POST-TRANSPLANT IMMUNOLOGICAL RECOVERY OF HAPLOIDENTIC HEMATOPOIETIC STEM CELL (HSCT) AND THEIR CONSEQUENCES IN VIRAL REACTIVATIONS

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BACKGROUND

In haploidentical HSCT, intense bidirectional alorreativity and a delay in immunological reconstitution are normally found, resulting in an increase in opportunistic infections and reactivation of latent viruses. Comparative studies on the immune recovery and the involvement of viral infections between allogenic HLA-identical and haploidentical HSCT modalities are still scarce. In this sense the purpose of the study is to evaluate the immunological recovery after haploidentical HSCT and its correlation with occurrences of viral reactivation and to compare these data with the ones obtained in HLA-identical HSCT.

METHODS

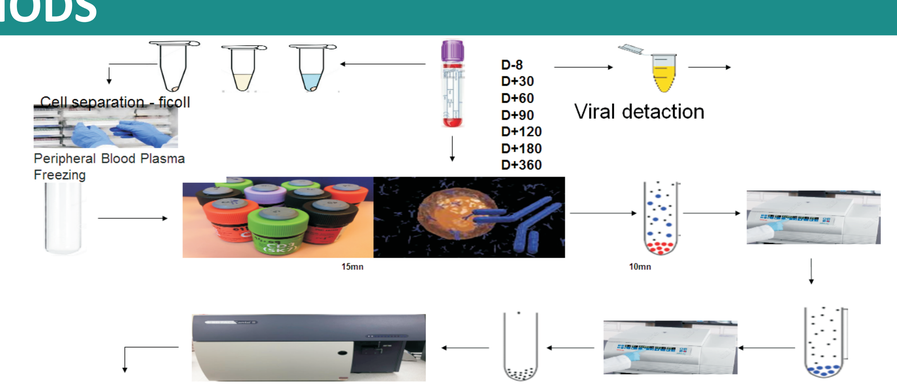

Figure 1: Peripheral blood samples from 27 patients submitted to HSCT were analyzed 8 days (D-8) before HSCT and at D + 30, D + 60, D + 90 and D + 120 post-HSCT by multiparametric immunophenotyping. Viral infections (HSV1 / 2, VZV, CMV, EBV, HHV-6 and -7, adenovirus and BKV) were diagnosed by multiplex PCR and qPCR in real time from DNA extracted from plasma. Statistical analysis was performed using Prism GraphPad software

RESULTS AND DISCUSSION

Peripheral blood samples from patients submitted HSCT

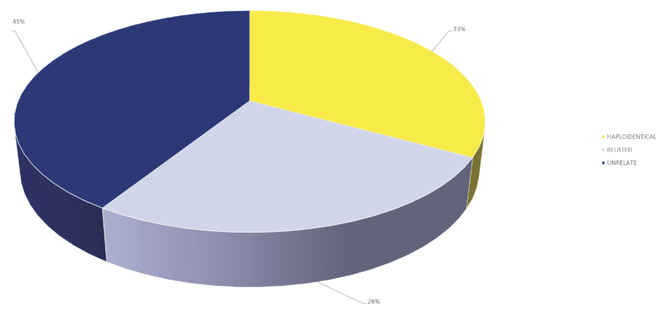

Figure 2 : **Distribution of patients submitted to HSCT-Allogenic** Of the 27 patients, 7 (26%) received related HSCT (R), 11 (41%) unrelated (NR) and 9 (33%) had a haploidentical HSCT. Of the HLA-identical group, 5 (27.8%) developed GVHD and 4 died (22%). Of the haploidentical group (lower follow-up), only 1 (11.11%) developed GVHD and 1 died due to viral infection.

