Rapport d'analyses statistiques

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1 Objectives

The primary objective of the study was to assess the survival, the risk of relapse and GVHD of patients who underwent allogenic sterm-cell transplantation (alloSCT) for aggressive T-cell lymphomas. The second objective was to determine the variables associated with these outcomes.

2 Methods

A retrospective analysis was conducted. A descriptive analysis of the variables recorded was perfomed.Different endpoints were defined : death, Event Free Survival (EFC), GRFS. GRFS was defined as death,progression/relapse, grade 3-4 acute GVHD or extensive chronic GVHD.

Survival curves were estimated using Kaplan-Meier product-limit estimator. Competing risk survival analysis methods were applied to estimate the cumulative incidence (CIF) of developing events over time from alloSCT. These methods allow for the fact that a patient may experience an event which is different from that of interest. These events are known as competing risk events, and may preclude the onset of the event of interest, or may modify the probability of the onset of that event.In particular, a transplanted patient may die before a relapse occurs.

Factors associated with overall sur-vival were analyzed using Cox proportional hazards models. The proportional hazards assumption was checked by examination of Schoenfeld residuals. Occurence of a grade 3-4 acute GVHD or chronic GVHD was treated as a time dependent covariable. For the different endpoints, univariable analyses were first carried out, then a multivariable analysis was used where all factors with P-value < 0.05 in the univariable analyses were considered. If needed, factors where then sequentially removed from the adjusted model based on the AIC criteria.

Propensity score was constructed, excluded patients that cannot receive MAC : patients aged more that 50 years, with a karnofsky score under 70, with a previous autoSCT or with a source of graft different from BM.

3 Results

3.1 Descriptive results

285 patients were initially selected.We excluded 1 patient that underwent two alloSCT. The final analysis was perfomed on 284 patients and 284 grafts.

3.1.1 Patients characteristics

Parameters	Values	N	Statistics*
		284	
Patient sex	Female	93	32.75 %
	Male	191	67.25 %
Age at diagnosis		284	46.5 [36;55] (15;68)
Stage at diagnosis	I	13	6.47 %
	II	17	8.46 %
	III	45	22.39 %
	IV	126	62.69 %
	NA	83	
Subtypes	AITL	82	28.87 %
	ALCL ALK-	20	7.04 %
	ALCL ALK?	2	0.7 %
	ALCL ALK+	21	7.39 %
	ATLL	16	5.63 %
	EATL	3	1.06 %
	HS	12	4.23 %
	LGL	1	0.35 %
	NK leukemia	1	0.35 %
	NK/T nasal	16	5.63 %
	NOS	110	38.73 %
Subtypes	NOS	110	38.73 %
	AITL	82	28.87 %
	ALCL	43	15.14 %
	ATLL	16	5.63 %
	NK/T nasal	16	5.63 %
	Others	17	5.99 %
Centres	angers	8	2.82 %
	Becquerel[941]	4	1.41 %
	C.H.R.U Brest[659]	2	0.7 %
	caen	4	1.41 %
	CHU clermond ferrand	7	2.46 %
	Geneve	6	2.11 %
	Gustave Roussy[666]	3	1.06 %
	H A Michallon[270]	5	1.76 %

H Bretonneau[272]	3	1.06 %
H Charles Nicolle[932]	1	0.35 %
H Claude Huriez[277]	8	2.82 %
H de l'ARCHET I[523]nice	3	1.06 %
H E Herriot[671]	5	1.76 %
H Haut-Leveque[267]	31	10.92 %
H Hautepierre[672]	11	3.87 %
H Jean Minjoz[233]	5	1.76 %
H La Miletrie[264]	5	1.76 %
H Mondor Hematol[252]	4	1.41 %
H Necker[160]	9	3.17 %
H Percy[665]	4	1.41 %
H Purpan[624]	8	2.82 %
H Sud/Pontchaillou[661]	7	2.46 %
H Sud[955]	1	0.35 %
Hotel Dieu[253]	32	11.27 %
liege	8	2.82 %
limoges	3	1.06 %
montpellier	10	3.52 %
nancy	1	0.35 %
Paoli Calmettes[230]	39	13.73 %
Pellegrin-Enfants[978]	1	0.35 %
Pitie-Salpetrriere[262]	8	2.82 %
St Antoine[775]	10	3.52 %
St Etienne[250]	4	1.41 %
St Louis[207]	24	8.45 %
	0	0 %

Table 1: Patients characteristics

3.1.2 Treatments before alloSCT

Parameters	Values	N	Statistics*
		284	
Previous auto	No	191	67.25 %
	Yes	93	32.75 %
Programme auto allo	No	257	90.49 %
	Yes	27	9.51 %
First graft relapse	No	219	77.11 %
	Yes	65	22.89 %

Table 2: Treatments before alloSCT

3.1.3 Transplant conditions

Parameters	Parameters	N	n(%) med[Q1;Q3](min,m
		284	
Age at graft		284	49.5 [38;57] (16;69)
Donor age		263	28 [18;39] (1;54)
Donor sex	Female	114	40.71 %
	Male	166	59.29 %
	NA	4	
Delay diagnosis and allo SCT		284	378.5 [213.2;710.8] (89;9
>12 months delay	NO	149	52.46 %
	Yes	135	47.54 %
Disease status at transplant	CR	175	61.84 %
	PR	76	26.86 %
	PD	32	11.31 %
	NA	1	
Disease status at transplant	CR (?)	7	2.47 %
	CR1	94	33.22 %
	CR2	61	21.55 %
	CR3	13	4.59 %
	PD	32	11.31 %
	PR (?)	13	4.59 %
	PR1	39	13.78 %
	PR2	18	6.36 %
	PR3	5	1.77 %
	PR4	1	0.35 %
	NA	1	
Karnofsky score		263	90 [80;100]
Karnofsky score	100	92	34.98 %
	40	1	0.38 %
	50	4	1.52 %
	60	1	0.38 %
	70	9	3.42 %
	80	70	26.62 %
	90	86	32.7 %
	NA	21	
Karnofsky score	100	92	34.98 %
	Unable to carry on normal activity	15	5.7 %
	90-80	156	59.32 %
	NA	21	
No of lines before alloSCT		254	2 [1;3] (1;9)
No of lines before alloSCT	1	73	28.74 %
	2	92	36.22 %

	3	65	25.59 %
	>=4	24	9.45 %
	NA	30	
No of lines before alloSCT	>2	89	35.04 %
	1 or 2	165	64.96 %
	NA	30	
HLA match	HLA mismatched	53	18.66 %
	HLA matched	231	81.34 %
HLA match	Alternative donnors	53	18.66 %
	Identical sibling	128	45.07 %
	Matched unrelated	103	36.27 %
HLA match	Identical sibling	128	45.07 %
	Matched unrelated	103	36.27 %
	Mismatched relative	7	2.46 %
	Mismatched unrelated	13	4.58 %
	Unrelated CB	33	11.62 %
Sex of donnor/patient	Others	205	73.48 %
	F/M	74	26.52 %
	NA	5	
CMV serostatus of donnor/patient	neg/neg	91	32.5 %
	Others	189	67.5 %
	NA	4	
Source of stem cells	BM	49	17.25 %
	CB	33	11.62 %
	PB	202	71.13 %
TBI	No	161	56.69 %
	Yes	123	43.31 %
conditioning Intensity	MAC	106	38.13 %
	NMA	27	9.71 %
	RIC	145	52.16 %
	NA	6	
Conditioning	BEAM	1	0.36 %
	BEAM + Campath	1	0.36 %
	BU CY	4	1.42 %
	BU CY + FLU+ ATG	1	0.36 %
	BU CY ATG	1	0.36 %
	EDX ATG	0	0 %
	ENX TBI 2gray	1	0.36 %
	FLU ATG	3	1.07 %
	FLU BU 1+ ATG	3	1.07 %
	FLU BU 2	1	0.36 %
	FLU BU 2+ ATG	73	25.98 %
	FLU BU 3+ ATG	21	7.47 %

	FLU BU 4+ ATG	10	3.56 %
	FLU BU EDX	8	2.85 %
	FLU BU EDX +ATG	6	2.14 %
	FLU EDX	1	0.36 %
	FLU EDX ATG	3	1.07 %
	FLU EDX MEL	1	0.36 %
	FLU ENX TBI 2gray	24	8.54 %
	FLU ENX TBI 4gray	2	0.71 %
	FLU ENX TBI 6gray	1	0.36 %
	FLU ENX TBI 6gray + campath	1	0.36 %
	FLU MEL	12	4.27 %
	FLU MEL + campath	4	1.42 %
	FLU MEL + Campath	1	0.36 %
	FLU MEL ATG	1	0.36 %
	FLU MEL TBI 2gray	1	0.36 %
	FLU TBI 2gray	21	7.47 %
	FLU TBI 2gray ATG	1	0.36 %
	FLU Tbi 8 gray	1	0.36 %
	MEL 140 TBI 10 gray	1	0.36 %
	MEL TBI VP16	1	0.36 %
	TB2F	2	0.71 %
	TBI 12 gray	1	0.36 %
	TBI 2gray	1	0.36 %
	TBI EDX	49	17.44 %
	TBI EDX +ATG	11	3.91 %
	TBI EDX FLU	5	1.78 %
	Thiotepa etoposide TBI12 gray	1	0.36 %
	NA	3	
Cells manipulation	No	275	97.86 %
	Yes	6	2.14 %
	NA	3	
Depletion	No	275	98.57 %
	Partial T depletion	4	1.43 %
	NA	5	
No of donnors	1	261	91.9 %
	2	23	8.1 %

Table 3: Transplant conditions

3.1.4 Post-AlloSCT Response

Parameters	Values	N	Statistics*
		284	
Agvhd	No	141	49.65 %
	Yes	143	50.35 %
Agvhd grade	No aGvHD present (Grade 0)	141	49.65 %
	Grade I	49	17.25 %
	Grade II	46	16.2 %
	Grade III	24	8.45 %
	Grade IV	17	5.99 %
	Present, grade unknown	7	2.46 %
Cgvhd	Early death	41	14.44 %
	no	146	51.41 %
	yes	97	34.15 %
Cgvhd grade	Early death (100D)	41	14.44 %
	Extensive	38	13.38 %
	Limited	55	19.37 %
	No cGvh	146	51.41 %
	grade unknown	4	1.41 %
Engrafted	Early death (30D)	5	1.76 %
	Engrafted	271	95.42 %
	Lost graft	2	0.7 %
	No engraftment	6	2.11 %
Cause of death	HSCT-GVHd	21	19.63 %
	HSCT-GVHd + infection	3	2.8 %
	HSCT-infection	27	25.23 %
	HSCT-toxicity	4	3.74 %
	HSCT related	3	2.8 %
	HSCT related ILD	1	0.93 %
	HSCT related MAT	1	0.93 %
	HSCT related MOF	2	1.87 %
	HSCT related MVO	1	0.93 %
	HSCT related pneumopathie interstititelle	2	1.87 %
	HSCT related PTLD	1	0.93 %
	HSCT related SDRA	1	0.93 %
	Other	1	0.93 %
	Relapse or progression of original disease	37	34.58 %
	Secondary malignancy	1	0.93 %
	Unknown	1	0.93 %
	NA	177	
Best reponse after SCT	CR	245	86.88 %
	Not evaluable	4	1.42 %

