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Total Pancreatectomy With Islet Autotransplantation In Diabetic And Prediabetic Patients With Intractable Chronic Pancreatitis

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Introduction: Total pancreatectomy with islet autotransplantation (TPIAT) is an effective treatment option for non-diabetic patients with intractable chronic pancreatitis. The outcome and potential benefits for prediabetic and diabetic patients are less well established.

Method: Thirty-four patients underwent TPIAT were retrospectively divided into 3 groups according to pre-operative glycemic control: Diabetes Mellitus (DM) (n=5, 15%), Pre-DM (n=11, 32%) and Non-DM (n=18, 54%).

Results: Preoperative fasting c-peptide was detectable and similar in all 3 groups. Islet mass in the DM group was comparable to Pre-DM and Non-DM groups: (median 191,800), 111,800 and 232,000, respectively) (Fig 1). Patients received islet mass of over the target level of 2,000 IEQ/kg in Pre-DM and DM at lower but clinically meaningful rates compared to the Non-DM group 45% (5/11) and 60% (3/5) for a combined 50% (8/16) rate, respectively, compared to 83% (15/18) for the non-DM group (Fig 2). At 1 year, fasting c-peptide and HbA1c did not differ between DM and Pre-DM groups but c-peptide was significantly higher in Non-DM. Islet transplantation failed (negative c-peptide) only in one patient.
Preoperatively, all patients experienced pancreatic pain with daily opioid dependence in 60-70%. Pancreatic-type pain gradually subsided completely in all groups with no differences in other painful somatic symptoms.

Conclusions: Diabetic patients with measurable preoperative c-peptide can achieve similar benefit from TPIAT, with comparable outcomes to prediabetic and non-diabetic patients including pain relief. Not surprisingly, endocrine outcomes for diabetic and prediabetic patients are substantially worse than in those with normal preoperative glucose control.

Fig 1. Islet mass retrieved and transplanted from Diabetic, Pre-Diabetic and Non- Diabetic patients

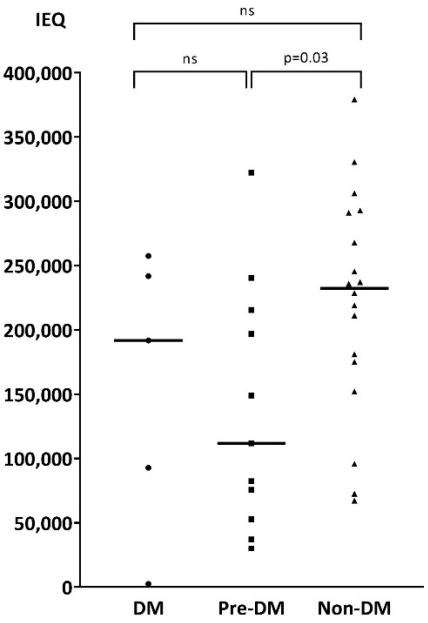

Fig 2. Rate of patients who received islet mass over 2,000 IEQ/kg