105.4

Impact of the COVID-19 Lockdown on Behavior, Stress, Anxiety and Glycemic Control in Patients With Beta Cell Transplantation

Cyril P. Landstra[1,2], Merel M. Ruissen[1], Hannah Regeer[1], Michiel F. Nijhoff[1,2], Bart E.P.B. Ballieux[3], Paul J.M. van der Boog[2], Aiko P.J. de Vries[2], Sasja D. Huisman[1], Eelco J.P. de Koning[1,2].
[1]*Division of Endocrinology, Department of Internal Medicine, Leiden University Medical Center*, *Leiden, Netherlands*; [2]*Division of Nephrology, Department of Internal Medicine, Leiden University Medical Center*, *Leiden, Netherlands*; [3]*Department of Clinical Chemistry and Laboratory Medicine, Leiden University Medical Center, Leiden, Netherlands*.

Introduction: Patients with severely complicated type 1 diabetes (T1D) who receive β-cell transplantation (Tx) have multiple risk factors for a severe course of coronavirus disease, including the use of immunosuppression (IS). Lockdown strategies implemented due to the COVID-19 pandemic are known to impact both mental and physical health, but this impact is expected to be even greater in patients at high risk for a severe course of COVID-19. We therefore aimed to investigate the behavioral, mental and physical implications of the nationwide lockdown in islet and pancreas transplant recipients (referred to in this abstract as β-cell Tx).
Methods: In order to study the effect of the lockdown on glycemic control, all patients with T1D and an islet transplantation or pancreas transplantation with non-optimal graft function according to the Igls criteria using IS were eligible. As a control group, patients with T1D without IS were included. Lockdown behavior and self-reported changes in anxiety, stress, physical activity, weight, and glycemic control were assessed using questionnaires. HbA1c and continuous glucose monitoring (CGM) metrics during lockdown were compared to measurements before lockdown.
Results: Islet and pancreas (β-cell) Tx recipients (n = 51, age 55 (48 – 59) years, BMI 23.3 (20.9 – 27.4) kg/m^2, diabetes duration 42 (34 – 48) years) adhered more stringently to lockdown measures compared to patients with T1D alone (n = 272, age 53 (37 – 62) years, BMI 25.2 (23.0 – 28.0) kg/m^2, diabetes duration 27 (15 – 39) years). In β-cell Tx recipients as compared to T1D, 52.1% *vs* 18.3% (p <0.001) reported not going out for groceries and 45.8% *vs* 14.0% (p <0.001) reported not leaving the house at all. Fear of coronavirus infection was higher in β-cell Tx recipients (VAS 5.0 (3.0 – 7.0) *vs* 3.0 (2.0 – 5.0), p=0.004) and glycemic control worsened during lockdown as assessed by HbA1c (ΔHbA1c +1.67 ± 8.74 *vs* -1.72 ± 6.15 mmol/mol, p=0.006) as well as CGM (Δ time in range β-cell Tx -4.5% (-6.0% – 1.5%) *vs* T1D 3.0% (-2.0% – 6.0%), p=0.038; Δ time above range β-cell Tx 5.5% (-0.5% – 7.5%) *vs* T1D -3.0% (-7.5% – 3.0%), p=0.025). Among β-cell Tx recipients, 29.2% self-reported more difficulty with glycemic control, 26.8% increased insulin use, 40.0% less physical activity, 41.7% weight gain, 29.2% increased anxiety and 33.3% increased stress since the start of lockdown. Having had a β-cell Tx was the most important predictor of not leaving the house during the COVID-19 lockdown.
Conclusions: The COVID-19 pandemic and subsequent lockdown add additional fear of infection, deterioration of glycemic control and more stringent social isolation behavior when patients with T1D also have an islet or pancreas transplant. These patients undertake less physical activity and experience more weight gain, stress and anxiety. Health care professionals should be aware of these behavioral, mental and physical implications to be able to provide extra support.

207.2

Favorable 5-year Follow Up Outcomes After Islet Transplantation in Patients With Type 1 Diabetes Mellitus at University of Chicago

Piotr Bachul[1], Peter Borek[1], Roi Anteby[1], Gabriela S. Generette[1], Lindsay Basto[1], Laurencia Perea[1], Ling-Jia Wang[1], Karolina Golab[1], Martin Tibudan[1], Angelica Perez-Gutierrez[1], Rolf Barth[1], John Fung[1], Piotr Witkowski[1].
[1]*Surgery, Transplantation Institute*, *Chicago, IL, United States*.

Introduction: Prospective randomized multicenter trial did not find advantage of CXCR1/2 blocker (Reparixin) over placebo in islet transplantation in patients with type 1 diabetes mellitus and problematic hypoglycemia at 1 year follow-up. We present favorable metabolic outcomes at 5-year follow-up in trial cohort from our center.
Material and Methods: 12 nonuremic patients with type 1 diabetes and problematic hypoglycemia received a total 19 islet transplants (ITx) (up to 2 ITx per patient) within 1 year. Eight patients were randomly assigned and received Reparixin and 4 patients received placebo within first week after each transplant in addition to standard immunosuppression (anti-thymocyte globulin, tacrolimus, and mycophenolate).
Results: 11/12 of patients achieved insulin independence during the study period. At 5-year follow-up 4/8 (50%) remained insulin free with HbA1c <6.0% in Reparixin group vs. 1/4 (25%) in placebo group. One patient had partial islet function without severe hypoglycemic episodes (SHEs). Diabetic neuropathy and renal function remained unchanged while retinopathy improved in 3/6 (50%) patients. 6/12 (50%) patients left the study: 3/6 proceeded with pancreas transplant and remain off insulin, the remaining 3/6 stopped immunosuppression with decline of islet graft function. No patients experienced any cardiovascular events nor became persistently sensitized (current PRA 0%).
Conclusions: Repeat islet transplantation led to insulin independence in 91% of patients. 50% of patients in Reparixin group and 25% in placebo remained insulin free 5 years after ITx. In long-term follow-up there was no progress of secondary diabetic complications. Kidney function in all patients remained stable without macroalbuminuria. No patients became persistently sensitized. Subsequent pancreas transplantation was feasible and effective in patients with decline of islet graft function.