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Our experience with Roux-Y intestinal drainage in simultaneous kidney and pancreas transplantation

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Abstract Enteric drainage is a sound surgical technique in SKP, and it avoids the majority of urological as well as metabolic complications. We did not see an increase in intraabdominal complications or of graft loss due to rejection. Intestinal leak is rare and easily managed provided a Roux-Y loop of jejunum is used. Even though the number of patients was small and the follow-up short, the results of the RY group were at least comparable to the BD group. In view of our results, we plan to use this technique in all our future SKP patients.

Key words Kidney transplantation
Pancreas transplantation
Roux-Y-drainage

Introduction

Bladder drainage of exocrine secretions has become the most acceptable technique for pancreas transplantation and is credited in part with the overall improvement in results [1]. The main advantage is the ability to diagnose rejection early by monitoring urinary amylase and, thus, improving its treatment success rate [2]. On the other hand, it has become evident that there is a high incidence of urological complications and, in our own experience, they are more troublesome in male patients. Therefore, in January 1991 we began to use enteric drainage in all our male simultaneous kidney and pancreas (SKP) transplant recipients. We analyzed our early results with this technique and compared them with our bladder-drained patient.

Materials and methods

Between January 1988 and December 1992, we performed 59 pancreas transplants of which 51 were SKP, 4 were pancreas after kidney, and 4 were pancreas alone. Until December 1990, all were bladder drained (BD) but, thereafter, all male SKP patients were enterically drained into a Roux-Y loop of jejunum (RY). Of our 51 SKP patients, 34 were BD and 17, RY.

There were 20 females and 14 males in the BD group and all 17 in the RY group were males. The mean age was 34 ± 5.8 and 37 ± 8.4 years, respectively.

All transplants were performed through a midline laparotomy. The technique of BD was basically that described by Nghiem and Corry [3]. The RY group differed only in that the transplanted duodenum was anastomosed to a 45-cm-long Roux-Y loop of jejunum originating from the second jejunal arcade. Both the duodenocystostomy and duodenojejunostomy were done with an EEA-25 stapler. No drains were used.

All patients received quadruple sequential immunosuppression with Minnesota antilymphocyte globulin (MALG), azathioprine, cyclosporin A, and prednisone. Rejection episodes were treated with high dose steroids and/or OKT3.

Results

All patients became insulin-free immediately after revascularization. One BD patient had primary nonfunction of the kidney and, therefore, was not included in the results. Three patients (6%) in the BD group died postoperatively secondary to sepsis, two of them with functioning grafts. Three patients (6%) in the RY group had early venous thrombosis of the pancreas and two of

them lost their graft. Both patients went on to lose their transplanted kidney and thrombosed their dialysis A–V fistula in the immediate postoperative period. The third patient was successfully thrombectomized and continues to have a functioning graft after 30 months. Forty-five patients (30 BD, 15 RY) were discharged from hospital with functioning grafts and were analyzed for complications and long-term function.

Postoperative complications were much more common in BD than in RY patients, mainly urinary tract infections (43% vs. 7%), hematuria (24% vs. 0), urethral stricture (13% vs. 7%), acidosis (20% vs. 0), dehydration (17% vs. 0), and bacterial infections (37% vs. 7%). Two RY patients developed intestinal leaks that were successfully managed by percutaneous drainage and octeotride. One BD patient had a bladder leak that lead to sepsis and death and two were converted to RY because of persistent urinary complications. Of 30 BD patients 23 (76%) had 31 episodes of rejection and all but 1 (97%) had elevation of serum creatinine (S Cr) and biopsy-proven kidney rejection. By contrast, only 18 (58%) had a significant decrease in hourly urinary amylase (h UA). In the RY group, 5 of 15 patients (33%) had five episodes of rejection diagnosed by elevation of S Cr and kidney biopsy.

Three BD and one RY patients died between 5 and 44 months (mean 17 months), three with functioning grafts, from cardiovascular complications. Four BD patients again became insulin-dependent at a mean of 12 months (7–24 months), three due to rejection and one to iatrogenic arterial thrombosis while attempting balloon angioplasty of a splenic artery stenosis.

The 2-year actuarial patient and pancreas graft survival for SKP-BD and SKP-RY groups was 88% and 94%, respectively, for patients and 83% and 88%, respectively, for pancreas grafts.

Discussion

The first human pancreas transplants were enterically drained [4] but because of the higher incidence of anastomotic complications, several alternative techniques evolved. The most widely accepted is the bladder drainage technique and only a few centers continue to use enteric drainage [5]. The main reported advantages of the BD technique is the ability to diagnose rejection early and a decreased risk of bacterial contamination [6]. We did not have a higher incidence of bacterial infection in our RY group. Urinary amylase has a low sensitivity for predicting rejection in SKP [7] and only 58% of 31 episodes of rejection had a significant decrease in h UA. None of our RY patients lost the pancreas graft due to rejection.

The main disadvantage of the BD technique is the higher incidence of urological complications and metabolic acidosis that requires the conversion to enteric drainage in a significant number of patients [8, 9]. We converted two BD to RY for chronic urological complication. Reluctancy to use enteric drainage stems mainly from a fear of intestinal leak and a higher incidence of intraabdominal complications [1]. Two of our RY patients (13%) had an intestinal leak and both were self-limited and responded to percutaneous drainage and octeotride. We believe that the use of a long Roux-Y limb of jejunum makes this anastomosis safer and much easier to manage if a leak develops.

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