

Unveiling the Promise of Pancreatic Transplantation: A Beacon of Hope for Diabetes Management

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Abstract

In the realm of organ transplantation, pancreatic transplantation stands as a beacon of hope for individuals grappling with the burdensome challenges of type 1 diabetes mellitus (T1DM) and select cases of type 2 diabetes mellitus (T2DM). This intricate surgical procedure, which involves replacing a dysfunctional pancreas with a healthy donor pancreas, offers the potential to restore normal insulin secretion, achieve euglycemia, and liberate patients from the relentless demands of insulin therapy. As a cornerstone of diabetes management, pancreatic transplantation holds the promise of improving quality of life, reducing diabetes-related complications, and providing a path to long-term health and well-being.

Keywords: Pancreatic transplantation; T1DM; Insulin therapy

Introduction

Diabetes mellitus, a global health burden, encompasses two primary forms: type 1 diabetes mellitus (T1DM) and type 2 diabetes mellitus (T2DM). T1DM, an autoimmune condition, results in the destruction of pancreatic islet cells, leading to absolute insulin deficiency. T2DM, characterized by insulin resistance and relative insulin deficiency, is often associated with obesity and metabolic syndrome. The relentless demands of insulin therapy, particularly in T1DM, significantly impact patients' quality of life, necessitating constant monitoring and adherence. Pancreatic transplantation (PTA) offers a potential solution, aiming to restore endogenous insulin production and achieve long-term euglycemia [1, 2].

Background

Pancreatic Transplantation Alone (PTA): PTA, often performed as a living donor transplant, involves the transplantation of a healthy donor pancreas into a recipient with T1DM. This procedure aims to restore endogenous insulin production and achieve long-term euglycemia. However, PTA is associated with significant risks, including rejection, infection, and the need for lifelong immunosuppression.

Spontaneous Pancreas-Kidney Transplantation (SPKT): SPKT, often performed as a deceased donor transplant, involves the simultaneous transplantation of a healthy donor pancreas and kidney into a recipient with T1DM and end-stage renal disease (ESRD). This procedure aims to restore endogenous insulin production and achieve long-term euglycemia, while also addressing the recipient's renal failure. SPKT is associated with significant risks, including rejection, infection, and the need for lifelong immunosuppression.

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