Evaluation of the functional compromise of the minor salivary glands in patients submitted to allogeneic hematopoietic stem cell transplantation

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INTRODUCTION

Graft-versus-host disease (GVHD) is a complication of hematopoietic stem cell transplantation in patients. GVHD consists of a multisystemic alteration, characterized by immunosuppression and tissue damage in several organs. Alterations in salivary function and oral mucosa present in GVHD can alter the salivary composition and directly influence the behavior of oral manifestations.

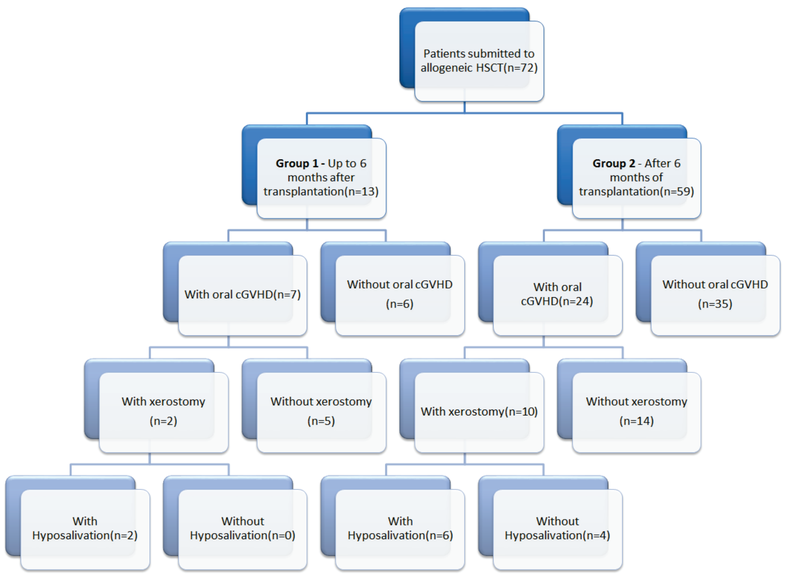
OBJECTIVES

To perform, through clinical and laboratory examination, the evaluation of functional impairment of the salivary glands in patients who underwent allogeneic haematopoietic stem cell transplantation.

MATERIALS AND METHODS

We evaluated 72 patients, divided into two groups: G1 - constituted by 13 individuals with up to 6 months post-transplantation; And G2 consisting of 59 individuals who had more than 6 months post-transplantation. To obtain the data were performed: dental clinical examination, data collection of the transplant in medical records, sialometry and biopsy of minor salivary glands.

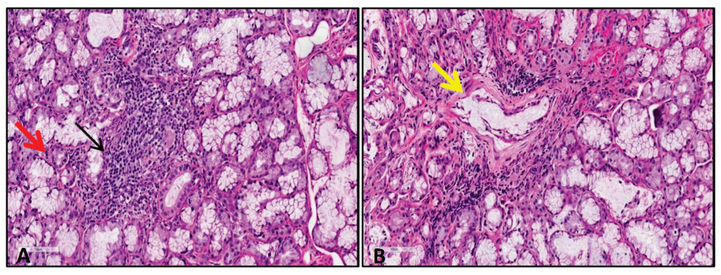
RESULTS



Flowchart of characterization of study groups

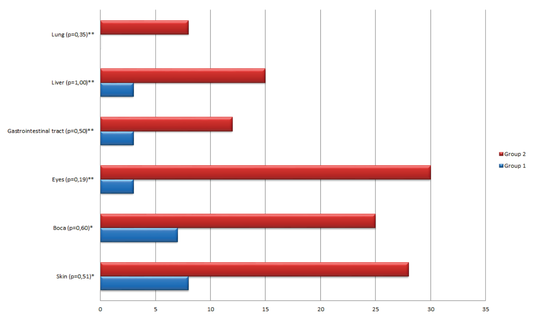
Characteristics of transplantation, presence of oral GVHD and functional impairment of the minor salivary glands

