Effect of the oral microbiota of patients submitted to allogeneic haematopoietic stem cell transplantation in the development of chronic graft versus host disease

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INTRODUCTION

Graft versus host disease (GVHD) is considered the main complication of allogeneic hematopoietic cell transplantation (HSCT). T cell interactions with host and donor antigen presenting cells are necessary to achieve the status of "aloreactive activated T cells" generating cytotoxic attack against target organs. Oral involvement has been described as one of the first signs and symptoms of chronic GVHD. The oral cavity consists of several structures and each is an ecological niche that promotes the development of microorganisms. Recent studies suggest that the salivary microbiota is correlated with the disease state and may serve as a potential indicator for oral health of the host. However, the role of the salivary microbiota in the development of oral GVHD remains unclear.

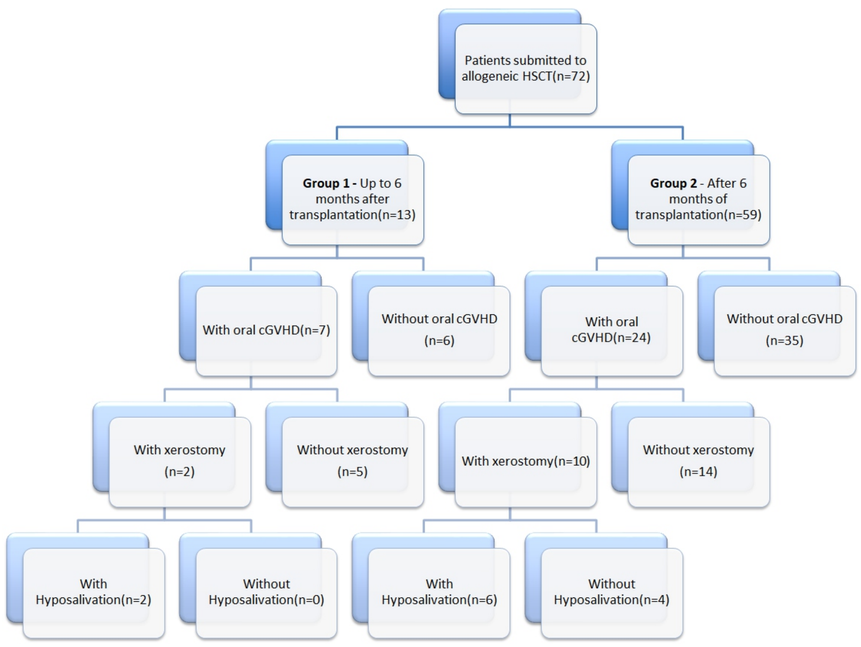
OBJECTIVES

The aim of this study is to evaluate hematological and immunological changes at gas station workers occupationally exposed to fuel in the city of Rio de Janeiro.

MATERIAL AND METHODS

Approximately 150 patients submitted to allogeneic HSCT will be evaluated through clinical odontological examination and saliva collection in the pre-transplant period, post-transplant and 6 months after transplantation. Saliva will be submitted to metagenomic, metabolomic and characterization analysis of activated T populations.

