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INDICATIONS OF MORPHOLOGICAL CHANGES OF THE PANCREAS IN EXPERIMENTAL HYPOTHYROISIS

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Annotation In the case of hypothyroidism, data were obtained on changes in the pancreas in postnatal ontogenesis and in offspring from mothers. On our side we saw 65 healthy rats and 155 hypothyroid rats. The age-related features of the morphological structure of the islets of Langerhans of the pancreas, their changes in the state of hypothyroidism were obtained and they are scientifically substantiated.

Key words: hypothyroidism, thyroid pathology, pancreas, diabetes mellitus.

INTRODUCTION:

It is known that the function of the pancreas (PZH) is under the regulatory influence of a number of hormones, and first of all, we can say that thyroid hormones take their place in this series. The state of the pancreas in hypothyroidism remains the least studied section of clinical gastroenterology, although B.L. Baker and E.S. Pliske (1957) pointed out that when the thyroid gland (TG) is removed, atrophy of the pancreas is observed, and the use of thyroid hormones leads to the restoration of the mass of the pancreas. known; that the systematic impact on the body of artificially created environmental factors in extreme conditions can lead to exhaustion; adaptive reserves of the body and, as a result, cause various

occupational diseases; (Vyadro M.D., 1974; Ponomarenko V:A., 1993; Moiseev Yu:B;, 1997). According to the International Diabetes Federation, taking into account the WHO diagnostic criteria, the incidence of diabetes mellitus in the world will increase to 439 million people by 2030 [1, 2], while the proportion of patients with type 1 diabetes mellitus (DM 1) will be approximately 10%. The use of the traditional method of treatment - insulin therapy does not save patients from the development of severe complications of diabetes mellitus, such as angiopathy, neuropathy and others. The most advanced methods and schemes of insulin administration are not able to provide prevention and effective treatment of these complications, which is due to the fact that autoimmune damage to β-cells leads not only to a decrease and loss of endogenous insulin secretion, but also to biologically active endogenous polypeptides (C-peptide, N-peptide, amylin), normally secreted by β-cells [5]. The absence of these factors leads to the formation of late diabetic complications.

PURPOSE:

To determine the nature of morphological changes in the pancreas in experimental hypothyroidism. Find out the features of changes in the exocrine pancreas in experimental hypothyroidism.

MATERIALS AND RESEARCH METHODS:

The object of the study was the pancreas of 50 outbred rats. The experimental group of rats was given Mercazolil at a dose of 0.5 mg per 100 g of body weight for 14 days, then for a month they were given a maintenance dose of Mercazolil at the rate of 0.25 mg per 100 mg. In the control group, the animals were injected with distilled water in the amount of 1 ml daily in the morning on an empty stomach.

THE RESULTS OBTAINED:

The rat pancreas, in contrast to this organ in humans, is located between the layers of the mesentery, i.e. occupies an intraperitoneal position, which is confirmed by the data of Nozdrachev A.D., Polyakova E.L. (2001). The experiments were carried

out on white rats at the age of 8 and 21 weeks. The choice of white rats as experimental animals is justified by the following provisions:

the structural organization of the rat pancreas in terms of the most important components resembles that of a person (Ledyaeva S.Ya., 1998; Yukawa M., Takeuchi T., Watanabe T., Kitamura S., 1999).

It is possible to reproduce in this species of animals the main types of adaptive reactions characteristic of humans (Garkavi L.Kh., Kvakina E.B., Ukolova M.A., 1990). Against the background of experimental hypothyroidism, along with reactive changes, compensatory-adaptive and destructive transformations were revealed in almost all the studied components of the pancreas: vessels, secretory cells. Already when viewing stained histological preparations under a light microscope, one notices that most of the capillaries are overflowing with blood cells, and erythrocyte sludge is observed in their lumen.The study of the exocrine part of the pancreas at the light-optical level revealed changes in the nucleus and cytoplasm in some acinocytes. The nuclear membrane of such cells has uneven contours, as a result of which the nucleus acquires an angular shape. In the perinuclear zone of the cytoplasm, light areas are visible, which may indicate the development of perinuclear edema around the pycnotically altered nucleus. Secretory (zymogenic) granules in such acinocytes are relatively few in number. Small round vacuoles were found in the peripheral parts of the cytoplasm. The number of similarly altered cells is small and amounts to only 3.4% of the total number of acinocytes. In the control group of animals, such cells are rare. A morphometric study showed some tendency to increase the number of granules in the cytoplasm. An increase in the ratio of the number of secretory granules to the number of empty vacuoles was also revealed, which indicates the predominance of granulation processes over secretion into the lumen of the duct.

CONCLUSIONS:

Only in isolated cases in its lumen we counted about 8 granules. Thus, the presented data indicate that hypothyroidism leads to a delay in the secretion of secretions from the cytoplasm of most acinocytes into the lumen of the duct, but does not interfere

with their synthesis in cells. They are closely associated with disorders of the hemomicrocirculatory bed of the pancreas and are cumulative.

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