Patient	Diagnosis	Related donor	Progenitor stem cell source	Conditioning regime	Prophylaxis for GVHD	Oral GVHD	Xerostomia	Hyposalivation
1	AML	Yes	PB	Cyclophosphamide + Busulfan	Cyclosporine + Methotrexate	Chronic	Yes	No
2	ALL	Yes	PB	Cyclophosphamide + Fludarabine	Cyclosporine + Methotrexate	Chronic	No	No
3	AML	Yes	BM	Cyclophosphamide + Busulfan	Cyclosporine + Methotrexate	Chronic	Yes	No
4	NHL	Yes	BM	Cyclophosphamide + Fludarabine	Cyclosporine + Methotrexate	Chronic	Yes	Yes
5	AML	Yes	BM	Cyclophosphamide + Busulfan	Cyclosporine + Methotrexate	No	No	No
6	AA	Yes	BM	Cyclophosphamide + Busulfan	Cyclosporine + Methotrexate	Chronic	No	No

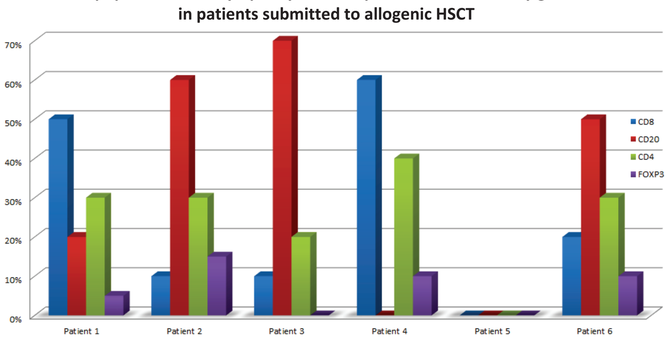


Histopathological description of MSG (Patient 2) demonstrating alterations compatible with oral GVHD as: A) lymphoplasmacytic infiltrate (black arrow); Focal destruction of acini (red arrow) (40X); And B) causes associated fibroplasia (yellow arrow) (40X). Histological slides stained with hematoxylin-eosin (HE).

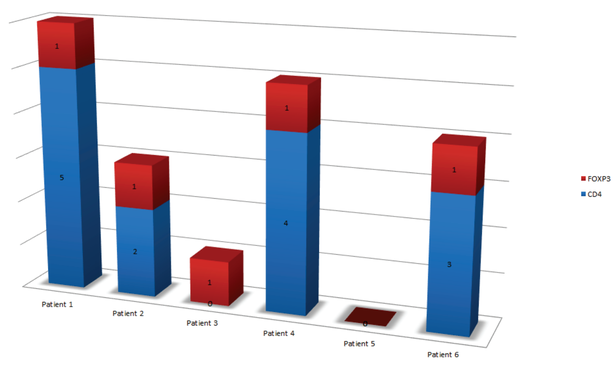
Organs affected by GVHD in patients submitted to allogeneic HSCT



Subpopulations of T lymphocytes in biopsies of minor salivary glands in patients submitted to allogenic HSCT



Cd4 / FOXP3 Relationship



Regarding the presence of oral GVHD, in G1 approximately 54% of the patients had oral GVHD, whereas in G2 only 42%. In G1, about 46% of the patients complained of xerostomia, but 15.4% actually hyposalivated. In G2, 33.9% of the patients complained of "dry mouth", and 10% presented hyposalivation. The histopathological findings of the minor salivary glands confirmed the aspects already characterized by the literature, indicating damage to the glandular parenchyma. In the samples obtained, it was possible to observe a lymphocytic infiltrate, with CD8 + and CD20 + cell populations being the most predominant, as well as discrete CD4 + / Foxp3 + relations.

CONCLUSION

The studied population presents the same characteristics described in the literature regarding patients with GVHD who underwent allogeneic HSCT who developed oral GVHD and oral manifestations corresponded to the GVHD system. Changes in salivary glands appear to be relevant, since even without evident oral manifestation, lymphocyte infiltration may be observed suggesting disease activity. It was also possible to observe a change in mean pH between the groups suggesting a compromised salivary quality that may affect the oral homeostasis of the evaluated patients. All the clinical and laboratory characteristics found may justify the destruction of the glands and the resulting hypofunction and xerostomia.

APOIO: FAPERJ Fundação Carlos Chagas Filho de Amparo à Pesquisa do Estado do Rio de Janeiro

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