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THE STATE OF ENZYMATIC SYSTEMS FOR CARBOHYDRATE HYDROLYSIS IN THE PATHOLOGY OF VISCERAL ORGANS.

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Abstract:

The study of the morpho-functional state of various parts of the digestive-transport conveyor in the pathology of the visceral organs, which is now so widespread in various countries of the world, has not only theoretical, but also applied significance.

Keywords: Liver, carbohydrases, hydrolysis system.

INTRODUCTION:

Diseases of the digestive system occupy a significant place in internal medicine. They are quite common in the practice of a doctor.

Observations indicate a close anatomical-functional relationship between the digestive organs in pathology. This largely explains the multiple disorders of their activity in various acute and chronic diseases. Therefore, a systematic approach to the study of digestive functions is one of the tasks of modern gastroenterology. In a wide variety of pathological processes in the organs of the gastrointestinal tract, many researchers have quite often noted disorders of intestinal function. These secondary disorders of intestinal function, in turn, often aggravate the course of the underlying disease.

The difficulties associated with diagnosing and treating this type of disorder can, apparently, be explained by the low accessibility of the intestine for research due to its anatomical location, the complexity of the anatomical isolated approach to assessing the results, and finally, the still insufficient development of clinical and methodological techniques for studying a number of functions of the intestine. Meanwhile, the results of studying the basic functions of the intestine, in particular the hydrolytic and absorption functions, in patients are of great and sometimes decisive importance in the diagnosis of many acquired diseases, their treatment, as well as in the prescription of rational diet therapy, and in recent years, the successes of fundamental ones have been reduced to digestion (hydrolysis) food polymers and absorption (transport through the intestinal wall) of the simpler substances formed. Discovery in the late 50s / academician Ugolev Y.M. membrane digestion led to a revision of many ideas in the field of physiology of digestion and absorption of nutrients in thin kiyak. It allowed not only to get closer to understanding a number of fundamental laws of the functioning of the digestive apparatus, but significantly expanded the prospects for gastroenterological research, and contributed to the development of new approaches in determining the pathogenesis of various diseases of the digestive system, the development of diagnostic methods, treatment, as well as rational diet therapy for one or another pathology of the digestive organs.

As part of our review, we will focus on the results of those researchers who showed that the intensity of hydrolysis of nutrients changes significantly in the pathology of visceral organs. To date, quite extensive information has accumulated on diseases of the digestive system associated with defects in membrane hydrolysis and transport. They are accompanied by pathological changes in the structure and ultrastructure of the intestinal surface and occur in many diseases of the internal organs. Thus, disruption of small intestinal digestion is recorded in many

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diseases of the gastrointestinal tract. This is not surprising, if we take into account the direct participation of various parts of the digestive canal in the digestion of food, as well as the close relationships existing between them, then, priori, it can be argued that damage to any of the parts of the digestive system can ultimately affect the structure and function of the thin nod, and therefore, on the state of cavity and membrane digestion. In addition, intestinal dysbiosis, which often accompanies gastroenterological pathology or occurs during its treatment, contributes to the disorder of enzymatic breakdown of food and resorption processes.

Below we present a brief overview of changes in enzyme systems involved in the initial and final stages of carbohydrate hydrolysis in some pathologies of the visceral organs.

Chronic enteritis is an inflammatory-dystrophic disease of the small intestine, accompanied by disturbances in its function. In severe cases, this pathology leads to atrophy of the intestinal mucosa and severe enteral insufficiency. Chronic enteritis is a polyetiological disease. Various factors in both the external and internal environment may play a causal role. Pathogenetic mechanisms include dysbacteriosis, immunological changes, and genetic factors. The mechanisms of development, clinical picture and treatment of chronic enteritis are covered in detail in many monographs. During electron microscopic studies, some authors (discovered ultrastructural changes in the mucous membrane of the small intestine, which are the morphological basis for the development of enteral insufficiency in chronic enteritis. In particular, rarefaction of microvilli was noted , detachment of the apical membrane with thinning of the microvilli, a tendency to fragmentation, disintegration of the microvilli, reduction or complete disappearance of the glycocalyx, etc. These changes appear at all levels of the villi. Disturbances in the hydrolytic and transport processes in the thin nodule are facilitated by the insufficient maturity of a large number of enterocytes and the early appearance. involuntary signs in enterocytes.

In patients with chronic enteritis, the activity of a number of digestive hydrolases decreases

Thus, with enteritis, the most important link in the development of digestive insufficiency syndrome is intestinal enzymopathy. In this case, undigested disaccharides are subjected to bacterial fermentation in the small and large intestines with the formation of gaseous products and organic acids that irritate the mucous membrane, osmotic pressure increases, and the influx of fluid into their lumen increases. As a result, diarrhea increases, which contributes to dehydration of the body, loss of protein, minerals and other substances necessary for the normal functioning of the body

Linevsky V.V. when examining patients with ulcerative colitis using aspiration biopsy of the mucous membrane of the initial parts of the jejunum, it was revealed that in the vast majority of patients (95%) there are pathomorphological changes in the mucous membrane of the small intestine according to the type of chronic jejunitis, mainly without atrophy, in the stage of mild and advanced exacerbation . In parallel, determining the activity of a number of intestinal disaccharidases, this author revealed that ulcerative colitis occurs against the background of increased lactase, sucrase and maltase activities of the small intestine. Speaking about the possible significance of the noted activation of enzyme systems, he believes that it is one of the compensatory mechanisms and is due to the peculiarities of the restructuring of neurohumoral regulation. He believes that patients with ulcerative colitis are characterized by a decrease in membrane hydrolysis, especially in its final stages, which indicates damage to the enzyme-forming function of the enterocyte. Indeed, as the severity of morphological changes increases, enzyme activity decreases. A decrease in amylase activity is especially often observed in atrophic jeunitis. In addition, the predominance of inflammatory changes, along with a decrease in enzyme activity, was accompanied by a weakening of the sorption abilities of the intestinal wall in relation to pancreatic enzymes Misautova A.A. found a decrease in the activity of disaccharidases in patients with ulcerative colitis of varying degrees. According to this author, the activity of lactase, ϒ-amylase of the intestinal mucosa in patients with ulcerative colitis with mild severity is reduced by 25%, with a moderate disease by 50%, and with a severe disease - by 75%. Other studies also provide numerous evidence of changes in the activity of enteral enzymes in pathology of the gastrointestinal tract. So Arvanltakis S.A. clearly showed that in ulcerative colitis and Crohn's disease there is a deficiency of a number of intestinal enzymes - lactase, sucrase and dipeptidases in the mucous membrane of the small intestine. In experiments on white rats, Latypov A. found that in experimental damage to the colon caused by intestinal poisons, for example, phenol, the thin chyme is involved in the pathological process, which is expressed in a change in

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the activity of a number of intestinal enzymes, in particular ɤ-amylase and associated this disturbance of membrane digestion. In general, there is no consensus in the literature regarding changes in β-glucosidase activities in ulcerative colitis. Some authors note an increase in the activity of these enzymes, while others, on the contrary, a decrease (240).

CONCLUSIONS

We assume that the nature of changes in the activity of cabohydrases in ulcerative colitis depends on the severity and duration of the pathological process, as well as degenerative changes in all layers of the wall of the nodule, including disorders in the nerve plexuses and nerve fibers, etc.

Thus, dysfunction of the jejunum is a consequence of morphological changes.

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