	Not evaluated	3	1.06 %
	PD	14	4.96 %
	PR	16	5.67 %
	NA	2	
Relapse/progression	Continuous progression	28	9.93 %
	No	217	76.95 %
	Non applicable	3	1.06 %
	Yes	34	12.06 %
	NA	2	

Table 4: Post-AlloSCT Response

Parameters	Parameters	N	n(%) med[Q1;Q3](min,max)	N	n(%) med[Q1;Q3](min,max)	p
		N	Statistics*	N	Statistics*	p-value
		106	MAC	172	RIC/NMA	
Age greffe		106	40 [34;51] (16;64)	172	54 [43;59.25] (19;69)	<0.0001
Nbr de lignes		98	2 [1;3] (1;5)	151	2 [2;3] (1;9)	0.006
Nbr de lignes	>2	28	28.57 %	61	40.4 %	0.077
	1 or 2	70	71.43 %	90	59.6 %	
	NA	8		21		
Nbr de lignes	1	33	33.67 %	36	23.84 %	0.053
	2	37	37.76 %	54	35.76 %	
	3	24	24.49 %	41	27.15 %	
	>=4	4	4.08 %	20	13.25 %	
	NA	8		21		
Autogreffe avant	0	89	83.96 %	96	55.81 %	<0.0001
	1	17	16.04 %	76	44.19 %	
Statut de la maladie	CR	58	54.72 %	114	66.67 %	0.015
	PR	39	36.79 %	36	21.05 %	
	PD	9	8.49 %	21	12.28 %	
	NA	0		1		
Karnofsky	100	39	38.24 %	53	33.76 %	0.33
	Unable to carry on normal activity	8	7.84 %	7	4.46 %	
	90-80	55	53.92 %	97	61.78 %	
	NA	4		15		
Stade dia	I	5	6.02 %	8	6.96 %	0.16
	II	3	3.61 %	13	11.3 %	
	III	17	20.48 %	28	24.35 %	
	IV	58	69.88 %	66	57.39 %	
	NA	23		57		
Delai dia-allo (mois)		106	289 [184;506.5] (91;6243)	172	436 [264.8;874.5] (109;9684)	0.0003
Delai dia allo sup a 12 mois	NO	42	39.62 %	106	61.63 %	0.0006

	Yes	64	60.38 %	66	38.37 %	
Donneur	HLA mismatched	13	12.26 %	40	23.26 %	0.035
	HLA matched	93	87.74 %	132	76.74 %	
Sexe d/p	Others	80	76.19 %	121	72.02 %	0.54
	F/M	25	23.81 %	47	27.98 %	
	NA	1		4		
CMV d/p	neg/neg	43	40.95 %	46	27.06 %	0.024
	Others	62	59.05 %	124	72.94 %	
	NA	1		2		
Origine cellule	BM	35	33.02 %	13	7.56 %	<0.0001
	CB	8	7.55 %	25	14.53 %	
	PB	63	59.43 %	134	77.91 %	
TBI	No	37	34.91 %	119	69.19 %	
	Yes	69	65.09 %	53	30.81 %	

Table 5: Characteristics according to conditionning MAC vs MNA/RIC

3.2 Survival analysis in all patients

3.2.1 Overall survival, EFS and GRFS

Median follow-up was 20.18 (range 0.03 to 112.83). OS at 1 year was 0.69 (95 % 0.61 - 0.76), was 0.65 (95 % 0.56 - 0.72) at 2 years.OS at 4 years was 0.59 (95 % 0.49 - 0.67).

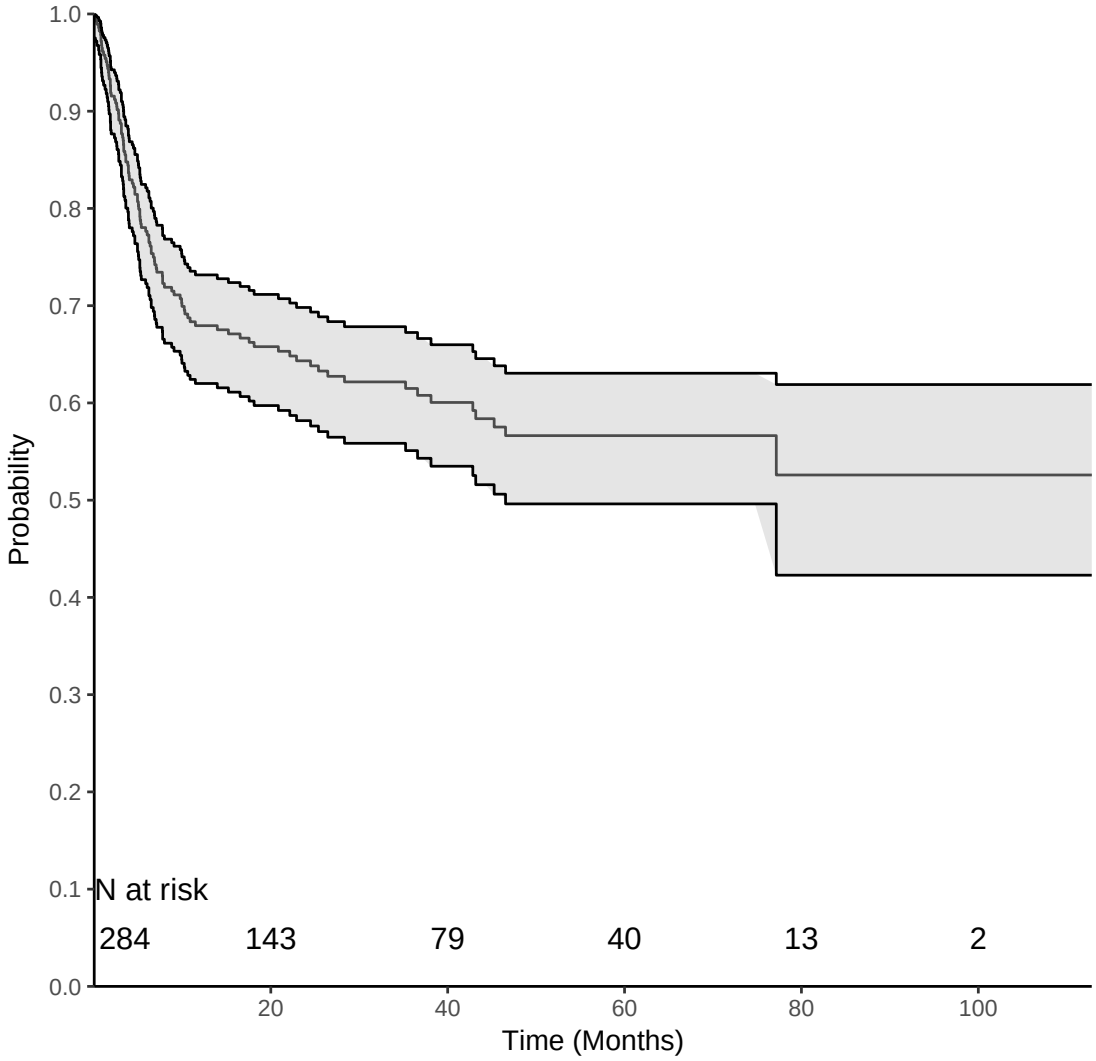

Figure 1: Overall survival

CIF for relapse/progression at 1 years was 0.19 (95 % 0.12 - 0.25), at 2 years 0.2 (95 % 0.13 - 0.26). CIF for death without relapse or progression at 1 year was 0.19 (95 % 0.12 - 0.25), at 2 years 0.21 (95 % 0.14 - 0.28).

