We are currently successfully testing this method in segmental and whole organ allotransplantation. We regard intestinalization as a method with considerable prospect for clinical use in the preservation and transplantation of the pancreas.

Expression of Major Histocompatibility Complex Structures on Immunological Reactive and Nonreactive Cells in Islets of Langerhans and Other Tissues

K. Ulrichs, W. Müller-Ruchholtz
Abteilung für Immunologie, Klinikum der Universität, Kiel, FRG

Major histocompatibility complex (MHC) molecules are considered to play a major role in induction of autoimmune reactions and in allograft immunogenicity. Based upon our previous observation that such molecules may be constitutively expressed on a defined variety of cells not involved in immune responses, we further investigated parameters which govern the cell surface expression of these structures. Isolated islets and cryostat sections of various tissues of twelve inbred rat strains were quantitatively evaluated by indirect immunofluorescence and -peroxidase with a set of three monoclonal anti-Ia antibodies. The results were as follows. (1) The extent to which certain cells, such as β-cells, hepatocytes and thyroid follicular epithelial cells, express Ia molecules is genetically determined and MHC-allotype-dependent. This determination also governs the increase or new induction of Ia expression on cells by γ-interferon. (2) Physiological variations of Ia expression on β-cells may be determined by nonimmunological events, such as pregnancy. (3) Disease-associated variation of Ia expression can be observed on β-cells when comparing spontaneously diabetic BBW with diabetes-resistant BBC rats.

Conclusions: (1) MHC-dependent variation of Ia surface expression may represent part of the biochemical expression of what is called genetically determined susceptibility to autoimmunity and/or variation of alloimmunogenicity. (2) On the other hand, variation of cell surface Ia expression may well be involved in physiological, nonimmunological cell functions.

Temporary Duct Occlusion in Experimental Pancreas Transplantation in the Pig

F.A. Zimmermann †
Department of General and Abdominal Surgery, Faculty of Medicine, University of Saarland, Homburg/Saar FRG

In pancreatic transplantation, it is still a matter of debate whether exocrine secretion should be maintained or abolished. The advantages of graft draining methods seem to be the maintenance of the functional and morphological integrity of the transplanted organs, its major disadvantage being the risk of leakage. Graft occlusion, on the other hand, may induce progressive fibrosis, the possible role of which in terms of endocrine insufficiency has not been determined.

We have tried to find a way out of this dilemma by developing a technique of temporary duct occlusion with a fibrin glue modified by us for its demands.

Pancreatic left segment grafts were prepared in piglets. The head of the pancreas was left in place to maintain an exocrine function, and its uncinate processus was resected. The endocrine part of the head of the pancreas, however, was ablated by regional perfusion with streptozotocin via the common hepatic artery and its pancreatic branches. Thus, stable diabetes was produced in these animals, enjoying a normal exocrine function. The grafts were autotransplanted to the right iliac region and, according to the protocol, the ducts were either permanently occluded with prolamine or the cut end of the neck of the pancreas was anastomosed telescopically to the jejunal Roux-en-Y loop. In a third group the ducts were occluded with a commercially available fibrin glue enriched with 10,000 kIU of aprotinin or 7.5 U of α_1-antitrypsin and additionally anastomosed to a jejunal Roux loop. In in vitro studies we were able to show that these additives resisted the tryptic activity of the pancreatic juice for prolonged periods of time. The resumption of the exocrine activity was investigated in vivo by collecting fluid specimens from the Roux loops close to the anastomoses using an intraoperatively placed percutaneous catheter. The animals were followed up for 6 months and were checked at intervals for glucose regulation (BG, i.v. GTT, k values, insulin).

Exocrine activity of the fibrin-sealed grafts starts after day 3. This technique does not induce pancreatitis. Serum amylase and lipase levels are not above those found in other groups and return to normal sim-