The Junior Board of the
Polish American Medical Society
Welcomes You to the

4th Polish American Youth Academic Summit: Pioneers in Medicine

October 7th, 2023 at 12pm
Polish Museum of America

The Polish Museum of America

Consulate General
of the Republic of Poland
in Chicago

ORAL PRESENTATION 2

Title: Utility of Plasmapheresis and Intensified Immunosuppressive therapy for de novo HLA Antibodies in Patients after Pancreatic Islet Transplantation

Presenter: Surmai Shukla

Authors: Surmai Shukla MBBS[1]; William Lin MD[1]; Sarah Gondek BS[1]; Joseph Tomecki BS[1]; Kamila Milejczyk BS[1]; Peter Ciesielski BS[1]; Agnieszka Zawada, MD PhD[1]; Piotr Witkowski MD PhD[1]

Author affiliations: [1]Department of Surgery, University of Chicago Medicine, Chicago, Illinois, USA

Prior presentations: N/a

BACKGROUND

Intraportal islet transplantation (ITx) restores endogenous insulin secretion and optimal blood glucose control in patients with Type 1 diabetes. However, patients are required to take daily immunosuppressive medications to protect islet graft from immunologic rejection. Suboptimal compliance to those medications triggers the graft rejection, dysfunction and ultimately graft loss. Detection of de novo donor specific HLA antibodies (dnDSAs) might be the first sign antibody mediated rejection and ongoing graft destruction. Historically, clinical outcomes of graft longevity has been inferior in patients who developed dnDSA comparing to patients who did not. The treatment involving HLA antibody depletion with plasmapheresis, IVIG, and rituximab aimed at reversing rejection and preserving grafts following transplantation has been studied for DSA mediated rejections in solid organ transplantation, however the efficacy of this therapy in islet grafts remains untested.

METHODS

A cohort of 12 patients with brittle form of type 1 diabetes has been submitted to intraportal islet transplantation (ITX) and prospective intensive immune monitoring for dnDSA. Four patients developed dnDSA early (with in 3 months) after their first islet transplant. Moderate level of detected dnDSAs were treated with intensified maintenance immunosuppression only (IntIT) (N=1), while for strong dnDSAs the same regimen was applied with addition of the total plasma exchange, immunoglobulins, and rituximab (IntIT/TPE) (N=3).

RESULTS

Implemented therapies led to complete removal of all HLA antibodies in 3/4 (75%) patients and a successful subsequent islet transplantation. One remaining patient (25%) did not respond to the IntIT/TPE therapy and dnDSA level remained the same. No major side effects were recorded besides one patient who experienced severe headache after high dose immunoglobulin infusion. Long term results in patients who developed dnDSA and were treated with tested regiment were comparable to those who did not developed DSA: 2/4 (50%) vs 3/8 (37.5%) insulin independence rate at 5 years, respectively (NS).

CONCLUSION

Proposed therapy for dnDSA was safe and allowed improved and comparable clinical outcomes after islet transplantation as in patients without dnDSA.