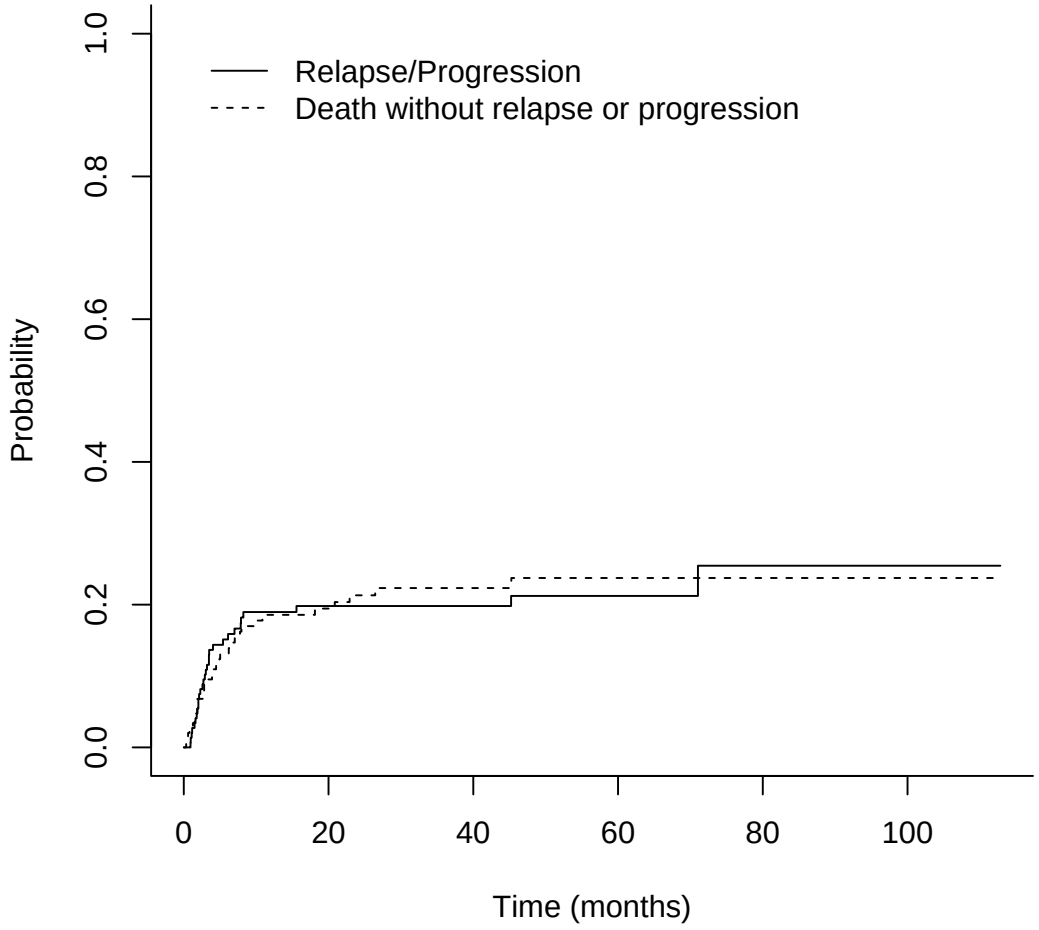

Figure 2: CIF of relapse or progression and death without relapse or progression

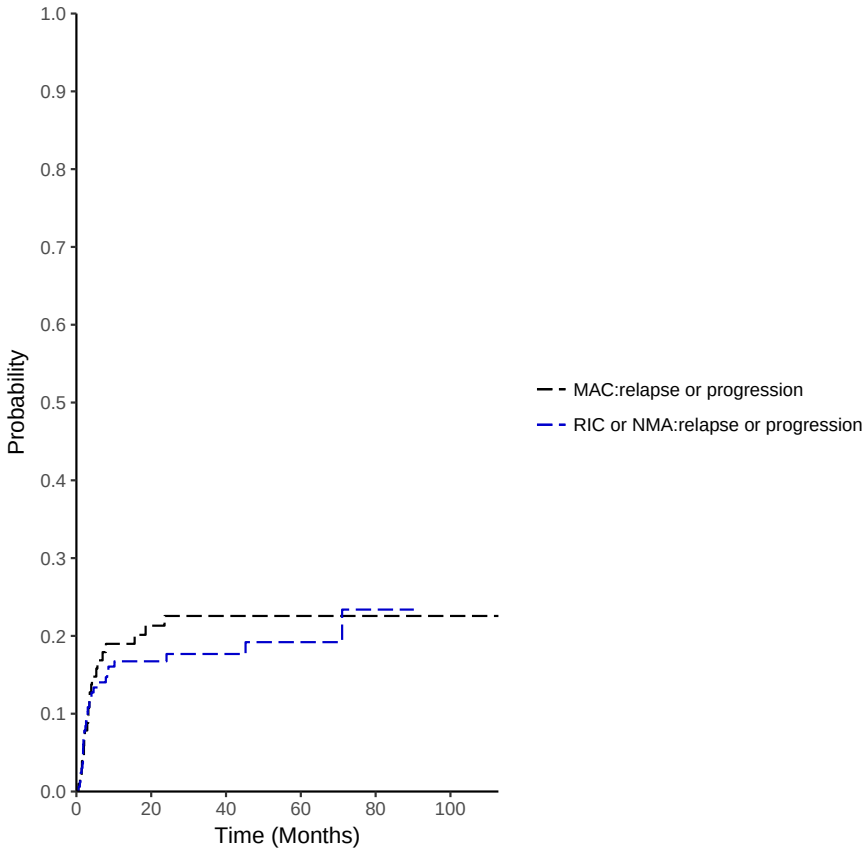

Figure 3: CIF of relapse or progression and death without relapse or progression according to conditionning
CIF of relapse or progression with MAC at 1 year : 0.19, was 0.23 at 2 years. CIF of relapse or progression with RIC/NMA at 1 year : 0.17, was 0.17 at 2 years.

EFS at 1 year was 0.62 (95 % 0.55 - 0.71), was 0.59 (95 % 0.51 - 0.68) at 2 years. EFS at 4 years was 0.55 (95 % 0.47 - 0.65).
Délai médian rechute : 94 jours.
GRFS at 1 year was 0.49 (95 % 0.44 - 0.56), was 0.47 (95 % 0.41 - 0.54) at 2 years. GRFS at 4 years was 0.43 (95 % 0.37 - 0.5).

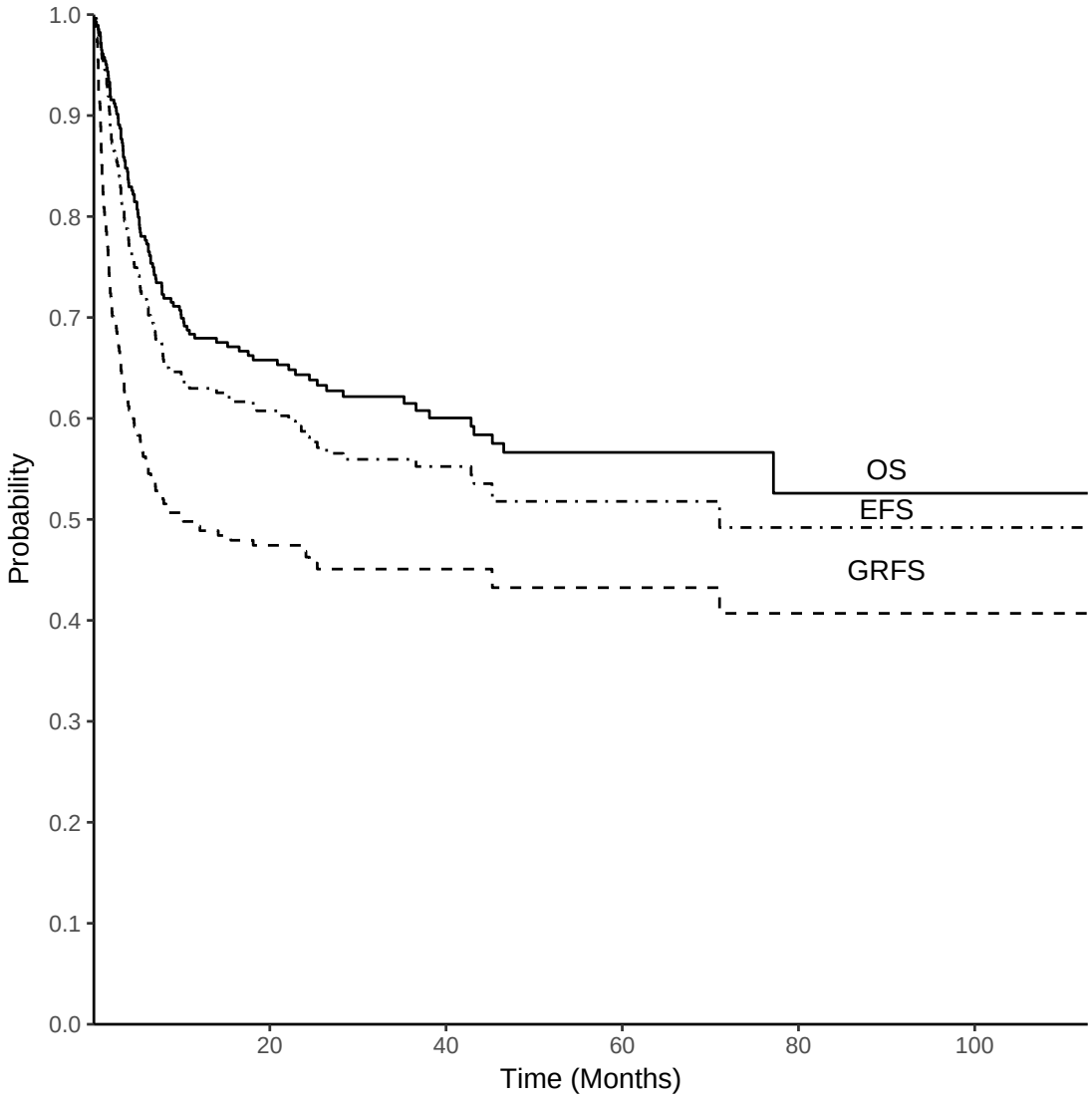

Figure 4: EFS and GRFS

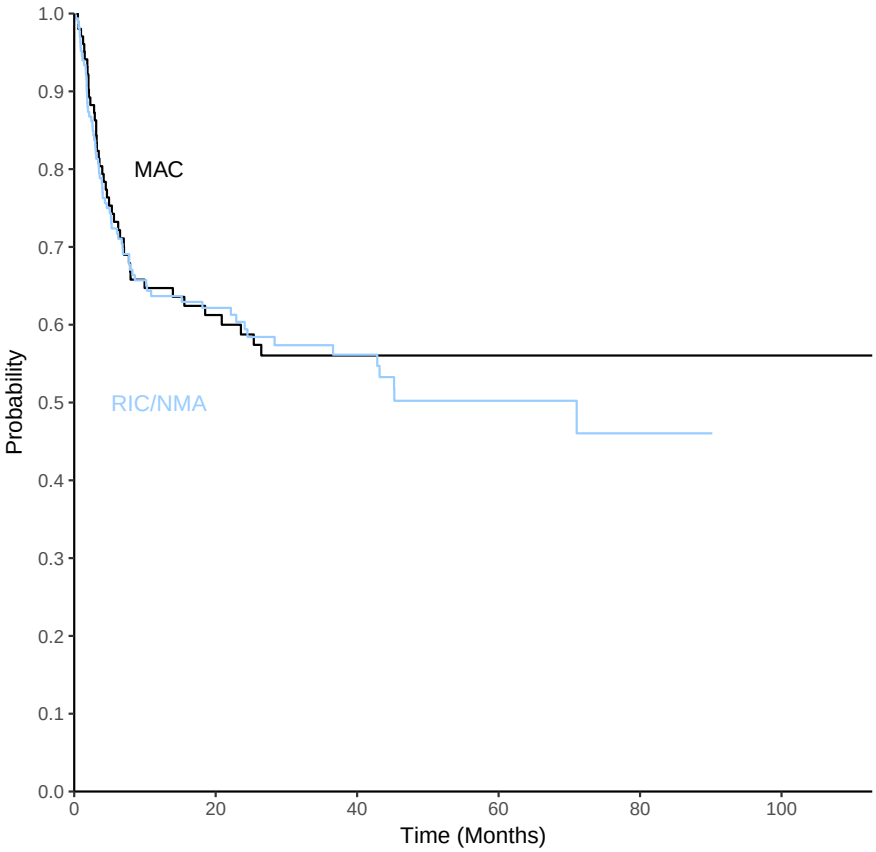

Figure 5: EFS according to conditionning
EFS MAC : 1 year : 0.65 (95 % 0.56 - 0.75) 2 year : 0.59 (95 % 0.5 - 0.7)
EFS RIC/NMA : 1 year : 0.78 (95 % 0.72 - 0.85) 2 year : 0.73 (95 % 0.67 - 0.8)

3.2.2 TRM and cause of death

TRM at 1 year was 0.22 (95 % 0.3 - 0.15), was 0.24 (95 % 0.32 - 0.17) at 2 years. TRM at 4 years was 0.25 (95 % 0.34 - 0.18).

