Experience of the University of Pittsburgh, Pittsburgh, Pennsylvania, USA

A.G. TZAKIS, P.B. CARROLL, V. KAMP-NIELSEN, T. FRIBERG and T.E. STARZL

Between March 1983 and July, 1986 a modest clinical trial of whole pancreas transplantation was undertaken at the University of Pittsburgh. Followups were to 12 May 1988.

Number of patients:	15
Mean age (years):	30
Number of grafts:	16
Previous kidney transplantation:	7
Simultaneous kidney transplantation:	5
Subsequent kidney transplantation:	1
Deaths less than one year:	3
Deaths greater than one year:	1
One year pancreas survival (actual):	50%
Pancreas lost after one year:	4
Pancreas functioning (3 to 5 years):	4

Composite pancreaticoduodenal grafts were used preferentially in our series, because they allowed transplantation of all the available pancreatic islets, using large vascular and conventional intestinal anastomoses [1, 2]. The blood supply was through the donor celiac axis and the superior mesenteric artery of the donor which were anastomosed using a common Carrel patch of the donor aorta to either the common or external iliac artery of the recipient. Venous drainage was through the donor portal vein which was anastomosed to an iliac vein of the recipient. The pancreatic secretions were drained into the intestinal tract, through a duodenojejunostomy. In 7 of our early cases, the spleen was included in the graft: 3 of these patients required allograft splenectomies due to the development of graft versus host disease, which manifested itself as severe hemolysis, thrombocytopenia and leucopenia (one case each).

Four of our patients developed mycotic aneurysms of the iliac artery, at the site of the Carrel patch. These ruptured, 3 of them into the retroperitoneum and one into the jejunum, at the site of the pancreatic graft drainage. The ruptures occurred a few days to more than a year after the failed pancreatic

J.M. Dubernard and D.E.R. Sutherland (eds.), International Handbook of Pancreas Transplantation, 421–422.

grafts had been removed. Surgical treatment required emergency ligation of the illiac artery and extraanatomical femorofemoral bypass in all but one. The exceptional patient maintained sufficient blood supply to her lower extremity after the common iliac artery was ligated.

Immunosuppression was with cyclosporin and prednisone. Azathioprine and antilymphocyte globulin were used as necessary.

Although in our series the livers of the pancreas donors were not used for transplantation, we have since performed combined liver-pancreas donor operations. This is fairly simple in case of segmental pancreatic transplantation, provided, there is a single hepatic artery; the splenic artery and vein remain with the segment of pancreas and the hepatic artery anatomy remains intact.

When the total pancreas and liver are harvested together, part of the portal vein can be left with the pancreas. The celiac axis can be left with the pancreas and the common hepatic or proper hepatic artery can be used for the arterial revascularization of the liver. Arterial or venous grafts can be used as needed for either the liver or the pancreas. It has been our experience that handling of the structures may be equally important as the anatomical considerations if inadvertent ischemic injury of either organ is to be avoided. We have been sent two dead livers from well meaning members of 2 pancreas teams in other cities. Not only were the livers ruined, but both pancreas were discarded eventually. A collegeal interaction among the interested teams can usually resolve the dilemma of using the one organ in preference to the other, especially as the demand for both grafts grows. Technical and judgement matters of the kind are discussed elsewhere [2].

All of our pancreas recipients except one who had a technical failure, had non diabetic glucose tolerance tests after transplantation and were able to discontinue exogenous insulin treatment. They had high peripheral fasting insulin and C-peptide levels. Stimulated values to oral, intravenous and mixed meals were normal.

Retinopathy as evaluated with fundoscopic photos and visual acuity measurements did not improve or became worse during the study period despite achievement of a euglycemic state. In contrast, peripheral neuropathy as evaluated with nerve conduction studies showed a persistent trend to improvement. Large vessel disease, manifested by myocardial infarctions or by complications of peripheral vascular disease continued to progress.

References

1. Starzl TE, Iwatsuki S, Shaw BW Jr, Greene DA, Van Thiel DH, Nalesnik MA, Nusbacher J, Diliz-Perez H, Hakala TR: Pancreaticoduodenal transplantation in humans. Surg Gynecol Obstet 159: 265–272,1984.
2. Starzl TE, Tzakis AG: Pancreatic-duodenal transplantation with enteric exocrine drainage. In: Groth CG (ed) Pancreatic transplantation; pp 113–129. W.B. Saunders Co, Philadelphia, 1988.

Experience of the
Medicine, Prague.

V. BARTOŠ and I. V

A systematic approa
(PTx) requires that th
1. own experimental
2. comprehensive m
   to define the indi
3. experience with k
   control renal failu

Our experiments w
PTx to find the best
of handling exocrin
reconstruction in seg
splenic artery into t
technique of vascula
the genesis of vasc
occlusion of the ca
destruction of the
tissue. Functional is
documented by fast
test and insulin secr

The programme
1983. Up to April 1

Methods

The organs were all
years. Donor criter
diseases, previous
creatic segment rep
the pancreas is pe

J.M. Dubernard and D.E.