IMMUNOLOGICAL MONITORING OF TYPE 1 DIABETES MELLITUS PATIENTS AFTER MESENCHYMAL STROMAL CELLS (MSCs) THERAPY

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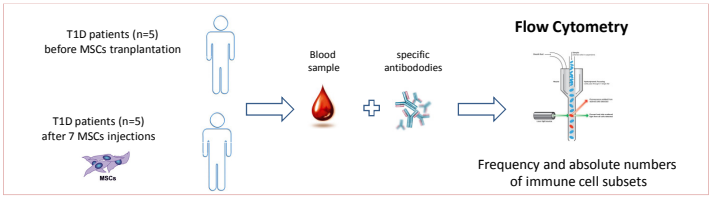
Introduction and objective

Type 1 diabetes mellitus (T1D) usually affects children/ young adults of either gender, resulting from cell mediated autoimmune destruction of pancreatic β-cells. The conventional treatment is performed by the administration of insulin and therapeutic approaches such as pancreatic islet transplantation are limited. This scenery stimulates new researches in the search for therapeutic alternatives, as the treatment with stem cells. Mesenchymal stromal cells (MSCs) have the capacity to differentiate into other cell types, as well as migrate to damaged tissues, modulate the immune system and secrete sever al cytokines and growth factors.

Aim: Analyzing the immune cell subsets of T1D patients after MSCs therapy.

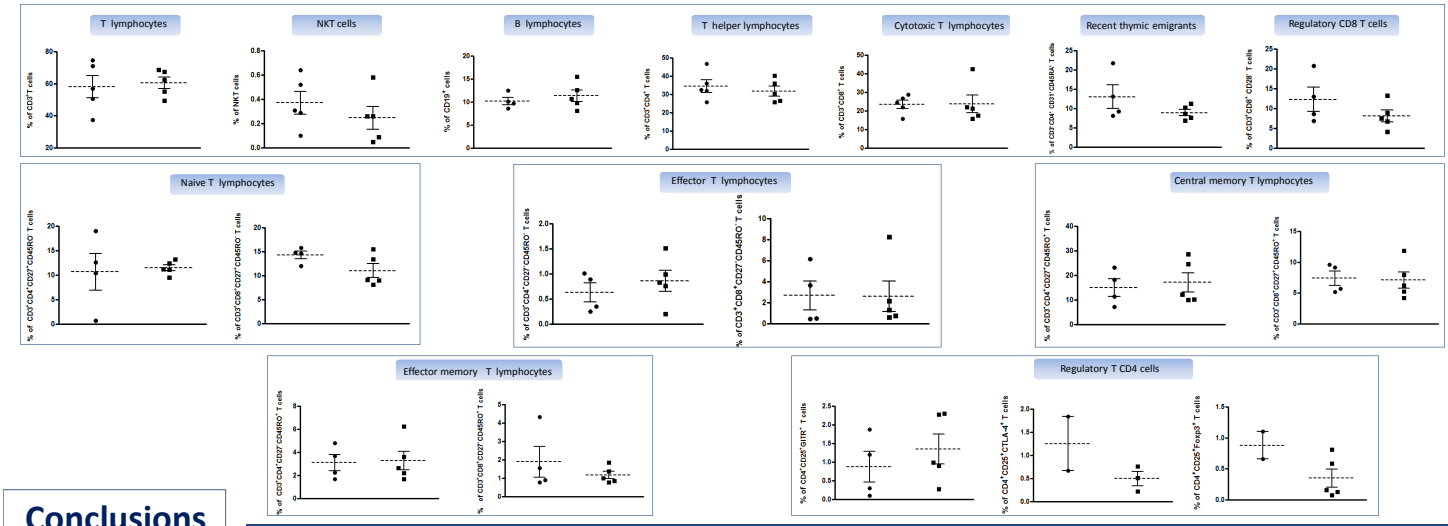
Methodology

The MSCs transplantation protocol included bone marrow biopsy under general anesthesia in first-degree relatives for the collection of mesenchymal cells. These cells were sent to a laboratory to be stimulated to proliferate for a month and were later infused into the patient through a gelatinous solution of approximately 100 ml. Inclusion criteria were age 12 to 35 years, diagnosis of T1D less than 4 weeks prior to treatment without ketoacidosis and positive serum levels of anti-GAD65.



Results

We did not observe significant differences in the immune cell populations analyzed. In other words, the frequency and absolute number were similar before and after MSCs transplantation. Legend: control; After 7th MSCs infusion



Conclusions

These results suggest that MSCs may not have a systemic effect on circulating immune cells and improvements in this clinical protocol are needed to control the autoimmunity and to promote pancreas regeneration in TD1 patients.

Financial support: FAPESP, CNPq, Hemocentro RP, CTC Centro de Terapia Celular, INCTC