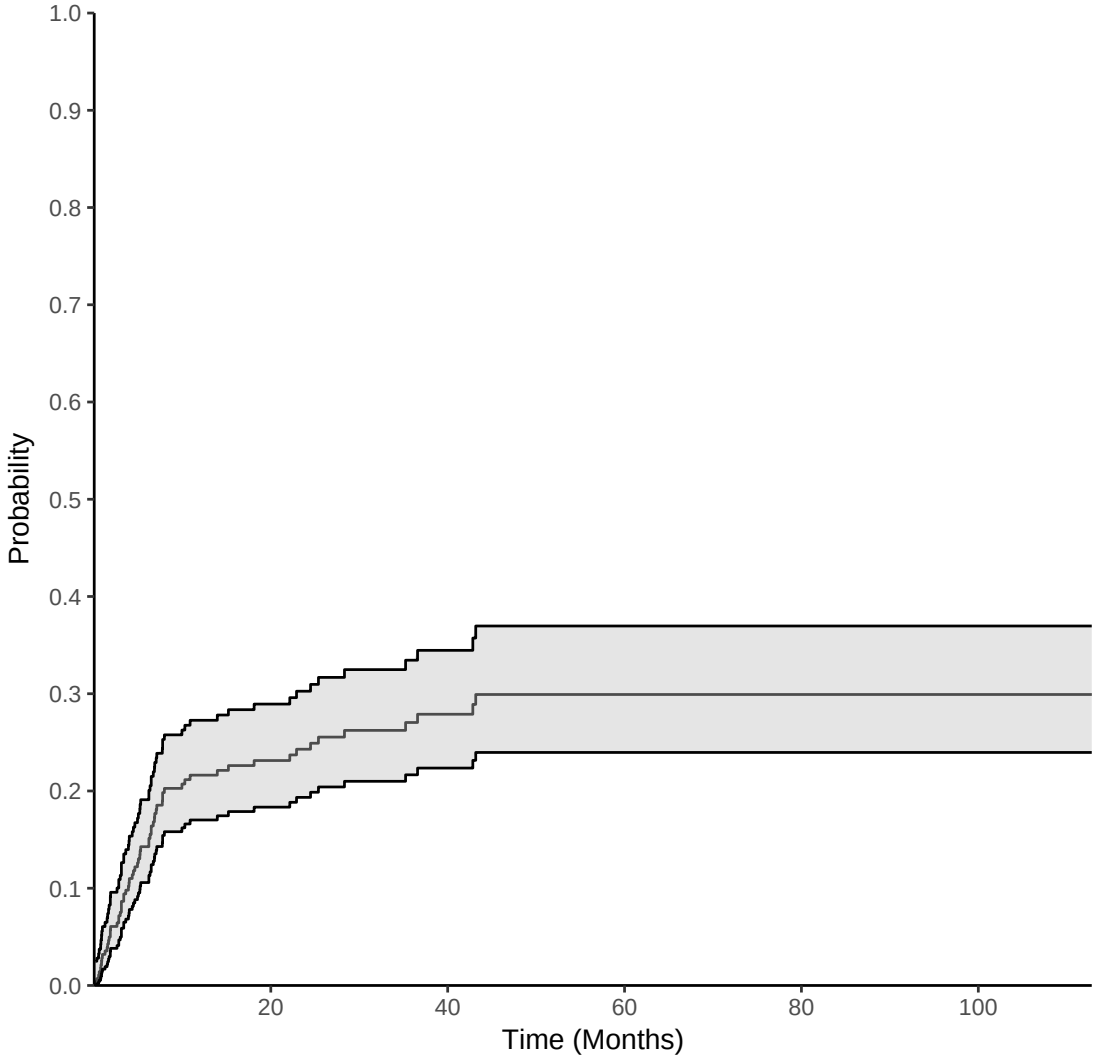

Figure 6: TRM

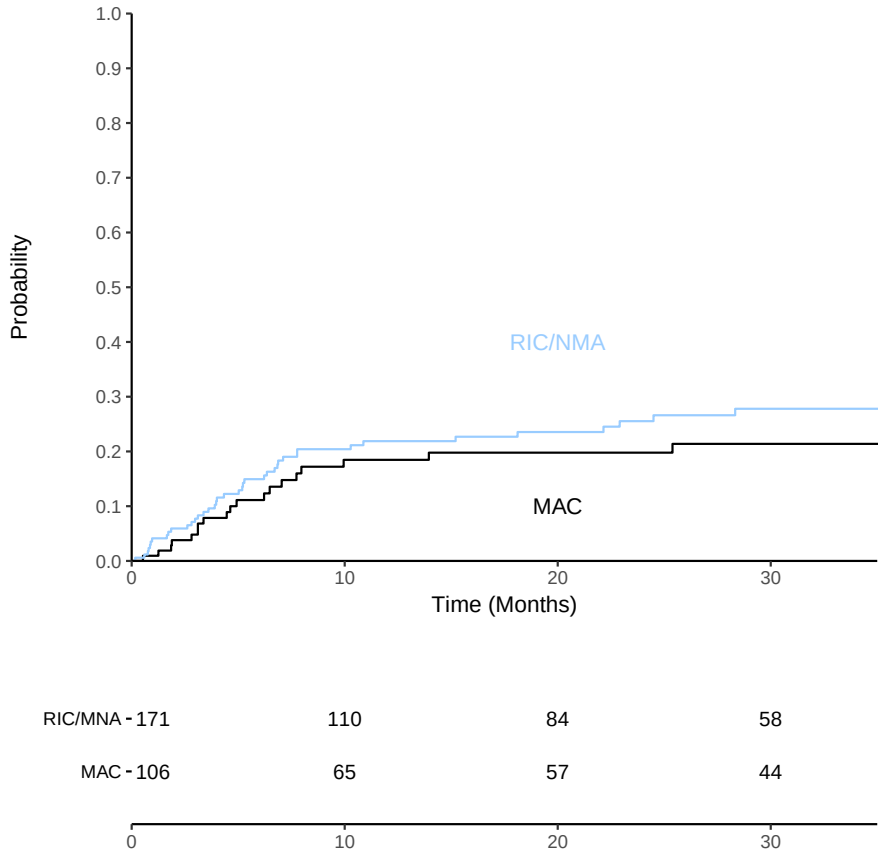

Figure 7: TRM according to conditionning
TRM MAC : 1 year : 0.18 (95 % 0.26 - 0.1) 2 year : 0.2 (95 % 0.28 - 0.11)
TRM RIC : 1 year : 0.22 (95 % 0.28 - 0.15) 2 year : 0.26 (95 % 0.32 - 0.18)

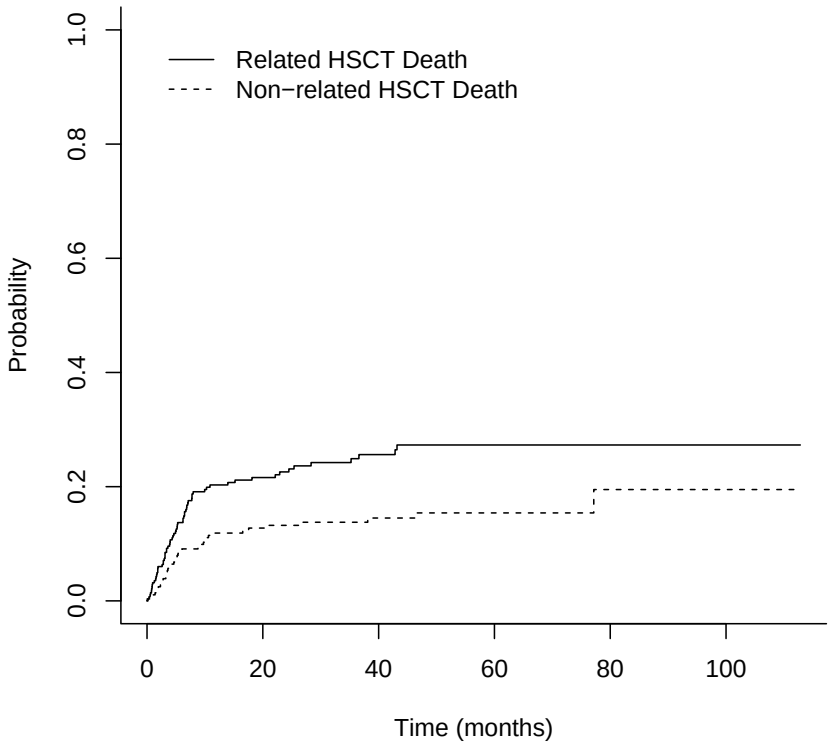

Figure 8: CIF of Related HSCT Death and Non-related HSCT Death

CIF for related HSCT death at 1 years was 0.2, at 2 years 0.23. CIF for non-related HSCT Death at 1 year was 0.12, at 2 years 0.13.

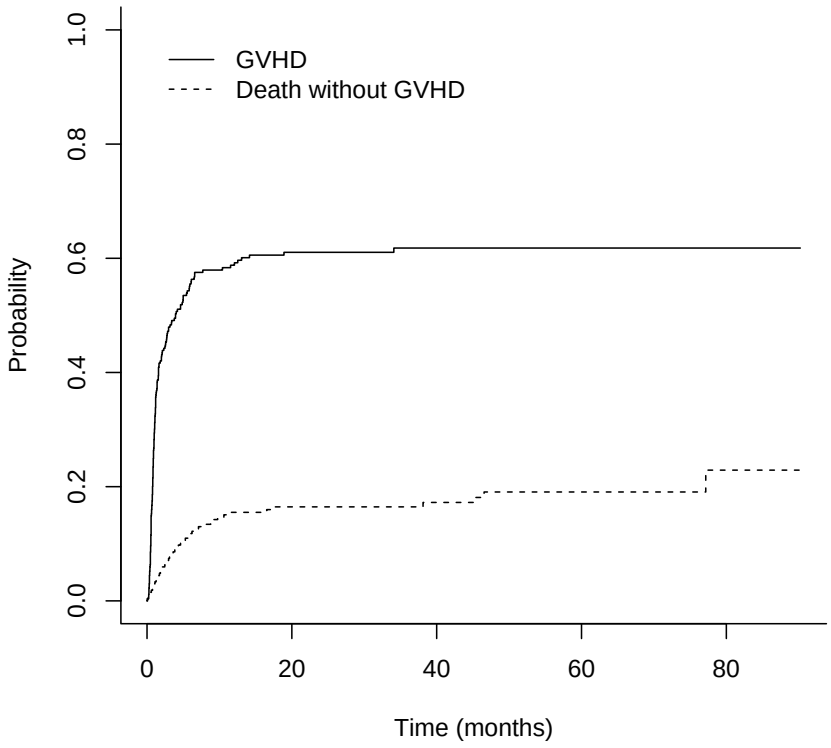

Figure 9: CIF of GVHD and Death without GVHD (acute or chronic)

3.3 OS et PFS après une cgvhd

OS at 1 year after cgvhd was 0.82 (95 % 0.74 - 0.91), was 0.74 (95 % 0.65 - 0.85) at 2 years

