IMMUNOLOGICAL RECOVERY AFTER HAPLOIDENTICAL TRANSPLANTATION COMPARED WITH HLA IDENTICAL TRANSPLANTATION AND ITS CONSEQUENCES IN VIRAL INFECTIONS

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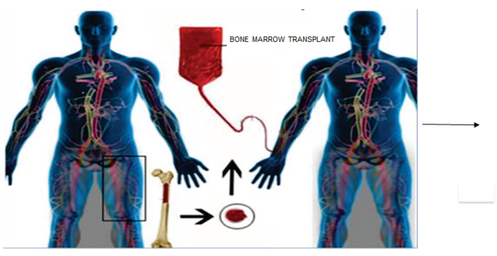
BACKGROUND

HSCT has advanced to a common procedure for treating patients with malignancies and immunodeficiency disorders by redirecting the immune system. Most of the benefits are derived from the transfer of the immune system from the donor to the host, which can generate a powerful graft X tumor effect. Nevertheless, allogeneic Hematopoietic Stem Cell Transplantation (allo-HSCT) is associated with deficiencies in T and B cell reconstitution that can persist for over a year and have been higher linked to increased risks of opportunistic infections in these patients. Haploidentical HSCT offers the benefits of rapid and nearly universal donor availability and has been accepted worldwide. Unfortunately, serious infections and leukemia relapse resulting from slow immune reconstitution remain, that are the two most frequent causes of mortality in patients undergoing haploidentical HSCT, particularly in those receiving extensively T cell depleted megadose CD34+ allografts.



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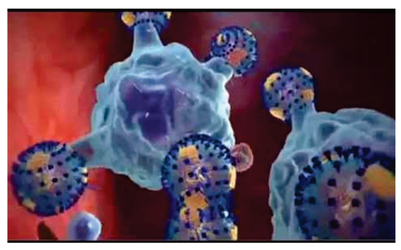
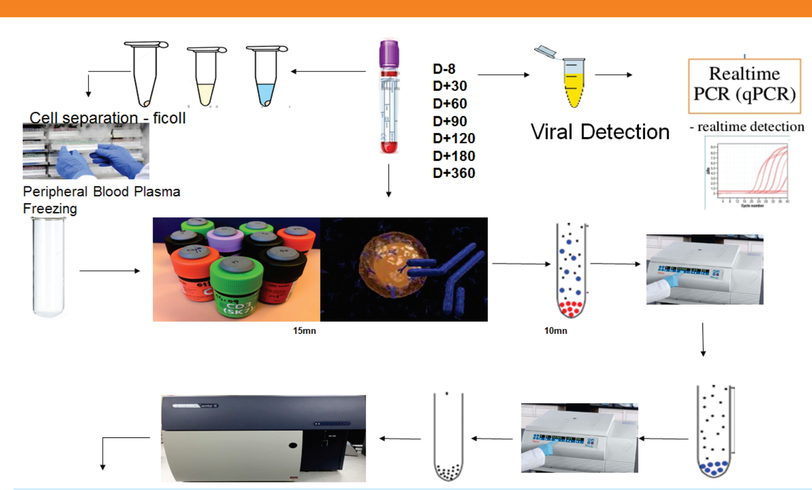


Figure 1: Adapted by Aguilar, 2017

OBJECTIVE

The aim of this study is to evaluate in patients the immunological recovery after haplo-identical and HLA-identical HSCT or its correlation to the occurrences of viral infections or reactivations with in specific cellular populations.

METHODOLOGY



Pre-Post-Transplant Panel

FITC	PE	PERCP	PECy7	APC	APCH7	V450	V500
CD45	CD20	CD19	-	CD33	-	-	-
CD45RO	CD8	CD4	CD45RA	CD3	CD38		
TCRɈ-ß	CD8	CD4	TCR ɣ-Ð	CD3	-		
CD27	CD26	CD4	CD19	CD28	CD3		
CD56	CD16	CD3	-	-	-		
CD27	CD8	CD4	CD19	CD28	CD3	-	CD45

We use specific monoconals antibodies for he population T,B NK and coestimulators

Figure 3. The samples were submitted to cell separation by ficoll and characterized by immunophenotyping by flow cytometry in FacsCanto II. Plasma separation treated with protease inhibitor and Viral detection using Real Time- PCR