Immunological Recovery

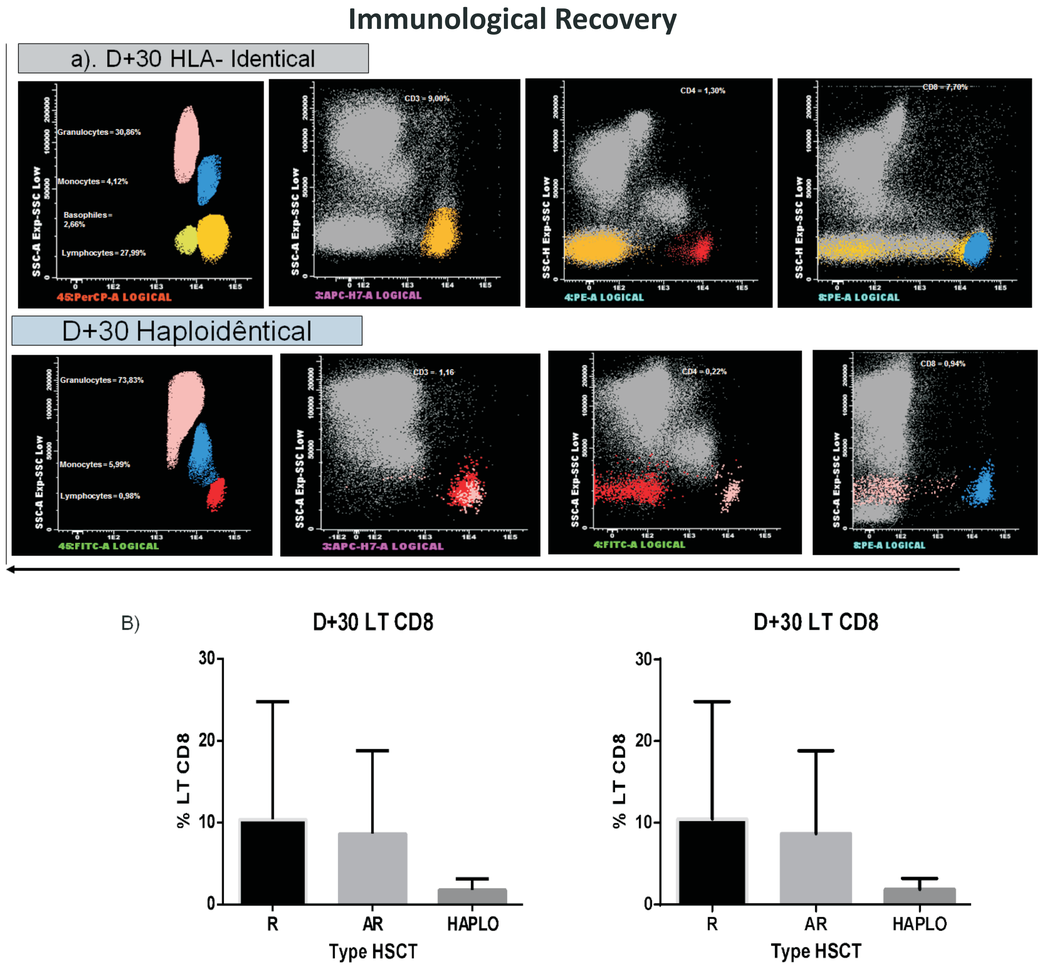

Figure 3: Regarding the hematopoietic recovery, a). in the D+30 and D+90 groups, the haploidentical group had the total lymphocyte population (CD4 and CD8 subtypes) and T δ, respectively, decreased in relation to the HLA-identical group B). Note the significant decrease in the haploidentical group compared to the other groups.

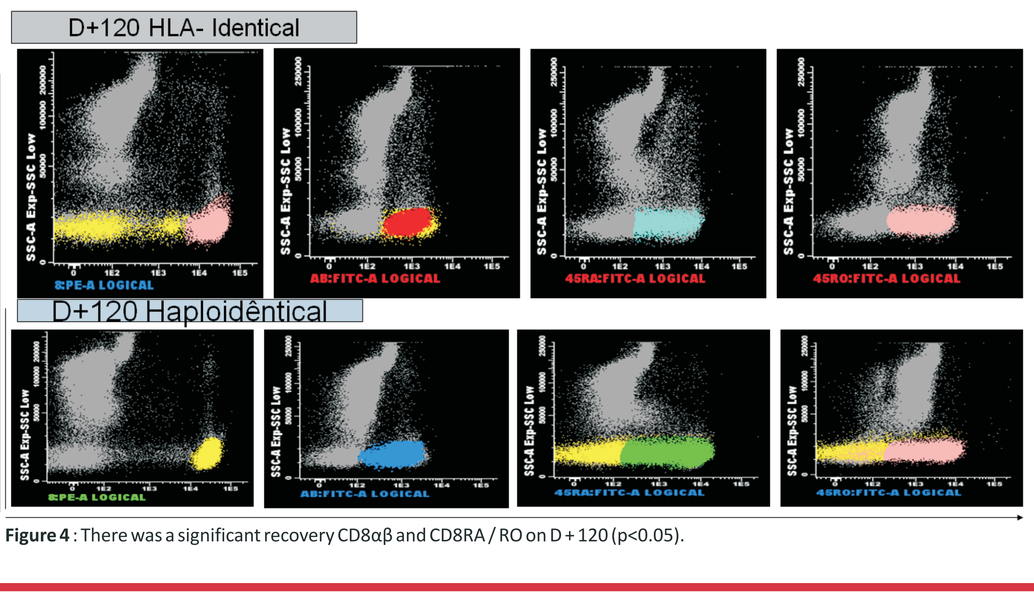

Figure 4 : There was a significant recovery CD8αβ and CD8RA / RO on D + 120 ($p<0.05$).