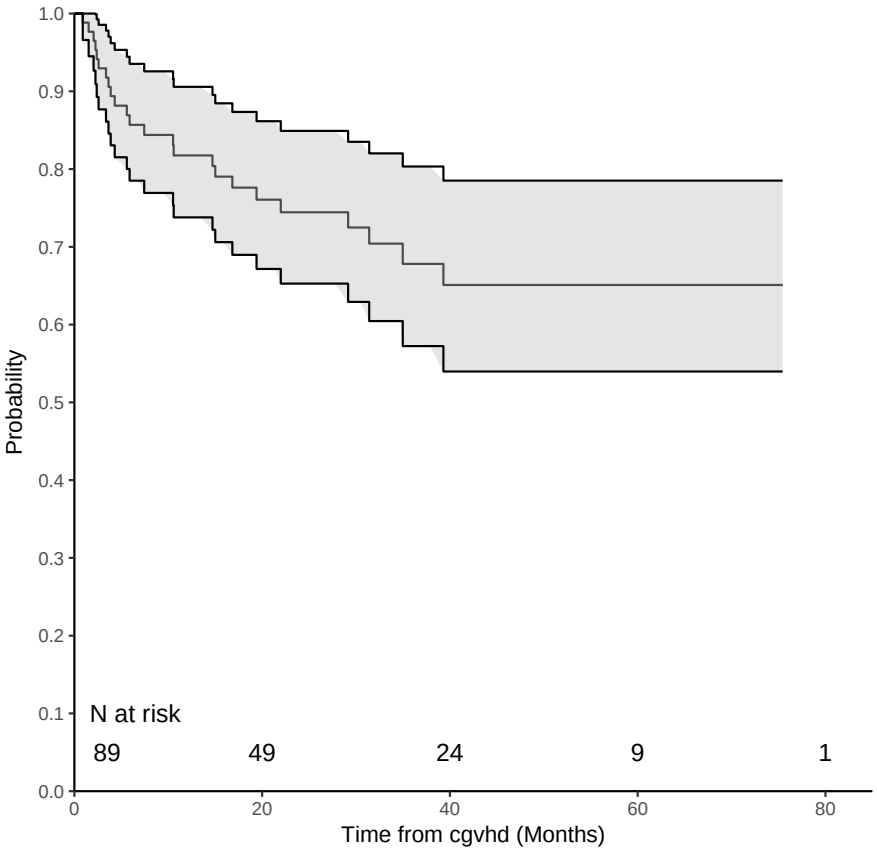

Figure 10: OS after cgvhd in cgvhd patients

PFS at 1 year after cgvhd was 0.75 (95 % 0.64 - 0.85), was 0.66 (95 % 0.56 - 0.77) at 2 years

3.4 Progressive disease analysis

OS at 6 months in the group with progressive disease at graft was 0.65 (95 % 0.46 - 0.79). OS at 1 year in the group with progressive disease at graft was 0.51 (95 % 0.33 - 0.67), was 0.51 (95 % 0.33 - 0.67) at 2 years. OS at 4 years was 0.25 (95 % 0.08 - 0.47).

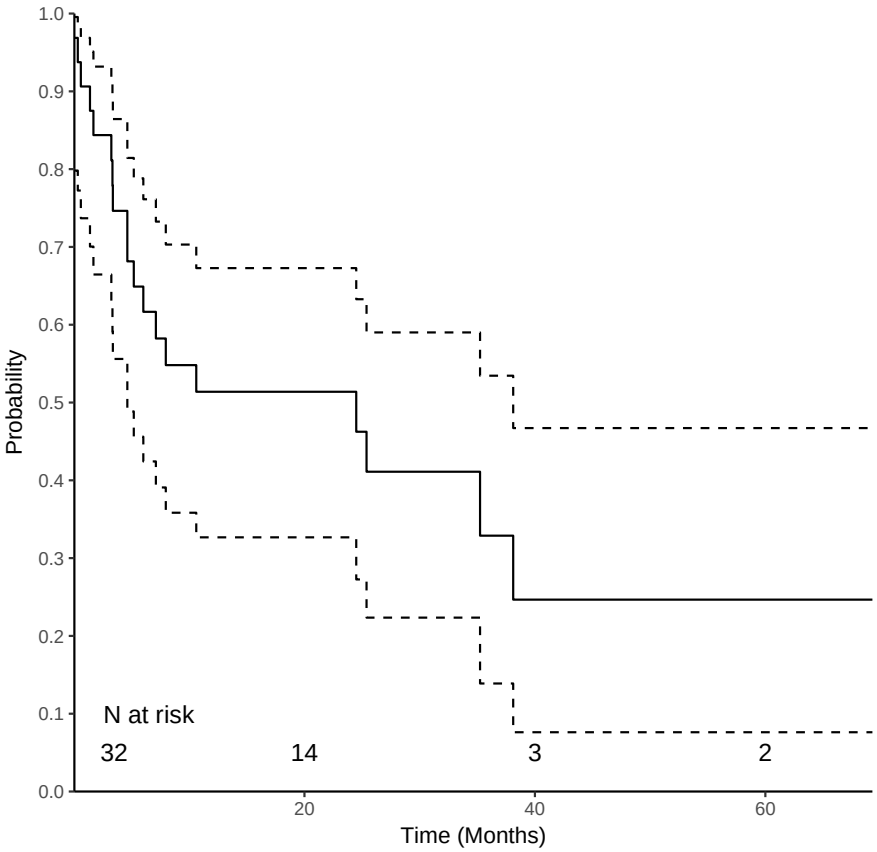

Figure 11: OS in the group with progressive disease at graft

TRM at 6 months in the group with progressive disease at graft was 0.18 (95 % 0.39 - 0.08)
TRM at 1 year in the group with progressive disease at graft was 0.27 (95 % 0.5 - 0.14), was 0.27 (95 % 0.5 - 0.14) at 2 years. TRM at 4 years was 0.54 (95 % 0.81 - 0.3).

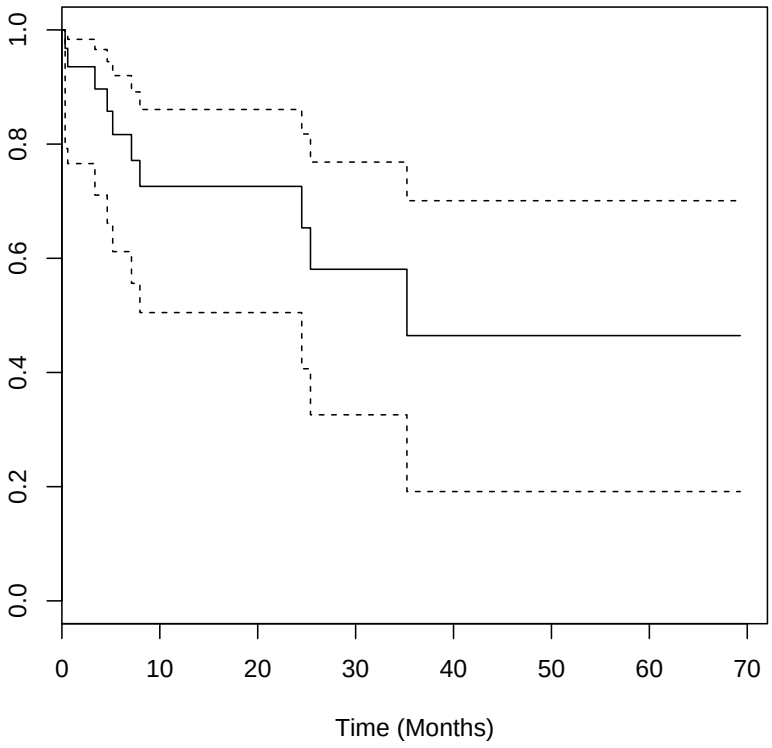

Figure 12: TRM in the group with progressive disease at graft

CIF for relapse/progression in the group with progressive disease at 6 months was 0.31 (95 % 0.13 - 0.5)
CIF for relapse/progression in the group with progressive disease at 1 years was 0.31 (95 % 0.13 - 0.5), at 2 years 0.31 (95 % 0.13 - 0.5).

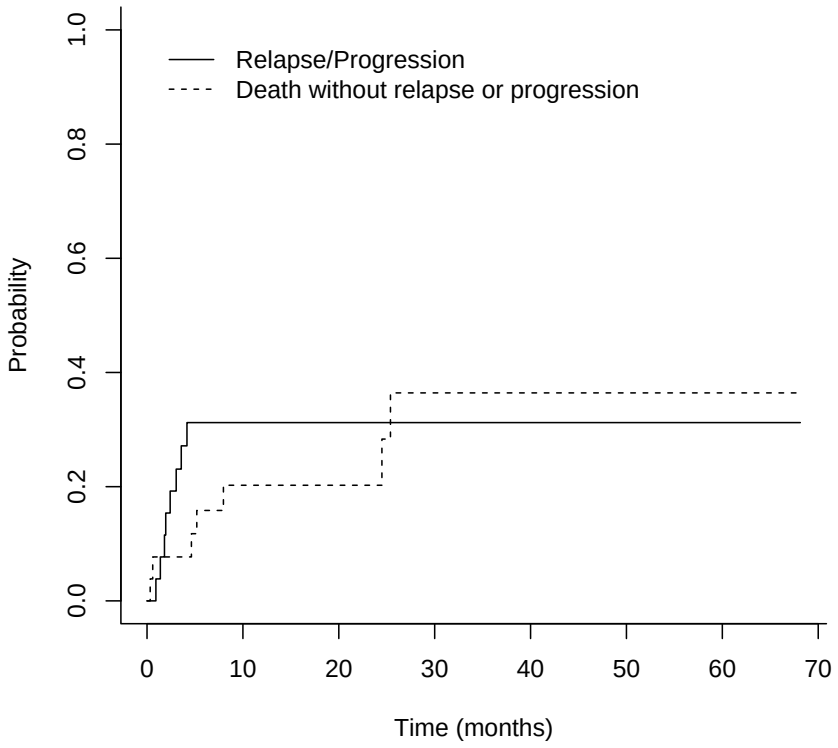

Figure 13: CIF of relapse or progression and death without relapse or progression in the group with progressive disease at graft

3.5 CR1 analysis

OS at 6 months was 0.77 (95 % 0.67 - 0.84) OS at 1 year was 0.68 (95 % 0.57 - 0.77), was 0.62 (95 % 0.51 - 0.72) at 2 years. OS at 4 years was 0.58 (95 % 0.46 - 0.69).