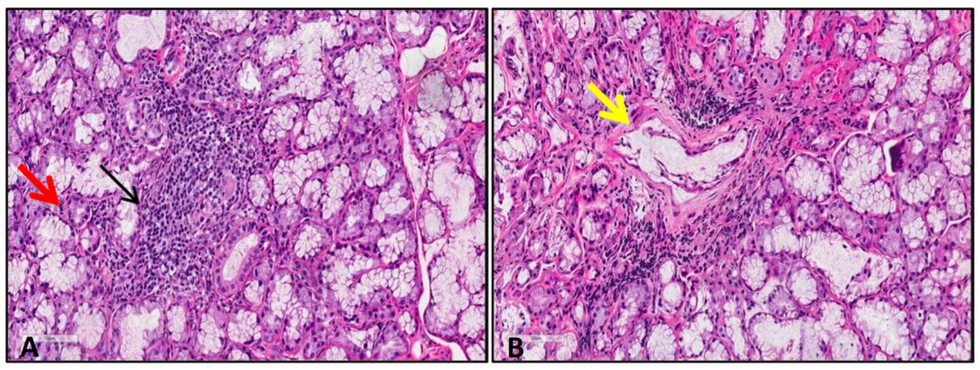
RESULTS



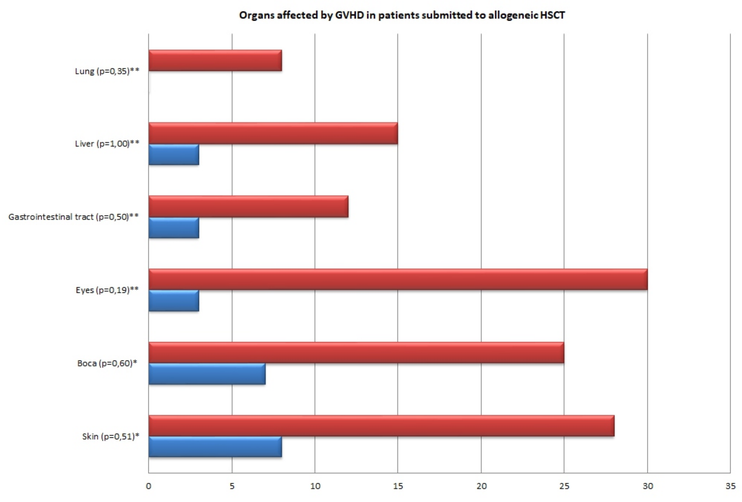
Flowchart of characterization of study groups

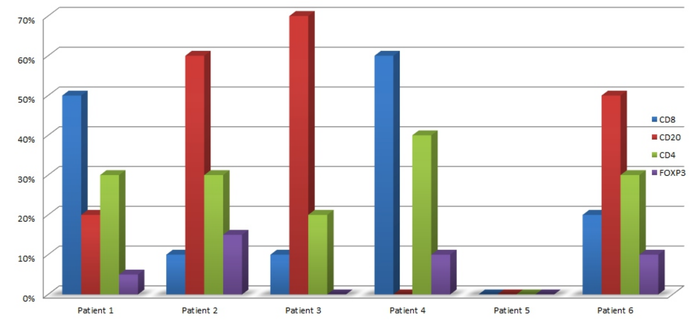
Characteristics of transplantation, presence of oral GVHD and functional impairment of the minor salivary glands

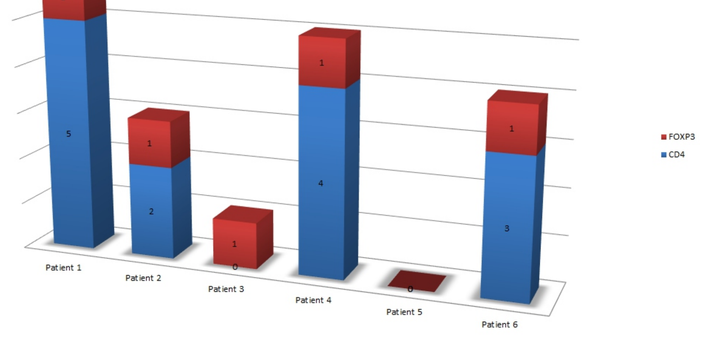
Patient	Diagnosis	Related donor	Progenitor stem cell source	Conditioning regime	Prophylaxis for GVHD	Oral GVHD	Xerostomia	Hyposalivation
1	AML	Yes	PB	Cyclophosphamide + Busulfan	Cyclosporine + Methotrexate	Chronic	Yes	No
2	ALL	Yes	PB	Cyclophosphamide + Fludarabine	Cyclosporine + Methotrexate	Chronic	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).







In a previous cohort study, it was observed that the studied population presented 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.

CONCLUSION

It is therefore important to uncover microbiologically mediated functions in saliva not described to date, as well as new strategies to manipulate the role of saliva in health and disease, especially in GVHD, since the involvement of the salivary glands caused by GVHD has an impact on the oral health and overall quality of life of patients.

Projeto Gráfico: Área de Edição e Produção de Materiais Técnico-Científicos / INCA

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