

Present Status of Pancreas Transplantation Both from Deceased and Live Donors in Japan

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Since the Organ Transplant Law was enforced in 1997, 237 pancreas transplantations (PTx) [208 from DBD, 2 from DCD, 27 from live donors] were performed from 2000 to 2014 in Japan. Especially after July 2010, number of PTx increased because of the revision of the Law. In this study, we evaluated the effectiveness of PTx from deceased donors and 16 simultaneous pancreas and kidney transplantations from live donors (LDSPK) of my own experiences.

210 deceased donors PTxs in Japan

132 donors (63%) were over 40 years, which was older as compared to the US and Europe. The Cause of death was cerebrovascular diseases in 117 donors (56%). According to the criteria by Kapur, 160 donors (76.2%) were marginal donors. Category of PTx were SPK; 167 (79.5%), PAK; 32 (15.2%) and PTA; 11 (5.2%). The duration of insulin therapy and hemodialysis of the recipients were 27.4 and 6.9 years. Waiting period was 1,312 days (Mean). Induction therapy by @IL-2R or ATG was performed in 203 patients (97%) and immunosuppression was maintained by tacrolimus (98.1%) or cyclosporin (1.9%) combined with MMF and steroid. Enteric drainage was selected in 174 patients (83%) and bladder drainage in 36 patients (17%). 5-year recipient survival was 95.8%. Pancreas graft survivals were 84.3% at 1-year, 77.0% at 3-year and 70.4% at 5-year. While, kidney graft survivals were 92.5% at 1- and 3-year, and 89.2% at 5-year, respectively.

16 LDSPKs of my own experiences

I have introduced the first LDSPK in 2004 and performed 16 cases. [Recipients] Age and gender were 34.2±5.7 years and 6 males / 10 females. All of them showed a negative serum C-peptide level (<0.03ng/ml). [Donors] Donors were 12 parents and 4 siblings. 6 donors were ABO-incompatible. All donors showed a good pancreatic endocrine function and a renal function. [Operations and immunosuppression] Donor operation was performed by right nephrectomy followed by distal pancreatectomy with open (8 donors) or laparoscopic procedure (8 donors). LDSPK was performed using pancreatico-cystostomy. Immunosuppression was achieved by a quadruple therapy with tacrolimus, MMF, prednisolone, and basiliximab. For ABO-incompatible cases, desensitization with rituximab, DFPP and PEX was performed. [Results] Although a pancreatic fistula (Grade B) was developed in one donor and a pancreatic cyst in one donor, 14 donors showed no complication including diabetes and renal dysfunction up to 11 years. One recipient developed primary nonfunction of the pancreas graft. Another patient developed venous thrombosis. Other 14 patients achieved insulin independency immediately after transplantation. These patients are maintaining insulin independency and showing the normal endocrine function.

All six patients from ABO incompatible donors achieved insulin independency (100%) and withdrawal from hemodialysis (100%) without an episode of antibody mediated rejection.

Conclusions

Although majority of the deceased donors were marginal in our country, clinical outcome demonstrated that PTx was a potent and promising treatment for severe type 1 diabetic patients. Also, LDSPK can be recommended as a potent tool of treatment for type 1 diabetic patient with ESRD. Furthermore, our clinical data demonstrated that ABO-incompatible pancreatic graft survived as well as kidney graft.