

PD-1 blockade and allogeneic hematopoietic stem cell transplantation in Hodgkin lymphoma, a matter of time: a national study on behalf of the Société Francophone de Greffe de Moelle et de Thérapie Cellulaire

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	Overall N=149	PD1 blockade N=50	No PD1 N=99	p.value
Acute GVHD	86 (57.7)	29 (58.0)	57 (57.6)	1.00
Acute GVHD ≥II (%)	59 (39.6)	18 (36.0)	41 (41.4)	0.65
Severe grade GVHD (III-IV) (%)	22 (14.8)	6 (12.0)	16 (16.2)	0.67
Stage skin aGVHD (%):				0.37
1	26 (17.4)	9 (18.0)	17 (17.2)	
2	26 (17.4)	8 (16.0)	18 (18.2)	
3	22 (14.8)	8 (16.0)	14 (14.1)	
4	2 (1.3)	2 (4.0)	0 (0.0)	
Stage gut aGVHD (%):				0.62
1	7 (4.7)	2 (4.0)	5 (5.1)	
2	6 (4.0)	3 (6.0)	3 (3.0)	
3	2 (1.3)	1 (2.0)	1 (1.0)	
4	12 (8.1)	2 (4.0)	10 (10.1)	
Stage aGVHD liver (%):				0.30
1	6 (4.0)	4 (8.0)	2 (2.0)	
2	1 (0.7)	0 (0.0)	1 (1.0)	
3	4 (2.7)	1 (2.0)	3 (3.0)	
4	0 (0.0)	0 (0.0)	0 (0.0)	
Best response first line (%):				0.61
CR	101 (67.8)	35 (70.0)	66 (66.7)	
PR	9 (6.0)	2 (4.0)	7 (7.1)	
Stable	1 (0.7)	1 (2.0)	0 (0.0)	
Progression	14 (9.4)	4 (8.0)	10 (10.1)	
NA	24 (16.1)	8 (16.0)	16 (16.2)	
Chronic GVHD and NIH score (%):	47 (31.5)	13 (26.0)	34 (34.3)	0.24
Mild	12 (25.5)	3 (23.1)	9 (26.5)	0.70
Moderate	17 (36.2)	4 (30.8)	13 (38.2)	
Severe	11 (23.4)	4 (30.8)	7 (20.1)	
NA	7 (14.8)	2 (15.4)	5 (14.7)	

Supplementary Table 1: Characteristics of acute and chronic graft versus host disease, in whole cohort and comparison between PD1 blockade and no PD1 groups

NA: Not Available, GVHD: Graft Versus Host Disease, CR: Complete Response, PR: Partial Response, PD1: Programmed cell Death protein 1

Characteristics	OR¹	95% CI¹	p-value
Number cycles CPI	1.04	0.91, 1.20	0.6
Time from last PD1 blockade infusion (30 days periods)	0.39	0.15, 0.75	0.022*
RIC Conditioning	24,5	0.00, NA	>0.9
Stem Cell Source PSC	2.34	0.35, 17.3	0.4
Age at allo-SCT >50Y	2.12	0.27, 18.5	0.5
PTCy	0.68	0.15, 2.96	0.6
¹ OR = Odds Ratio, CI = Confidence Interval, PTCy: Post-Transplant Cyclophosphamide, PD1: Programmed cell Death protein 1, RIC: Reduced Intensity Conditioning, PSC: Peripheral Stem Cell, allo-SCT: allogeneic stem cell transplantation			

Supplementary Table 2: Multivariate analysis of risk factors of acute Graft Versus Host Disease

	<30 days N=12	[30-60] N=16	>60 days N=21	No PD1 N=99	p.value
Male sex (%)	10 (83.3)	12 (75.0)	12 (57.1)	62 (62.6)	0.81
Age at diagnosis, mean (SD)	27.6 (9.4)	28.4 (11.9)	30.1 (12.9)	31.5 (11.6)	0.52
Disease status at allo-HSCT:					0.051
CR	5 (41.7)	5 (1.2)	16 (76.2)	66 (66.7)	
PR	5 (1.7)	10 (62.5)	3 (14.3)	24 (24.2)	
Stable	2 (16.7)	0 (0.0)	2 (9.5)	4 (4.0)	
Progression	0 (0.0)	0 (0.0)	0 (0.0)	2 (2.0)	
NA	0 (0.0)	1 (6.2)	0 (0.0)	3 (3.0)	
Number of lines before Allo-HSCT (SD)	3.5 (2.6)	3.80 (2.6)	4.10 (1.5)	3.04 (1.9)	0.15
Previous (%):					0.04*
Allo-HSCT	2 (16.7)	2 (12.5)	0 (0.0)	3 (3.0)	
Auto-HSCT	8 (66.7)	9 (56.2)	14 (66.7)	81 (81.8)	
NA	2 (16.7)	5 (31.2)	7 (33.3)	15 (15.2)	
Mean Age at HSCT (SD)	32.3 (10.3)	34.3 (14.3)	34.0 (13.1)	35.9 (12.0)	0.74
TBI (%)	4 (33.3)	6 (37.5)	13 (61.9)	38 (38.4)	0.56
RIC conditioning (%)	10 (83.3)	16 (100.0)	19 (90.5)	88 (88.9)	0.81
PTCy (%)	4 (33.3)	9 (56.2)	9 (42.9)	37 (37.4)	0.43
ATG (%)	8 (66.7)	5 (31.2)	4 (19.0)	37 (37.4)	0.12
HLA matching (%):					0.97
Siblings	4 (33.3)	4 (25.0)	5 (23.8)	29 (29.3)	
MUD	4 (33.3)	0 (0.0)	3 (14.3)	25 (25.3)	
Haploidentical	4 (33.3)	8 (50.0)	12 (57.1)	41 (41.4)	
MMUD	0 (0.0)	0 (0.0)	1 (4.8)	3 (3.0)	
NA	0 (0.0)	0 (0.0)	0 (0.0)	1 (1.0)	
Stem cell source (%):					0.79
BM	4 (33.3)	4 (25.0)	2 (9.5)	24 (24.2)	
CSP	8 (66.7)	12 (75.0)	18 (85.7)	73 (73.7)	
USP	0 (0.0)	0 (0.0)	1 (4.8)	1 (1.0)	
NA	0 (0.0)	0 (0.0)	0 (0.0)	1 (1.0)	

Supplementary Table 3: Characteristics at initial Hodgkin diagnosis and HSCT, depending on delay of last PD1 blockade injection and comparison with no PD1 group.

NA: Not Available, Auto/Allo-HSCT: Autologous/Allogenic Hematological Stem Cell Transplantation, CR: Complete Response, PR: Partial Response, RIC: Reduced Intensity Conditioning, TBI: Total Body Irradiation, HLA: Human Leucocyte Antigen, MUD: Matched Unrelated Donor, MMUD: Mismatched Unrelated Donor, BM: Bone marrow, PBSC: Peripheral Blood Stem Cell, CB: Cord Blood, ATG: Anti Thymoglobulin, PTCy: Post-Transplant Cyclophosphamide, GVHD: Graft Versus Host Disease, CR: Complete Response, PR: Partial Response, PD1: Programmed cell Death protein 1