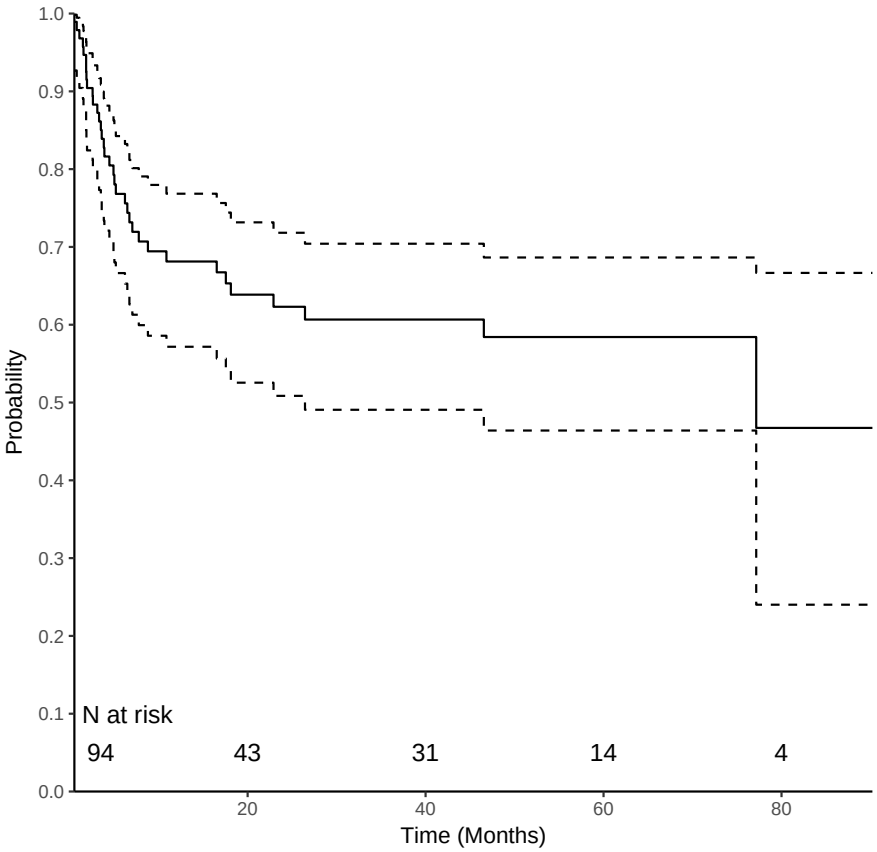

Figure 14: OS in the CR1 group

TRM at 6 months in the group with progressive disease was 0.15 (95 % 0.24 - 0.09) TRM at 1 year in the group with progressive disease was 0.23 (95 % 0.34 - 0.15), was 0.27 (95 % 0.38 - 0.18) at 2 years. TRM at 4 years was 0.27 (95 % 0.38 - 0.18).

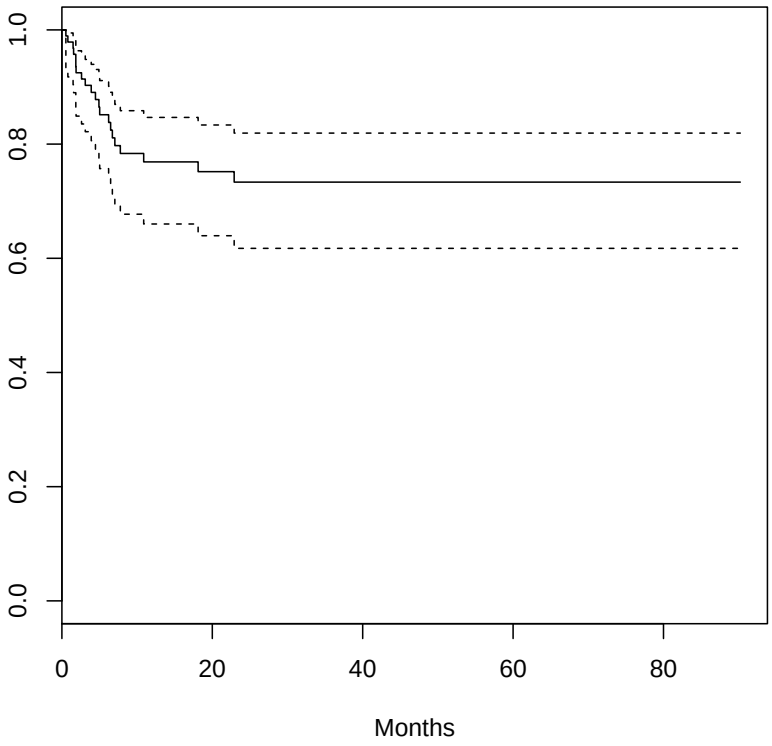

Figure 15: TRM in the CR1 group

CIF for relapse/progression in the group with progressive disease at 6 months was 0.11 (95 % 0.13 - 0.5). CIF for relapse/progression in the group with progressive disease at 1 years was 0.15 (95 % 0.13 - 0.5), at 2 years 0.16 (95 % 0.13 - 0.5).

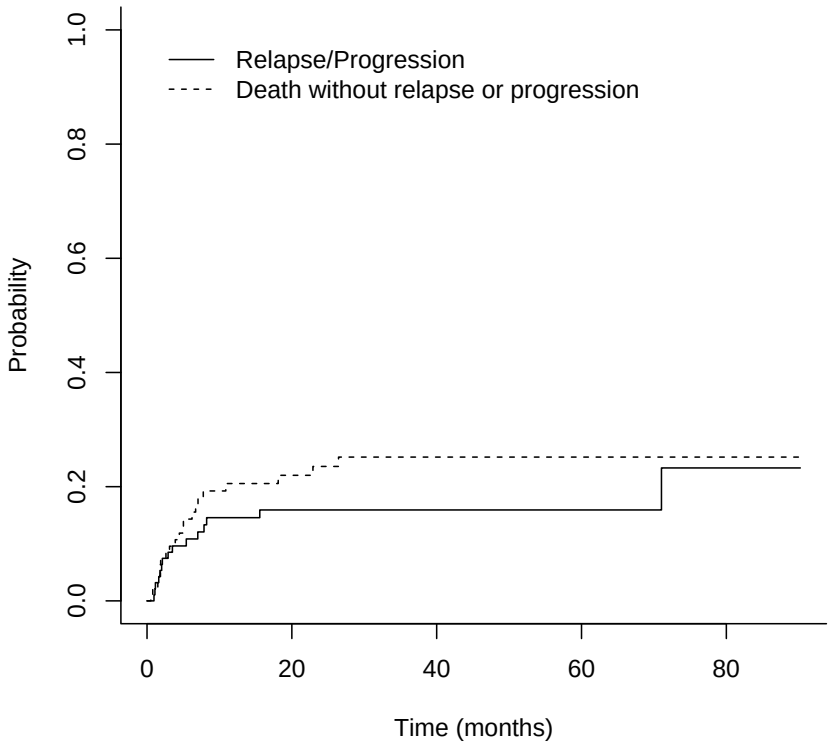

Figure 16: CIF of relapse or progression and death without relapse or progression in the CR1 group

3.6 Survival analysis after a complete remisson post alloSCT

245 patients whith a complete remission were included.
OS at 1 year was 0.74 (95 % 0.68 - 0.8), was 0.7 (95 % 0.64 - 0.76) at 2 years. OS at 4 years was 0.62 (95 % 0.56 - 0.7).

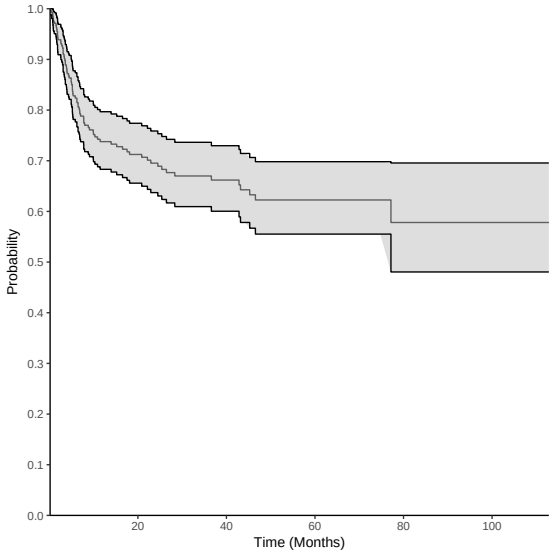

Figure 17: OS in patients with a complete remission post alloSCT

CIF for relapse at 1 year was 0.12 (95 % 0.07 - 0.16), at 2 years 0.13 (95 % 0.09 - 0.18). CIF for death without relapse at 1 year was 0.19 (95 % 0.14 - 0.24), at 2 years 0.22 (95 % 0.17 - 0.28).

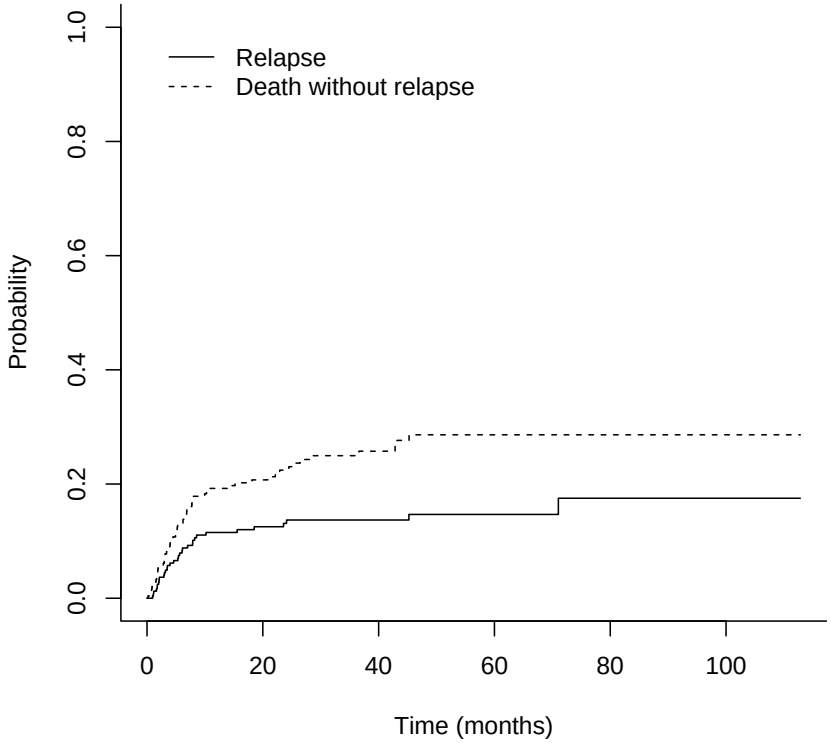

Figure 18: CIF of relapse and death without relapse (in patients with a complete remission post alloSCT)

