

On days 3, 7, and 14, the fluorescence of serotonin and CA increased significantly, while the coefficients of dispersion and asymmetry tended to decrease (Table 1).

From our findings it can be concluded that premedullary thymocytes display a number of characteristics common with APUD cells: they are argyrophilic in the Grimelius test, their cytoplasm is packed with granules and contains fluorogenic amines (serotonin and CA) that are involved in the regulation of lymphopoiesis. The APC population is heterogeneous in size and content of serotonin and CA, which indicates its high functional activity. The APC population responds to hydrocortisone and DOCA by changes in cell number, localization, and size as well as in the intensity of production and release of serotonin and CA.

Thus, APC are involved in the realization of the effects of corticosteroids on lymphopoiesis in the thymus.

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Transplantation of Embryonal Pancreas into the Salivary Gland of Adult Rats

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Fragments of embryonal rat pancreas are grafted into the submandibular salivary gland of adult rats with alloxan-induced diabetes. The grafts are not rejected within a 4-week period and contain functionally active insulinocytes. Active function of the endocrine pancreatic fragments is confirmed by a significant increase in the blood content of immunoreactive insulin.

Key Words: *diabetes mellitus; transplantation; insulinocytes; insulin*

Transplantation of the endocrine pancreas is one of the methods employed in the treatment of diabetes mellitus. Isolated islets or free B cells have been transplanted intraperitoneally, under the renal and hepatic capsule [1,5], intraportally [2], or subcutaneously in special capsules [4]. Although these methods

hold good promise, transplantation of endocrine tissue remains an operation involving a high risk of the graft-versus-host reaction [3]. High probability of graft rejection prompts the improvement of immunosuppressive therapy and appropriate choice of the sites in the recipient's body where the graft will be effectively established.

Our preliminary studies showed that the salivary glands may be the site where prolonged persistence of transplants of different origin is possible. In order

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to test this hypothesis, we estimated the effectiveness of grafting of embryonal pancreas into the salivary glands of adult rats with alloxan-induced diabetes.

MATERIALS AND METHODS

Experiments were performed on 24 male Wistar rats weighing 180-200 g. Diabetes was induced by a single intraperitoneal injection of alloxan in a dose of 26 mg/100 g body weight. The pancreas of 20-day-old rat fetuses was removed and cut into 0.5 mm³ fragments with a razor blade. Premedicated recipient rats were anesthetized with ether, an incision was made on the left side of the neck, the submandibular gland was exposed, and 2 or 3 fragments of fetal pancreas were injected under the connective tissue capsule.

Four weeks after the surgery the rats were decapitated, submandibular glands were fixed in Bouin's fluid, and blood was collected for radioimmunoassay. Serial paraffin-celluloidine sections were stained with hematoxylin and eosin and Victoria Blue dye for detecting insulin-containing granules in the endocrine cells of the grafts.

RESULTS

Four weeks after transplantation, the volume of submandibular gland increased 1.2- to 1.5-fold. Light microscopy revealed functionally active well-vascularized pancreatic grafts under the connective tissue capsule of the salivary gland. The graft resembled adult pancreas and displayed a well-developed network of ducts and alveoli. Accumulations of cells morphologically similar to the islet of Langerhans were seen in the exocrine pancreas. Generally, these islets small, consisted of 8-12 cells, and were located predominantly at the graft periphery. The presence of actively secreting insulinocytes in the grafts was

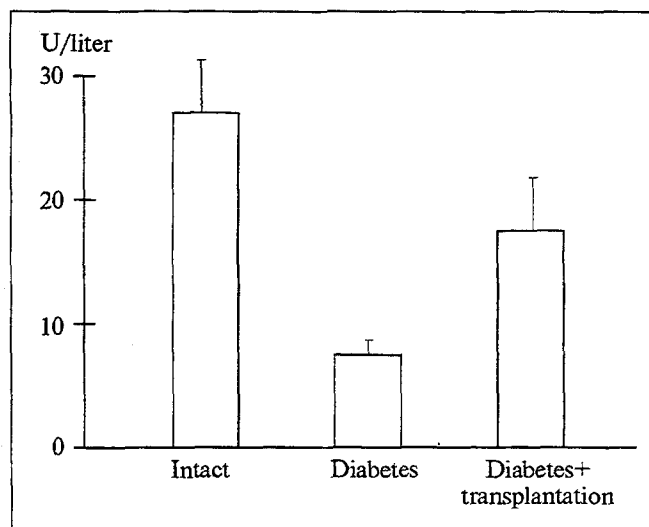


Fig. 1. Plasma content of immunoreactive insulin in control and experimental rats.

confirmed by Victoria Blue staining. Histological examination revealed no signs of graft rejection or inflammation. Radioimmunoassay (Fig. 1) showed a significant increase in the plasma content of immunoreactive insulin in the recipient rats compared with the controls. Our findings indicate that fetal pancreatic fragments were not rejected and remained functionally active after grafting into the submandibular gland of adult rats with alloxan-induced diabetes.

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