs (n=75) and MMRDs (n=23)

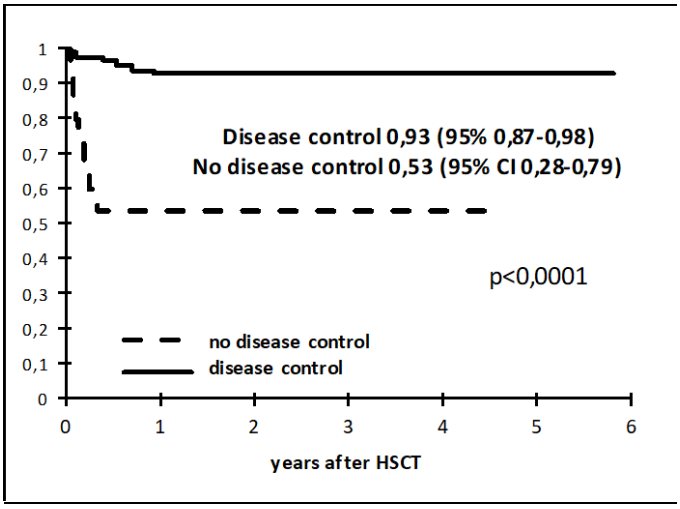


Figure S3. Overall survival in patients with control (n=83) and no control (n=15) of autoimmune and infectious complications at the time of HSCT

Supplements 2. Statistical analysis.

Statistical analysis was performed in May 2018 with XLSTAT 2015 software (Addinsoft, France). The patients were censored at the time of death or at the last FU in survivors (the minimum FU period in survivors was 0,5 years). The baseline patient characteristics, graft compositions, neutrophil and platelet engraftment times and median lymphocyte subsets in the MUD and MMRD groups were compared with the Mann–Whitney U test and Fisher's exact test. The probability of overall and event free survival (OS and EFS) was estimated by the Kaplan-Meier method. For EFS analysis as events were considered graft failure, deaths, time of development of predominantly donor whole blood chimerism in patients with impaired synthesis of immunoglobulins at last FU more than 2 years after HSCT and end organ damage due to HSCT complications. The probabilities of acute and chronic GVHD, graft failure, viral reactivations and transplant-related mortality were estimated with cumulative incidence curves (considering competitive risks, e.g., graft failure or death). Events limiting the analysis were as follows: for viral reactivations and acute GVHD, 1 year after HSCT; for overall survival, event free survival, transplant-related mortality, graft failure incidence and chronic GVHD, last follow-up time. For transplant-related mortality, only deaths were estimated after the first HSCT. The p value in the comparative analysis was calculated with log-rank and Gray's tests.

The probabilities calculated by the Kaplan-Meier and cumulative incidence methods were indicated with a 95% confidence interval (CI).

To display the kinetics of immune recovery, median-range graphs and boxplot graphs (with the median and 1st and 3rd quartiles) were used.