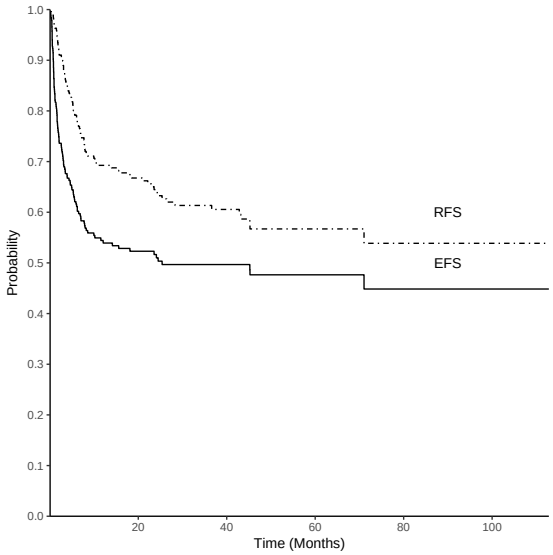

Figure 19: RFS and EFS in patients with a complete remission post alloSCT

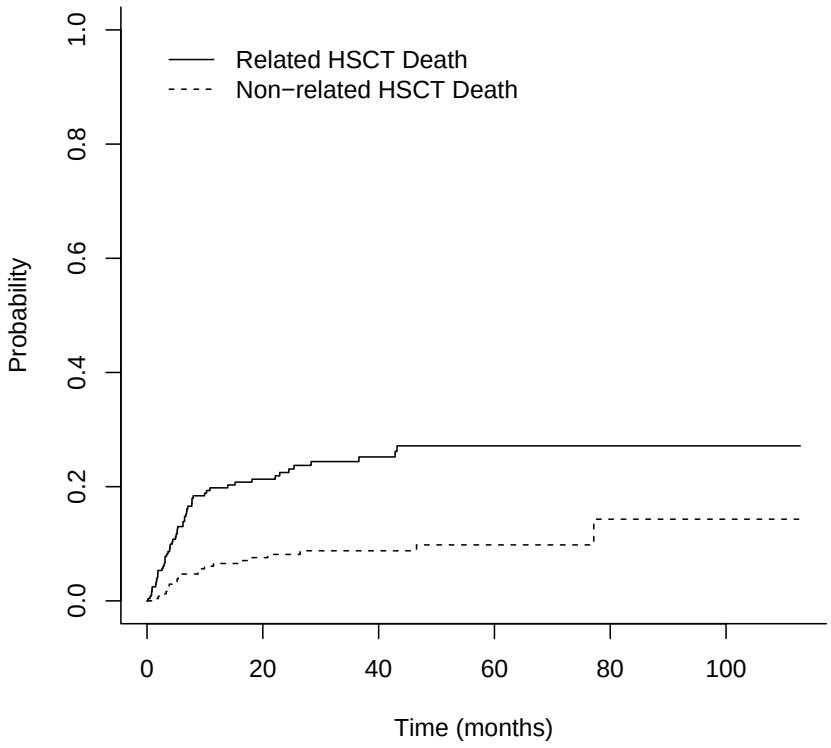

Figure 20: CIF of Related HSCT Death and Non-related HSCT Death (in patients with a complete remission post alloSCT)

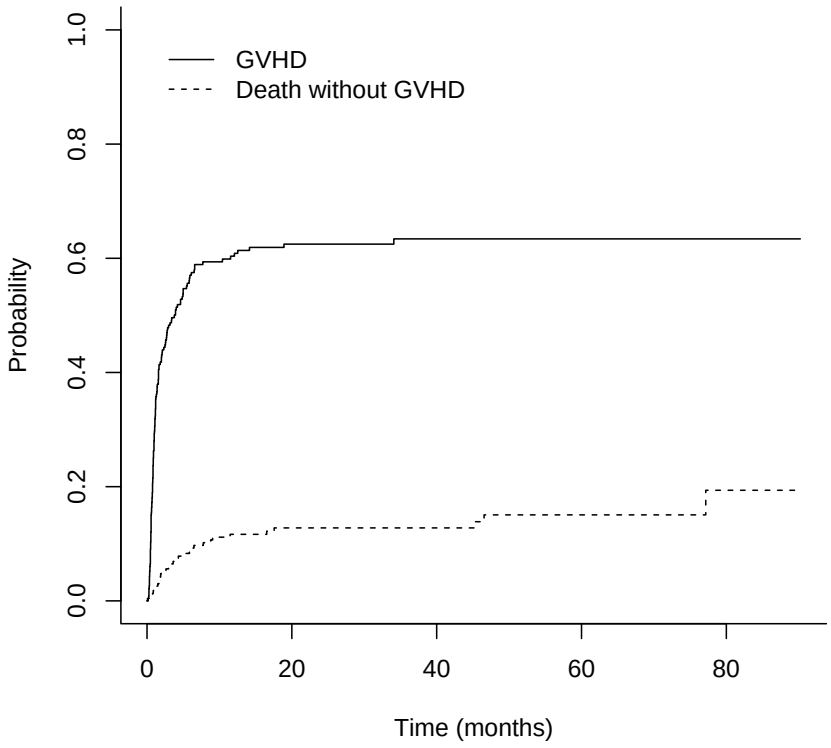

Figure 21: CIF of GVHD and Death without GVHD (acute or chronic)(in patients with a complete remission post alloSCT)

3.7 Survival analysis according to subtypes

histo	outcome	1 an	BI 1 an	BS 1 an	2 ans	BI 2 an	BS 2 an	4 an	BI 4 an	BS 4 an
NOS	os	0.71	0.6	0.79	0.68	0.58	0.76	0.64	0.53	0.73
NOS	efs	0.65	0.57	0.75	0.61	0.52	0.71	0.58	0.48	0.69
NOS	trm	0.17	0.26	0.1	0.19	0.29	0.12	0.21	0.31	0.14
NOS	cif rechute/progression	0.19	0.12	0.27	0.22	0.14	0.3	0.23	0.15	0.32
AITL	os	0.73	0.62	0.82	0.66	0.54	0.76	0.52	0.37	0.65
AITL	efs	0.7	0.6	0.81	0.61	0.51	0.74	0.49	0.38	0.65
AITL	trm	0.24	0.35	0.16	0.29	0.41	0.2	0.43	0.59	0.3
AITL	cif rechute/progression	0.1	0.04	0.17	0.12	0.05	0.2	0.12	0.05	0.2
ALCL ALK+	os	0.81	0.57	0.92	0.81	0.57	0.92	0.67	0.32	0.87
ALCL ALK+	efs	0.75	0.58	0.97	0.75	0.58	0.97	0.62	0.4	0.97
ALCL ALK+	trm	0.05	0.32	0.01	0.05	0.32	0.01	0.21	0.68	0.05
ALCL ALK+	cif rechute/progression	0.2	0.02	0.38	0.2	0.02	0.38	0.2	0.02	0.38
NK/T nasal	os	0.5	0.25	0.71	0.5	0.25	0.71	0.5	0.25	0.71
NK/T nasal	efs	0.44	0.25	0.76	0.44	0.25	0.76	0.44	0.25	0.76
NK/T nasal	trm	0.29	0.61	0.12	0.29	0.61	0.12	0.29	0.61	0.12
NK/T nasal	cif rechute/progression									
HS	os	0.56	0.23	0.79	0.56	0.23	0.79	0.56	0.23	0.79
HS	efs	0.61	0.36	1	0.61	0.36	1	0.61	0.36	1
HS	trm	0.44	0.77	0.21	0.44	0.77	0.21	0.44	0.77	0.21
HS	cif rechute/progression									
EATL	os	0.67	0.05	0.95	0.67	0.05	0.95	0.67	0.05	0.95
EATL	efs	0.67	0.3	1	0.67	0.3	1	0.67	0.3	1
EATL	trm	0			0			0		
EATL	cif rechute/progression									
Autres ALCL	os	0.55	0.32	0.72	0.5	0.28	0.68	0.5	0.28	0.68
Autres ALCL	efs	0.52	0.35	0.79	0.52	0.35	0.79	0.44	0.25	0.75
Autres ALCL	trm	0.34	0.58	0.18	0.34	0.58	0.18	0.34	0.58	0.18

Autres ALCL	cif rechute/progression	0.14	-0.01	0.3	0.14	-0.01	0.3	0.23	0.01	0.45

Table 6: OS, EFS, TRM, CIF of relapse/progression

3.8 Survival analysis in front line patients n=284

	histo	outcome	1 an	BI 1 an	BS 1 an	2 ans	BI 2 an	BS 2 an	4 an	BI 4 an	BS 4 an
ost	1	os	0.69	0.61	0.76	0.65	0.56	0.72	0.59	0.49	0.67
efst	1	efs	0.62	0.55	0.71	0.59	0.51	0.68	0.55	0.47	0.65
trmt	1	trm	0.22	0.3	0.15	0.24	0.32	0.17	0.25	0.34	0.18
rechutet	1	cif rechute/progression	0.19	0.12	0.25	0.2	0.13	0.26	0.21	0.14	0.28

Table 7: OS, EFS, TRM, CIF of relapse/progression

3.9 Univariate Analysis and multivariate analysis

variable	Variable	HR	IC	pval	p
Age at graft					0.37
		0.99	[0.98 - 1.01]	0.37	
subtypes	NOS	1.00			0.84
	AITL	0.83	[0.51 - 1.35]	0.46	
	ALCL	1.25	[0.73 - 2.14]	0.42	
	ATLL	0.94	[0.4 - 2.21]	0.88	
	NK/T nasal	0.78	[0.31 - 1.96]	0.59	
	Others	0.94	[0.42 - 2.1]	0.88	
Delay between diag and allo SCT > 12 mo	NO	1.00			0.16
	Yes	1.31	[0.9 - 1.92]	0.16	
Stage at diagnosis	I	1.00			0.67
	II	1.04	[0.28 - 3.86]	0.96	
	III	1.65	[0.57 - 4.81]	0.36	

	IV	1.35	[0.49 - 3.74]	0.56	
Disease status at transplant	CR	1.00			0.61
	PR	1.17	[0.77 - 1.79]	0.47	
	PD	0.85	[0.45 - 1.61]	0.61	
Karnofsky score	100	1.00			0.88
	Unable to carry on normal activity	1.23	[0.54 - 2.78]	0.62	
	90-80	1.01	[0.66 - 1.54]	0.97	
First graft relapse	No	1.00			0.82
	No previous graft	1.02	[0.54 - 1.93]	0.94	
	Yes	0.88	[0.42 - 1.83]	0.73	
No of lines before alloSCT	>2	1.00			0.58
	1 or 2	1.12	[0.74 - 1.7]	0.58	
HLA match	HLA mismatched	1.00			0.99
	HLA matched	1.00	[0.62 - 1.63]	0.99	
Sex of donnor-patient	Others	1.00			0.48
	F/M	0.85	[0.54 - 1.34]	0.49	
CMV serostatus of donnor patient	neg/neg	1.00			0.003
	Others	1.92	[1.22 - 3.04]	0.005	
Source of stem cells	BM	1.00			0.57
	CB	0.92	[0.42 - 2.01]	0.84	
	PB	1.22	[0.72 - 2.06]	0.46	
Conditionning intensity	MAC	1.00			0.016
	NMA	0.33	[0.13 - 0.84]	0.020	
	RIC	0.70	[0.47 - 1.03]	0.071	
Depletion	No	1.00			0.80
	Partial T depletion	0.79	[0.11 - 5.64]	0.81	
Agvhd grade 3-4					<0.0001
		2.82	[1.78 - 4.47]	<0.0001	
Cgvhd					0.17
		1.44	[0.86 - 2.41]	0.16	

