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Supporting Information

Supplementary material

This appendix was part of the submitted manuscript and has been peer reviewed.
It is posted as supplied by the authors.

Appendix to: Eldredge J, Couper MR, Moore DJ, et al . South Australian experience with paediatric total pancreatectomy and islet autotransplantation for *PRSS1*-associated hereditary pancreatitis. *Med J Aust* 2021; doi: 10.5694/mja2.51247.

Appendix

Pre-operative, intra-operative and post-operative care

Total pancreatectomy and islet autotransplantation (TP-IAT) was registered and approved as a new procedure by a patient care ethics committee at the Women's and Children's Hospital, Adelaide. Informed consent was obtained from families. Pre-operatively stimulated C-peptide levels were measured to confirm adequate beta cell function. Four patients were immunised against encapsulated organisms pre-operatively, and the fifth shortly after the procedure. Surgical approach included total pancreatectomy, cholecystectomy and biliary and enteric reconstruction. Splenectomy was performed in three patients as a result of difficult dissection. Splenic tissue was reimplanted into the omentum after splenectomy in the index case. Excised pancreatic tissue was placed in a modified University of Wisconsin solution omitting glutathione and glutamine at 4°C. Tissue was transported by air for islet isolation at St Vincent's Institute of Medical Research in Melbourne. Median time from pancreatectomy to laboratory enzyme digestion was 300 minutes (see Box in main text of article). Islet cell isolation utilised manual and enzymatic dissociation within a Ricordi digestion chamber. Median islet cell equivalent (IEQ) was 489 000 (Box). Tissue was washed and suspended in an islet transplant specific Connaught Medical Research Laboratories medium, supplemented with 5% human serum albumin. Sterility testing was undertaken prior to transport.

Patients remained sedated in the paediatric intensive care unit (PICU) post pancreatectomy with intravenous glucose and insulin support. Median time from start of pancreatectomy to portal vein infusion in the evening was 13 hours (Box). Islet autotransplantation was performed by radiologically guided percutaneous transhepatic puncture, with portal venous pressure monitoring throughout the infusion. After TP-IAT, patients remained in PICU for median 7 days. Tight glycaemic control was maintained with blood glucose targets of 5.5–6.6 mmol/L to maximise survival of transplanted islet cells. C-peptide levels were followed post-operatively. Transition to continuous subcutaneous insulin infusion and continuous glucose monitoring occurred on day 12. Post-operative complications are listed in the Box. Discharge home occurred after a median of 30 days in hospital. Patients were prescribed long term fat soluble vitamins, pancreatic enzyme supplementation, asplenia prophylaxis and a proton pump inhibitor where indicated.

Use of feeding gastrostomy/gastrojejunostomy tube is routine in other TP-IAT centres.[1,2] We were able to achieve tight glycaemic control post-operatively in our cohort without such an approach.

References

1. Chinnakotla S, Bellin MD, Schwarzenberg SJ, et al. Total pancreatectomy and islet autotransplantation in children for chronic pancreatitis: indication, surgical techniques, postoperative management, and long-term outcomes. *Ann Surg* 2014; 260: 56-64.
2. Bellin MD, Forlenza GP, Majumder K, et al. Total pancreatectomy with islet autotransplantation resolves pain in young children with severe chronic pancreatitis. *J Pediatr Gastroenterol Nutr* 2017; 64: 440-445.