

## **Autologous Islet Transplantation to Improve Glycemic Control Following Extended Pancreatectomy: Indications and Outcome**

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**Context** Autologous islet transplantation is performed to improve glycemic control after extended pancreatectomy. In such cases, islet cells are isolated from non-neoplastic pancreatic parenchyma (resected for technical reason) and then re-infused. **Methods** From November 2008 to present, 31 patients (out of 36 candidates) underwent autologous islet transplantation. Indications for autologous islet transplantation were: completion pancreatectomy (CP) for fistula after pancreaticoduodenectomy (13 patients, Group A); CP as an alternative to high-risk anastomosis during pancreaticoduodenectomy (14 patients, Group B); distal pancreatectomy for benign lesion of pancreatic neck (9 patients, Group C), near-total pancreatectomy for chronic pancreatitis (1 patient). **Results** Five out of 36 candidates did not received transplantation for: inadequate islet mass (2 patients), patient instability (2 patients), high contamination of islet culture (1

patient). Islet were infused into the portal vein in 27 patients and into the bone marrow in 4 patients. Median islet equivalents per kilogram (IE/kg) was 2,060 (534-4,780). Complications occurred in 6 patients (19%): 2 bleeding, 1 sepsis, 3 portal thrombosis (1 complete, 2 partial). After a median follow up of 18 months, 24% of patients with total pancreatectomy (group A-B) are insulin-independent, 52% developed diabetes (non brittle-diabetes); 24% had loss of graft function (C-peptide <0.3 ng/mL). This event was associated with poor islet mass (3/4 patients with <1,500 IE/kg had function loss). Nine out of 10 patients with residual pancreas are insulin-independent. **Conclusions** Autologous islet transplantation allowed insulin-independency in 24% of patients with total pancreatectomy and 90% of patients with distal or near-total pancreatectomy. Islet mass (IE/kg) could be a criterion to select patients for transplantation.