

Granulocyte transfusions in severe aplastic anemia

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Supplemental Data

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Supplemental Table 1: Infection characteristics of 28 severe aplastic anemia patients receiving 30 granulocyte courses**nocardia/aspergillus*(n=1), *sphingomonas/rhizomucor*(n=1), *stenotrophomonas/aspergillus* (n=1)

	Number of Patients	Blood	Lung	CNS	Sinus	Skin/soft tissue	Multiple
Bacterial	14						
<i>Klebsiella</i>	3	2					1
<i>Escherichia coli</i>	1						1
<i>Serratia</i>	1						1
<i>Pseudomonas</i>	1	1					1
<i>Stenotrophomonas</i>	2						2
<i>Aeromonas</i>	1						
<i>Staphylococcus</i>	1						1
<i>Streptococcus</i>	1						1
<i>Enterococcus</i>	3	1					2
Fungal	13						
<i>Culture negative</i>	4		4				
<i>Aspergillus</i>	1		1				1
<i>Exserohilum</i>	2				1	1	
<i>Fusarium</i>	3						3
<i>Rhizomucor</i>	1		1				
<i>Rhodoturula</i>	1						
<i>Trichosporon</i>	1		1				
Mixed*	3		1				1

Supplemental Table 2. Additional cox proportional hazards models for time to death from first granulocyte transfusion (GT) (N = 25)* Kg: kilogram; HLA: human leukocyte antigen. * Five courses omitted from analysis due to excessive missingness of recorded ANCs.

	Coefficient	Standard Error	Hazard Ratio	95% Confidence Interval	P-value
Granulocyte dose (cells/kg)					
<i>Median</i>	0.136	0.206	1.15	(0.77, 1.72)	0.51
<i>Max</i>	0.120	0.149	1.13	(0.84, 1.51)	0.42
<i>Cumulative</i>	0.008	0.010	1.01	(0.99, 1.03)	0.39
HLA alloimmunization status pre-GT and post-GT					
<i>Negative-Negative</i>	--	--	1	--	
<i>Positive-Negative</i>	0.299	0.711	1.35	(0.33, 5.44)	0.67

Supplemental Table 3. Cases affected by human leukocyte antigen (HLA) alloimmunization. GT: granulocyte transfusion; AB: antibody; PRA: panel-reactive antibody.

Subject	Age	Sex	HLA-AB testing date	Pre-GT course					Post GT course				Development of donor-specific antibodies
				HLA AB Class 1	HLA AB Class 1 PRA (%)	HLA AB Class 2	HLA AB Class 2 PRA (%)	HLA-AB testing date	HLA AB Class 1	HLA AB Class 1 PRA (%)	HLA AB Class 2	HLA AB Class 2 PRA (%)	
UPN-1	23	M	10/26/2010	N	0	N	0	11/13/2010	P	9	N	0	N
UPN-3	16	F	1/14/2011	N	0	N	0	2/7/2011	P	18	P	49	Y
UPN-4	56	F	4/11/2011	P	20	N	0	11/16/2011	N	0	P	17	N
UPN-5	31	F	4/12/2011	P	7	P	77	5/2/2011	P	96	P	97	N
UPN-10	9	M	4/30/2012	N	0	N	0	7/26/2012	P	29	P	weak positive, no PRA reported	Y
UPN-11	48	F	5/2/2012	N	0	P	17	6/21/2012	P	4	N	0	N
UPN-16	6	F	3/23/2016	P	5	N	0	5/18/2016	P	16	P	29	Y
UPN-18	7	F	8/21/2017	P	94	P	64	9/21/2017	P	47	P	94	Y
UPN-21	30	M	11/5/2018	N	0	N	0	12/17/2018	P	weak positive, no PRA reported	P	weak positive, no PRA reported	N

Supplemental Table 4. Donor-specific antibody (DSA) raw data of impacted cases. MFI: Mean fluorescent intensity.