NK cells (total, activated NK and NKT) from the haploident group showed a reversal

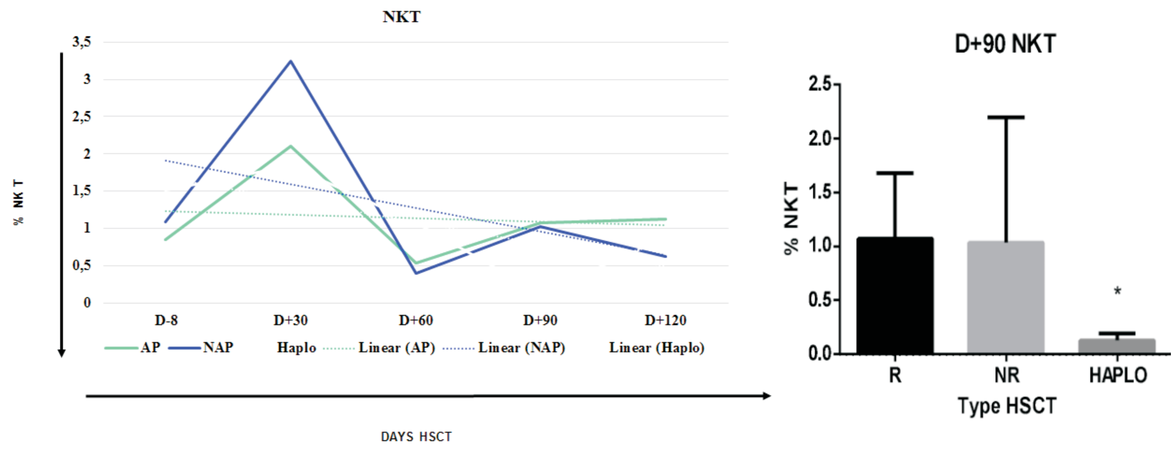

Figure 5: Evaluation of different subtypes of NK cells. NK cells (total, NK activated and NKT) from the haploident group exhibited a proportional inversion throughout the immune recovery, especially NKT, with low numbers in D + 90. The NK recovery (total and activated) of the NR group was bimodal, with peaks in D+30 and D+90.

Evaluation of the viral load of patients undergoing HSCT

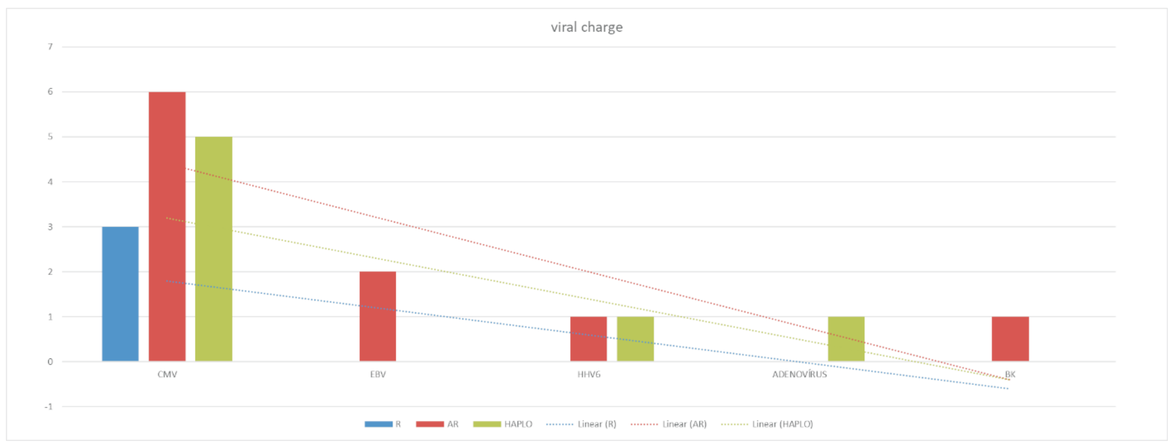

Figure 6. Viral infections differed in the R group, where CMV was detected with low loads in 3/7 patients (42%), all reactivations were resolved. In the non-related group (NR), there were 11 events in 7/11 pts (63%), 6 CMV reactivations (54.5%) between D+30 and D+120; 2 EBV (18%) (D+60), 1 HHV-6 and 1 BKV. In the haploidentical group, 55.5% of the patients suffered herpesviral infection / reactivation, being 22% CMV, 22% HHV-6 and 11% adenovirus. The CMV loads did not differ from the NR group, but the HHV-6 showed very high loads in a patient of the haploidentical group. In this group, infections occurred between D+30 and D 60

CONCLUSION

In this unicentric study of sequential patients there was a delay in T recovery in haploident transplantation, followed by recovery of numbers and competence in D + 120, which could be related to a lower risk of infection after D + 90, compared with HSCT NR. It is important to highlight the short follow-up time and the need to evaluate a larger number of patients to attain a clear perspective of this issue.

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

MINISTÉRIO DA SAÚDE