

Appendix Table 1: Multivariate model of grade III-IV acute GVHD stratified by **disease type** (AML early vs. AML intermediate vs. AML advanced vs. CML early vs. CML intermediate vs. CML advanced vs. MDS early vs. MDS advanced), **donor type** (HLA-id sib vs. well-matched unrelated vs. partially matched unrelated), and **performance score** (< 90 vs. ≥ 90).

Factor	Level	n	HR (95% CI)	p-value
Conditioning regimen (main effect)	TBI	445	1	
	Bu	991	0.812 (0.627 – 1.052)	0.1144
ATG/Campath	No	1107	1	
	Yes	329	0.682 (0.491 – 0.948)	0.0226
Sex match	Male – Male	447	1	0.0182*
	Male - Female	430	0.677 (0.490 – 0.938)	0.0188
	Female – Male	271	1.185 (0.849 – 1.655)	0.3187
	Female - Female	288	0.976 (0.699 – 1.364)	0.8879

* overall p-value

Abbreviations: ATG, antithymocyte globulin; Bu, busulfan; TBI, total body irradiation.

Appendix Table 2: Multivariate Model of Chronic GVHD stratified by **disease type** (AML early vs. AML intermediate vs. AML advanced vs. CML early vs. CML intermediate vs. CML advanced vs. MDS early vs. MDS advanced), **donor type** (HLA-id sib vs. well-matched unrelated vs. partially matched unrelated), and **performance score** (< 90 vs. ≥ 90).

Factor	Level	n	HR (95% CI)	p-value
Conditioning regimen (main effect)	TBI	445	1	
	BU	991	1.073 (0.896 – 1.286)	0.4411
Patient age	≤ 19	198	1	0.0001*
	20 – 49	702	1.722 (1.216 – 2.438)	0.0022
	≥ 50	534	2.099 (1.470 – 2.997)	<.0001
Graft type	BM	334	1	
	PB	1102	1.760 (1.368 – 2.264)	<.0001
GVHD prophylaxis	CNI + MTX	904	1	0.0334*
	CNI + MTX + other	240	1.328 (1.062 – 1.660)	0.0129
	CNI + MMF +/- other	191	1.284 (1.014 – 1.626)	0.0378
	CNI +/- other (no MTX, MMF)	101	1.133 (0.801 – 1.603)	0.4794
ATG/Campath	No	1107	1	
	Yes	329	0.639 (0.508 – 0.802)	0.0001
Sexmatch	Male – Male	447	1	0.0313*
	Male - Female	430	1.017 (0.825 – 1.254)	0.8751
	Female – Male	271	1.359 (1.086 – 1.702)	0.0074
	Female - Female	288	1.164 (0.927 – 1.462)	0.1914

* overall p-value

Abbreviations: ALL, acute lymphoblastic leukemia; AML, acute myeloid leukemia; adv, advanced disease; ATG, antithymocyte globulin; BM, bone marrow; BU, busulfan; CML, chronic myelogenous leukemia; CNI, calcineurin inhibitor; CSA, cyclosporine A; int, intermediate; MDS, myelodysplasia; MMF, mycophenolate mofetil; MTX, methotrexate; PB, peripheral blood; TBI, total body irradiation.

Appendix Table 3: Comparison of recipients of Fludarabine and Busulfan (FLUBU) to Cyclophosphamide and Busulfan (BUCY) as part of myeloablative conditioning prior to hematopoietic cell transplantation for myeloid malignancies.

Characteristics of patients	FLUBU	BUCY
Number of patients	424	601
Number of centers	36	68
Male	211 (50)	299 (50)
Karnofsky score 90-100%	253 (61)	345 (70)
HCI-CI		
0	128 (30)	272 (45)
1-2	140 (33)	162 (27)
≥ 3	156 (37)	167 (28)
Disease		
AML	296 (70)	404 (67)
CML	39 (9)	69 (11)
MDS	89 (21)	128 (21)
Disease status		
AML early	179 (42)	236 (39)
AML intermediate	62 (15)	81 (13)
AML advanced	56 (13)	87 (14)
CML early	23 (5)	36 (6)
CML intermediate	7 (2)	14 (2)
CML advanced	9 (2)	19 (3)
MDS early	25 (6)	37 (6)
MDS advanced	61 (14)	90 (15)
MDS NOS	2 (<1)	1 (<1)
Prior Auto transplant	15 (4)	6 (<1)
Graft type		
Peripheral blood	381 (90)	406 (68)
Donor type		
HLA-identical sib	142 (33)	275 (46)
Well-matched unrelated	223 (53)	256 (43)
Partially matched unrelated	54 (13)	61 (10)
Mismatched	1 (<1)	1 (<1)
HLA match information missing unrelated	4 (<1)	8 (1)
GVHD prophylaxis		
CSA/FK + MTX	235 (55)	439 (73)
CSA/FK + MTX + ATG/Campath	36 (8)	42 (7)
CSA/FK (No MTX)	18 (4)	47 (8)
CSA/FK (No MTX) + ATG/Campath	1 (<1)	5 (<1)
CSA/FK + MMF	112 (26)	40 (7)
CSA/FK + MMF + ATG/Campath	10 (2)	2 (<1)

Characteristics of patients	FLUBU	BUCY
CSA/FK + MTX + MMF	10 (2)	22 (4)
CSA/FK + MTX + MMF + ATG/Campath	2 (<1)	4 (<1)
ATG/Campath	156 (37)	130 (22)
Number of inpatient days in first 100 days post HCT, median (range), days	25 (4 - 106)	27 (<1 - 100)
Busulfan schedule		
Every 6 hours	91 (21)	495 (82)
Daily	331 (78)	96 (16)
Other schedule	2 (<1)	10 (<1)
Busulfan dose adjusted based on PK with a plan		
No	55 (24)	67 (20)
Yes	175 (76)	268 (80)
Median follow-up of survivors, range, months	23 (3 - 36)	16 (5 - 36)

Abbreviations: ALL, acute lymphoblastic leukemia; AML, acute myeloid leukemia; ATG, antithymocyte globulin; CML, chronic myelogenous leukemia; CMV, cytomegalovirus; CNI, calcineurin inhibitor; CSA, cyclosporine A; Cy, cyclophosphamide; Flu, fludarabine; HCT CI, hematopoietic cell transplant comorbidity index; MDS, myelodysplasia; MMF, mycophenolate mofetil; MTX, methotrexate; PK, pharmacokinetics; Tacro, tacrolimus; TBI, total body irradiation.