Subject	Age	Sex	Granulocyte Course Dates	Total Granulocyte Courses	MFI for DSA to	Sample Date						
UPN-3	16	F	01/14/2011-02/3/2011	9		2/7/2011	3/2/2011	9/12/2011				
					DQB1*03:02	11419	8299	2843				
					DQB1*02:02	9560	4624	111				
					DRB1*07:01	7210	2933	193				
						6/26/2012	7/7/2012	7/11/2012	7/19/2012	7/26/2012	8/2/2012	8/9/2012
UPN-10	9	M	04/30/2012-07/23/2012	39	A24	211	1061	921	372	1185	297	541
UPN-16	6	F	04/19/2016-05/17/2016	6		5/11/2016	5/18/2016	5/25/2016	6/1/2016			
					DQB1*03:01	6128	13898	14243	10929			
UPN-18	7	F	08/22/2017-08/29/2017	3		8/10/2017	8/21/2017	9/21/2017				
					A*11:01	13804	12786	11015				
					B*15:12	3142	1601	896				
					C*03:03	1612	714	251				
					DRB1*12:02	22576	25189	21139				
					DRB3*03:01	20970	20970	11282				
					DQB1*03:01	23326	26472	20803				

Supplemental Table 5: SAA patients who received GTs and underwent HSCT. SAA: Severe aplastic anemia; GTs: Granulocyte transfusions; HSCT: Hematopoietic stem cell transplant; PBSC: Peripheral blood stem cell; Haplo-Cord: Haploidentical and umbilical cord; MRD: Matched related donor; MUD: Matched unrelated donor; NE: Never engrafted; N/A: not applicable. *One prior haplo-cord with graft failure. **One prior umbilical cord HSCT with graft failure. ***One prior MUD with graft failure.

Subject	Age	Sex	Type of HSCT	Source	GT course started pre- or post-HSCT	Number of GT products received	Engraftment (Y/N)	Time from Day 0 HSCT to engraftment (days)	Primary or Secondary Graft Failure (Y/N)	Alive at last recorded follow up (Y/N)	Time from Day 0 HSCT to death (days)	Cause of Death (if applicable)
UPN-1	23	M	Unknown	Unknown	Pre	8	Unknown	Unknown	Unknown	N	Unknown	Unknown
UPN-2	10	F	Haplo-Cord	PBSC-Cord	Post	1	Y	9	N	Y	N/A	N/A
UPN-3	16	F	Haplo-Cord	PBSC-Cord	Pre	9	Y	10	N	Y	N/A	N/A
UPN-4	56	F	Unknown	Unknown	Pre	8	Unknown	Unknown	Unknown	N	Unknown	Unknown
UPN-5	31	F	MRD	PBSC	Pre	6	Y	13	N	Y	N/A	N/A
UPN-6	17	F	Haplo-Cord	PBSC-Cord	Pre	5	Y	9	N	Y	N/A	N/A
UPN-7	29	F	MRD	PBSC	Pre	12	N	NE	N	N	6	Infection
UPN-8	65	F	MRD	PBSC	Pre	20	Y	44	N	N	584	Respiratory Failure
UPN-9	34	M	MRD	PBSC	Post	4	Y	14	N	N	46	Infection
UPN-10*	9	M	MUD	PBSC	Pre	39	Y	22	N	N	59	Infection
UPN-11	48	F	MRD	PBSC	Pre	8	Y	10	N	N	345	Respiratory Failure
UPN-12	17	M	MRD	PBSC	Pre	12	Y	24	N	Y	N/A	N/A
UPN-13	16	M	Haplo-Cord	PBSC-Cord	Pre	9	Y	10	N	Y	N/A	N/A
UPN-14	16	M	Haplo-Cord	PBSC-Cord	Pre	25	N	NE	N	N	21	Infection
UPN-15	6	F	Haplo-Cord	PBSC-Cord	Post	8	Y	6	N	Y	N/A	N/A
UPN-16	6	F	MUD	PBSC	Pre	6	Y	18	N	Y	N/A	N/A
UPN-17	40	F	Haplo-Cord	PBSC-Cord	Post	1	N	NE	N	N	21	Infection
UPN-18**	7	F	Haplo-Cord	PBSC-Cord	Pre	3	Y	15	N	N	38	Infection
UPN-19***	7	M	MUD	PBSC	Post	15	N	NE	Y	N	170	Infection
UPN-20	15	F	Haplo-Cord	PBSC-Cord	Pre	9	N	NE	Y	N	36	N/A
UPN-21	30	M	MUD	PBSC	Pre	9	Y	7	N	Y	N/A	N/A
UPN-22	27	M	Expanded cord	Cord	Pre	6	N	NE	Y	N	62	Infection
UPN-23	15	M	Haplo-Cord	PBSC-Cord	Pre	22	Y	20	N	Y	N/A	N/A

Supplemental Figure 1: Overall survival based on HLA alloimmunization status pre- and post-granulocyte (GT) course. HLA: human leukocyte antigen; NN: negative pre-GT and post-GT; NP: negative pre-GT, positive post-GT; PN: positive pre-GT, negative post-GT, PP: positive pre-GT, positive post-GT.

