

Effect of High and Low Protein Diets
on Acute Pancreatitis Induced by
Excess Arginine in Rats

Shigeyuki TAKAMA, Shunichi KITAJIMA
and Yasuo KISHINO

Department of Nutrition, School of
Medicine, The University of
Tokushima, Tokushima

Male rats were fed on 70% (HP) and 5% (LP) casein diets for 4 weeks and then were given single i.p. injection of 500 mg of L-arginine·HCl per 100g body weight. The pancreatic acinar cells in two groups were destroyed selectively, without any morphological changes of Langerhans' islets. After 24 hours, loss of basophilia, zymogen degranulation, and vacuolar and necrotic changes of the acinar cells were observed more markedly in LP than HP. Furthermore, the acinar cells which did not damage had many zymogen granules in HP. In LP, histochemically the activities of some dehydrogenase and glucose-6-phosphatase were decreased strongly. Fat necrosis in adipose tissue in peripancreatic and retroperitoneal areas was observed, which was frequently occurred in HP rather than LP. This change in HP correlated closely with the degree of necrosis in the pancreas, the level of lipase in the serum and the number of zymogen granules in the acinar cells. The pancreatic regeneration was shown at 3 weeks after the injection.

Electron Microscopic and Cytochemical
Studies of Pancreatic Lesions Induced
by Injecting Excess Lysine
Shunichi KITAJIMA, Shigeyuki TAKAMA
and Yasuo KISHINO

Department of Nutrition, School of
Medicine, The University of Tokushima,
Tokushima

When male rats were given single i.p. injection of 400 mg of L-lysine·HCl/100 g body weight, the degeneration and necrosis were noted in the pancreatic acinar cells. The mechanism of these evolution was investigated by electron microscopic and cytochemical studies. 24 hr after the injection, the pancreas showed interstitial edema, zymogen degranulation and vacuolar degeneration, pyknosis and karyorrhexis in the acinar cells without marked morphological changes of duct and Langerhans' islets. Enzyme histochemically, lowering of dehydrogenase activity and irregular distribution of arylsulfatase activity corresponding to degenerative and necrotic areas were noted. Electron microscopically, the most marked changes were dilatation or vacuolation of the endoplasmic reticulum and mitochondria, and autophagic vacuoles containing of disrupted organelles of the cytoplasm. Autophagic vacuoles were positive for arylsulfatase and acid phosphatase activities in the acinar lesions. These findings were discussed compared with alteration of zymogen granules and lysosomes

Actin distribution and Alteration of
Glomerular Epithelial cell

Kinji Ito,

Second Department of Pathology, School
of Medicine, Toho University, Tokyo

The relation between alterations of glomerular epithelial cells and their cytoskeltons, actin in particular, was studied by immunohistochemistry in nephrotic rats induced by intraperitoneal injection of adriamycin (6mg/KgBW).

Glomeruli from 3 days to 3 weeks after the administration only showed minimal change by light microscopy, but, after 4 weeks, focal glomerular sclerosis developed. By electron microscopy, the cells showed numerous intracytoplasmic vesicles and filaments of 5-6nm in diameter in addition to foot process fusion and detachment from GBM.

Immunoelectron microscopy with the PAP method demonstrated actin localized in the above-mentioned filament. These actin filaments showed an increase in amount and unusual distribution in the altered cells.

These changes of cytoskeleton seemed to be responsible for some of the morphological as well as functional alterations of the glomerulus.

The Occurrence of Visinin-like Immunoreactive
Cells in the Rat Kidney: Light and Electron
Microscopic Analysis.

Yoshiyuki KUBOTA^{1,2}, Hiroshi TAKAGI¹, Yumiko MORISHIMA¹, Sachiko HATAKENAKA³ and Naomasa MIKI³

¹2nd Dept. Anatomy, Kinki Univ. Sch. Med., ²Dept. Neuroanatomy, Inst. Higher Nervous Activity, Osaka Univ. Med. Sch., Osaka and ³Dept. Pharmacology, Cancer Res. Inst., Kanazawa Univ., Kanazawa

The present study demonstrates the existence of Visinin (chick retinal 24 Kd Protein)-like immunoreactivity in the rat kidney under the light and electron microscopy using the peroxidase-antiperoxidase immunocytochemical method. The localization of the immunoreactivity was limited to the distal cells of the distal convoluted tubules and connecting tubule cells of the connecting tubules. The other tubular cells and the other components of the kidney such as glomerulus, vessels and connective tissue were devoid of Visinin-like immunoreactivity. Immunoreactive end products were found diffusely throughout the cytoplasm; they were associated with the outer membranes of mitochondria and nuclei, inner surface of the plasma membrane, ribosome and Golgi complex. Since the Visinin-like immunoreactive cells were limited to some types of tubular cells, i.e., those with prominent basolateral infoldings, our finding suggest that Visinin may be involved in certain particular part of renal functions.