RESULTS

Immunophenotyping Characterization

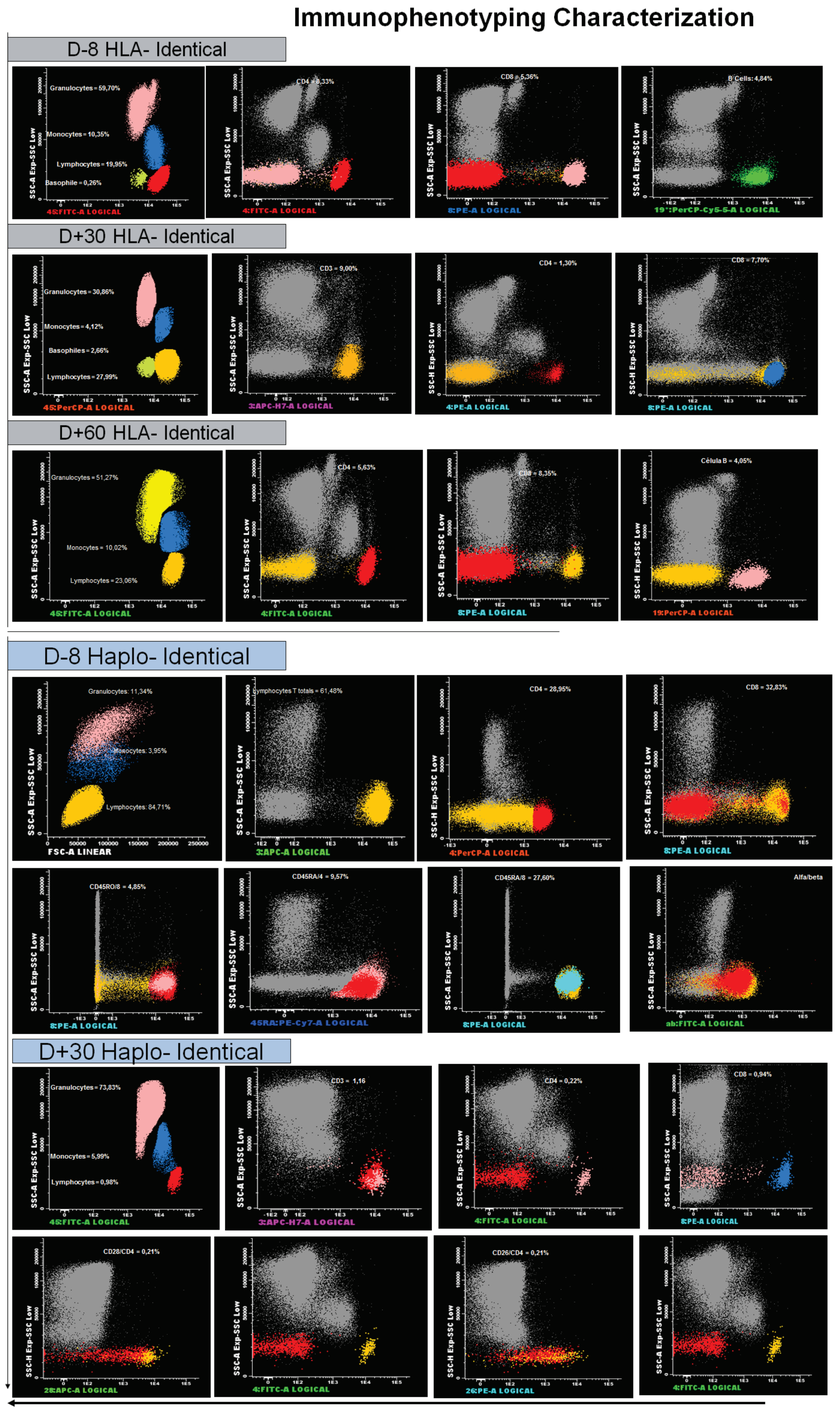


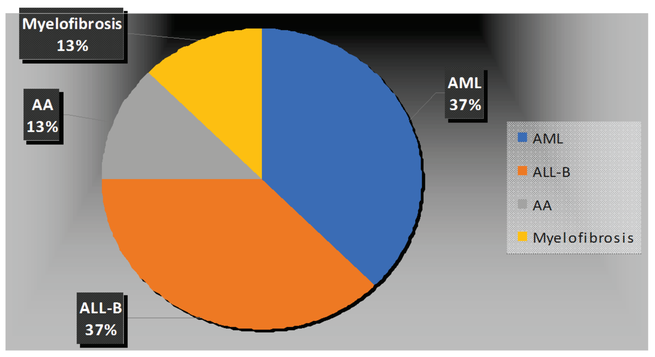
Figure 5: Until, now we identified in 5 HSCT HLA-identical patients and 1 patient who received an Haplo-identical HSCT that NK cells at the D+30 post-HSCT were increased while CD4+T cells were decreased. Additionality, there were an absence of B cells in both HLA-identical and Haplo-identical HSCT patients

Pre and Post-allo HSCT patients

Table 1. Patients characterization

N°	Sex	Age	Base Disease	Type of Allogeneic Transplatation	Donor	Source
1	Male	53	AML	Related	HLA-IDENTICAL	BM
2	Male	21	APLASTIC ANEMIA	Related	HAPLO-IDENTICAL	BM
3	Female	17	AML	Not - related	HLA-IDENTICAL	BM
4	Male	18	ALL-B	Not -related	HLA-IDENTICAL	PB+BM
5	Male	47	AML	Not -related	HLA-IDENTICAL	PB
6	Male	46	MYELOFIBROS	Related	HLA-IDENTICAL	BM
7	Male	12	ALL-B	Not -related	HLA-IDENTICAL	BM
8	Male	25	ALL-B	Not-related	HLA-IDENTICAL	BM

Pre and Post-allo HSCT patients selected



Viral load identification

	HAPLO-IDENTICAL HSCT (n=1)				HLA-IDENTICAL HSCT (n=5			
	D-8	D+30	D+60	D+90	D-8	D+30	D+60	D+90
CMV	1	1	2	1	1	1	2	1
EBV	0	0	1	0	0	0	1	0
VZV	0	0	0	0	0	0	0	0
HHV6	0	0	0	0	0	0	0	0
HSV1/2	0	0	0	0	0	0	0	0
HHV7	0	0	0	0	0	0	0	0

CONCLUSION

It is clear that a bigger number of Haplo-identical HSCT patients must be analysed, so that we can compare immune recovery and viral reactivation in both types of HSCT.

Projeto Gráfico: Setor de Edição e Informação Técnico-Científica / INCA