Table 8: Univariate analysis of 5 years OS survival

V1	Variable	HR (95%CI)	*P*
Agvhd	Grade 3-4 Agvhd	2.39 (1.42–4.04)	0.001
Sex of donnor-patient	F/M	1.48 (0.92–2.36)	0.10
Disease status at transplant	PR	0.72 (0.43–1.22)	0.22
	PD	1.40 (0.72–2.73)	0.31
Karnofsky score	Unable to carry on normal activity	3.37 (1.38–8.24)	0.008
	90-80	2.20 (1.29–3.76)	0.004
Stem cell source	CB	2.42 (0.84–6.95)	0.10
	PB	0.85 (0.49–1.49)	0.57
Agvhd		0.77 (0.46–1.30)	0.33
Sex of donnor-patient		1.43 (0.60–3.40)	0.42

Table 9: Multivariate analysis of 5 years OS (stratified on the delay between diagnosis and alloSCT)

variable	Variable	HR	IC	pval	p
Age at graft					0.62
		1.00	[0.98 - 1.01]	0.61	
subtypes	NOS	1.00			0.33
	AITL	0.78	[0.51 - 1.17]	0.23	
	ALCL	1.23	[0.77 - 1.98]	0.38	
	ATLL	0.77	[0.35 - 1.69]	0.51	
	NK/T nasal	0.55	[0.22 - 1.37]	0.20	
	Others	0.72	[0.34 - 1.51]	0.39	
Delay between diag and allo SCT	NO	1.00			0.73
	Yes	0.94	[0.68 - 1.31]	0.73	
Stage at diagnosis	I	1.00			0.79
	II	1.05	[0.34 - 3.25]	0.94	
	III	1.44	[0.59 - 3.53]	0.43	
	IV	1.34	[0.58 - 3.1]	0.49	
Disease status at transplant	CR	1.00			0.15
	PR	1.21	[0.84 - 1.75]	0.31	
	PD	0.65	[0.35 - 1.22]	0.18	
Karnofsky score	100	1.00			0.48
	Unable to carry on normal activity	1.38	[0.69 - 2.73]	0.36	
	90-80	0.91	[0.63 - 1.31]	0.60	
First graft relapse	No	1.00			0.42
	No previous graft	0.89	[0.51 - 1.54]	0.68	
	Yes	1.16	[0.63 - 2.13]	0.63	
No of lines before alloSCT	>2	1.00			0.93
	1 or 2	0.98	[0.68 - 1.42]	0.93	
HLA match	HLA mismatched	1.00			0.66
	HLA matched	0.91	[0.59 - 1.39]	0.66	
Sex of donnor-patient	Others	1.00			0.44
	F/M	0.86	[0.58 - 1.27]	0.44	

CMV serostatus of donnor patient	neg/neg	1.00			0.40
	Others	1.17	[0.81 - 1.67]	0.41	
Source of stem cells	BM	1.00			0.83
	CB	0.87	[0.45 - 1.67]	0.67	
	PB	1.03	[0.66 - 1.6]	0.90	
Conditionning intensity	MAC	1.00			0.35
	NMA	0.76	[0.4 - 1.44]	0.40	
	RIC	0.78	[0.55 - 1.11]	0.16	
Depletion	No	1.00			0.30
	Partial T depletion	0.41	[0.06 - 2.93]	0.37	

Table 10: Univariate analysis of 5 years GRFS

V1	Variable	HR (95%CI)	*P*
Subtypes	AITL	0.78 (0.51–1.18)	0.23
	ALCL	1.30 (0.81–2.09)	0.28
	ATLL	0.77 (0.35–1.72)	0.53
	NK/T nasal	0.53 (0.21–1.33)	0.18
	Others	0.68 (0.32–1.44)	0.31
Disease status at transplant	PR	1.23 (0.84–1.80)	0.29
	PD	0.63 (0.34–1.20)	0.16
Source of stem cells	CB	0.93 (0.47–1.84)	0.83
	PB	1.01 (0.65–1.58)	0.96

Table 11: Multivariate analysis of 5 years GRFS

variable	Variable	HR	IC	pval	p
Age at graft					0.72
		1.00	[0.98 - 1.01]	0.72	
subtypes	NOS	1.00			0.72
	AITL	0.89	[0.57 - 1.38]	0.61	
	ALCL	1.08	[0.63 - 1.83]	0.79	
	ATLL	0.74	[0.32 - 1.73]	0.49	
	NK/T nasal	0.51	[0.18 - 1.41]	0.19	
	Others	0.85	[0.38 - 1.88]	0.69	
Delay between diag and allo SCT > 12 mo	NO	1.00			0.85
	Yes	1.04	[0.72 - 1.49]	0.85	
Stage at diagnosis	I	1.00			0.12
	II	0.54	[0.13 - 2.28]	0.40	
	III	1.80	[0.69 - 4.72]	0.23	
	IV	1.28	[0.51 - 3.2]	0.59	
Disease status at transplant	CR	1.00			0.50
	PR	1.12	[0.75 - 1.68]	0.58	
	PD	0.76	[0.4 - 1.43]	0.39	
Karnofsky score	100	1.00			0.60
	Unable to carry on normal activity	1.32	[0.64 - 2.73]	0.45	
	90-80	0.91	[0.61 - 1.37]	0.67	
First graft relapse	No	1.00			0.74
	No previous graft	0.80	[0.45 - 1.45]	0.47	
	Yes	0.89	[0.46 - 1.73]	0.73	
No of lines before alloSCT	>2	1.00			0.60
	1 or 2	1.11	[0.74 - 1.66]	0.60	
HLA match	HLA mismatched	1.00			0.80
	HLA matched	0.94	[0.59 - 1.5]	0.80	
Sex of donnor-patient	Others	1.00			0.38
	F/M	0.82	[0.53 - 1.27]	0.38	

CMV serostatus of donnor patient	neg/neg	1.00			0.057
	Others	1.47	[0.98 - 2.2]	0.064	
Source of stem cells	BM	1.00			0.80
	CB	1.17	[0.58 - 2.36]	0.67	
	PB	1.18	[0.72 - 1.94]	0.51	
Conditionning intensity	MAC	1.00			0.097
	NMA	0.51	[0.24 - 1.08]	0.077	
	RIC	0.74	[0.5 - 1.07]	0.11	
Depletion	No	1.00			0.62
	Partial T depletion	0.63	[0.09 - 4.54]	0.65	
Agvhd grade 3-4					0.004
		2.09	[1.31 - 3.34]	0.002	
Cgvhd					0.10
		1.56	[0.93 - 2.64]	0.094	

Table 12: Univariate analysis of 5 years EFS

V1	Variable	HR (95%CI)	*P*
N of lines	1 or 2	0.74 (0.49–1.12)	0.15
Karnofsky score	Unable to carry on normal activity	1.28 (0.44–3.76)	0.65
	90-80	2.27 (1.43–3.61)	0.0005
Cell source	CB	1.96 (0.96–4.01)	0.065
	PB	1.02 (0.59–1.77)	0.95
N of lines		1.68 (0.96–2.93)	0.068
Karnofsky score		1.95 (1.15–3.29)	0.013

Table 13: Multivariate analysis of 5 years EFS

variable	Variable	HR	IC	pval	p
Age at graft					0.017
		1.02	[1 - 1.05]	0.022	
subtypes	NOS	1.00			0.28
	AITL	1.87	[1.03 - 3.38]	0.039	
	ALCL	1.20	[0.54 - 2.64]	0.66	
	ATLL	1.31	[0.39 - 4.43]	0.67	
	NK/T nasal	1.68	[0.57 - 4.94]	0.35	
	Others	2.42	[0.97 - 6.06]	0.059	
Delay between diag and allo SCT > 12 mo	NO	1.00			0.76
	Yes	0.93	[0.57 - 1.5]	0.76	
Stage at diagnosis	I	1.00			0.47
	II	0.48	[0.08 - 2.9]	0.43	
	III	1.31	[0.38 - 4.54]	0.67	
	IV	0.93	[0.28 - 3.04]	0.90	
Disease status at transplant	CR	1.00			0.33
	PR	0.86	[0.48 - 1.53]	0.60	
	PD	1.59	[0.79 - 3.18]	0.19	
Karnofsky score	100	1.00			0.040
	Unable to carry on normal activity	2.30	[0.75 - 6.98]	0.14	
	90-80	2.04	[1.12 - 3.73]	0.020	
First graft relapse	No	1.00			0.014
	No previous graft	4.33	[1.05 - 17.9]	0.043	
	Yes	5.57	[1.3 - 23.76]	0.020	
No of lines before alloSCT	>2	1.00			0.055
	1 or 2	0.61	[0.37 - 1]	0.052	
HLA match	HLA mismatched	1.00			0.46
	HLA matched	0.80	[0.44 - 1.43]	0.45	
Sex of donnor-patient	Others	1.00			0.026
	F/M	1.80	[1.09 - 2.98]	0.022	

CMV serostatus of donnor patient	neg/neg	1.00			0.99
	Others	1.00	[0.6 - 1.69]	0.99	
Source of stem cells	BM	1.00			0.21
	CB	1.29	[0.57 - 2.91]	0.54	
	PB	0.71	[0.39 - 1.31]	0.27	
Conditionning intensity	MAC	1.00			0.29
	NMA	1.79	[0.83 - 3.85]	0.14	
	RIC	1.38	[0.79 - 2.43]	0.26	
Depletion	No	1.00			0.92
	Partial T depletion	0.90	[0.12 - 6.49]	0.92	

Table 14: Univariate analysis of 5 years cause specific mortality : HSCT related

V1	Variable	HR (95%CI)	*P*
Sex of donnor-patient	F/M	1.87 (1.07–3.28)	0.027
Karnofsky score	Unable to carry on normal activity	2.52 (0.82–7.78)	0.11
	90-80	2.03 (1.08–3.83)	0.029
Age at graft		1.02 (1.00–1.04)	0.084

Table 15: Multivariate analysis of 5 years cause specific mortality : HSCT related (stratified on numbers of lines before alloSCT)

Variable	HR	IC	pval	p
MAC				0.83
RIC/NMA	0.89	[0.3 - 2.62]	0.83	

Table 16: Propensity score for 5 years OS

Variable	HR	IC	pval	p
MAC				0.96
RIC/NMA	0.98	[0.41 - 2.33]	0.96	

Table 17: Propensity score for 5 years EFS

Variable	HR	IC	pval	p
MAC				0.22
RIC/NMA	0.45	[0.12 - 1.65]	0.23	

Table 18: Propensity score for 5 years HCST related death

Variables	HR	IC	pval
MAC	1		
RIC/NMA	2.08	[0.64 - 6.74]	0.22

Table 19: Propensity score for 5 years relapse relapse (competitve risks)