Total Pancreatectomy and Autologous Islet Cell Transplantation as a Means to Treat Severe Chronic Pancreatitis

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BACKGROUND: Chronic pancreatitis causes pain episodes frequently requiring hospitalization and severely compromising quality of life. For patients who suffer from severe chronic pancreatitis, total pancreatectomy followed by autologous islet cell transplantation (AIT) can alleviate pain and preserve endocrine function. STUDY DESIGN: From 2000 to 2006, 75 patients underwent pancreatectomy with AIT at the University of Cincinnati. Patient demographics, narcotic requirements (standardized by conversion to morphine equivalents), and insulin dependence were recorded prior to surgery and at subsequent follow-up visits. Statistical analysis was performed to determine whether patient narcotic requirements decreased following surgery as well as factors associated with insulin independence. RESULTS: Seventy-five patients (50 women, 25 men) with a mean age of 37.5 years underwent completion (n = 24), total (n = 47), or partial (n = 4) pancreatectomies with AIT. The average number of islet equivalents harvested was 413,324 (range 4,100 to 1,065,600). All patients had preoperative pain and had been taking opioid analgesics. There was a notable reduction in narcotic usage ($p<0.001$) from the mean preoperative requirement of 249.5 MEs to 98.7 MEs at last follow-up. Fifty-one percent of patients are currently narcotic independent. At last follow-up, the mean units of insulin required per day was 16.4 (range 0 to 80). Twenty-eight percent are insulin independent and 17% require sliding scale insulin (1-9 units/day). Of the 34 patients that require less than ten units of insulin per day, 31 are female, a significant finding ($p<0.001$). These patients also were prescribed less insulin upon discharge from the hospital than patients currently requiring greater than ten units of insulin per day (10 units/day vs. 20 units/day; $p<0.001$). CONCLUSIONS: Pancreatectomy with AIT can alleviate pain for patients with chronic pancreatitis and preserve endocrine function. Factors associated with insulin independence include female gender and insulin prescribed at patient discharge from the hospital.