PE-4

Clinical Data in Short Bowel Syndrome (SBS): A Data Driven Approach

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Introduction: Short Bowel Syndrome (SBS) is characterized by a peculiar pathophysiological frameworks: affected patients, often undergoing parenteral nutrition (NPT), present alterations in the laboratory data for which there are no specific reference values.

Materials and Methods: A software platform has been developed with functions for the management, analysis, data visualization (Data Warehouse) and for the definition and training of predictive models and algorithms (Machine Learning), aiming at a future use on large amounts of information (Big Data) and creating a prototypical environment dedicated to SBS but potentially adaptable to other biomedical contexts. The information used for this study was handled anonymously and, where required, as part of the consent to the processing of personal data provided during hospitalization of patients, in compliance with the requirements of the General Data Protection Regulation (officially regulated by the European Union No. 2016/679 and signed GDPR19).

Results: The database allows to obtain statistical data regarding the anamnestic and laboratory parameters of patients with SBS. Among the results data obtained we found that the prevalence of SBS is equal in both sexes and an incidence of Gastroschisis, Volvulus and NEC was found as the primary cause of intestinal resection. About 2/3 of SBS patients were treated with intestinal lengthening, after which 76% of them were weaned from parenteral nutrition or decreased the amount.

The glycemia in these patients is higher than in the standard pediatric population, with an increase in the average value as the age of the subjects examined increases.

Conclusions: The data-driven approach has proven to be effective in highlighting correlations between different aspects of the patient's clinical history and, with a greater number of data, will be able to provide predictions on patient outcome allowing for therapeutic modulation.

PE-5

First Hematopoietic Stem Cell Transplantation as Prevention of Rejection in a Multivisceral Transplant

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Introduction: The infusion of CD34+ hematopoietic progenitors and CD45RO+ memory lymphocytes from a donor generates a transient hematopoietic mixed chimerism and constitutes a safe strategy to induce immunological tolerance in solid organ transplantation, such as the patient we present, for multivisceral transplantation.

Methods: Description of the clinical case of the patient in whom multivisceral transplantation and HSCT from the same donor were performed.

Results: We describe the case of a 14-year-old man who received his third multivisceral transplant due to chronic rejection and graft dysfunction. He had a previous history of small bowel transplantation (1st graft) in 2009 due to intestinal epithelial dysplasia, complicated with post-transplant lymphoproliferative disease whereby immunosuppression levels were decreased resulting in severe cellular rejection requiring enterectomy in 2011. 2nd multivisceral graft was performed in 2012 requiring segmental ileal resections due to inflammatory bowel disease (IBD)-like with graft dysfunction and magnetic resonance enterography imaging compatible with chronic rejection. In 2020 he underwent a 3rd transplant with a depleting immunosuppression protocol with alemtuzumab, tacrolimus and corticosteroid. On the 85th day after transplantation, conditioning with fludaravine and cyclophosphamide was performed with subsequent infusion the next day of an aliquot of CD34+ lymphocytes and another of CD45RO+ lymphocytes, both from the same donor as the multivisceral graft. Subsequently, monthly infusions of cryopreserved CD45RO+ lymphocytes (up to a total of 12). Chimerism has been monitored in peripheral blood (between 5th and 109th day post-HSCT) with 100% autologous cellularity in 8 determinations and in 2 of them with detection of donor cellularity 7% (35th day post-HSCT) and 7% CD3+ and 2% CD3/CD19– (54th day post-HSCT). The patient has undergone numerous endoscopic controls with no rejection findings and numerous determinations of antiHLA antibodies with negative results.

Conclusions: The procedure appears to be effective and safe. However, it is too early to assess the long-term effectiveness, the significance of chimerism in peripheral blood and the development of possible complications, since this is the first reported patient in which it has been done.