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MICROELEMENT PREPATIONS AND THEIR IMPORTANCE IN THE BODY ANTIGYPOTHYROID AGENTS

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Abstract
This article will talk about microelement preparations and their biological significance in the body, as well as the mechanism of action and application of antihyprotireoid agents. Trace elements are an important component of enzymatic processes, the immune system and metabolism. Their deficiency can be the cause of various diseases, for this reason, microelement preparations are used. Iodine, iron, zinc, and selenium in particular are essential for the body, and their pharmacological significance has been extensively studied. The article also details thyroid failure (hypothyroidism), its resulting adverse effects, and antigypotireoid agents used to eliminate them, including L-thyroxine, combined hormone drugs, and iodine-containing drugs. These drugs are aimed at normalizing thyroid function and reducing symptoms associated with hypothyroidism. The article will highlight the use of drugs against this and related diseases.

Keywords: Microelements, microelement preparations, hypothyroidism, antigypothyroid agents, thyroid gland, iodine, thyroxine.

Introduction

At least nine important for the optimal course of metabolic processes in humans microelement (iron, copper, zinc, iodine, manganese, chromium, selenium, molybdenum, cobalt) is required. These are microelements that perform various functions, including catalytic, structural and regulatory. In the process of performing these functions, they interact with macromolecules such as enzymes, progormones, as well as with presecretory granules and biological membranes involved in all types of metabolism. The metabolic levels in which this happens are so important that the deficiency symptoms in many trace elements are variable. Pathological changes that often occur in the processes of digestion and absorption can be the basis for a violation of the metabolism of microelements. A number of researchers have recorded an increase in the number of Paneth cells with high and maximum, as well as low and moderate zinc content. It is known that the degree of absorption of zinc in the gastrointestinal tract is associated with the content of the zinc-binding ligand. When analyzing the diet of women of childbearing age (19), the following data on the lack of the following chemical elements were obtained: I (80%), Se (80%), Zn (60%), Fe (17%), Cu (4 %). That is, women's nutrition did not meet physiological needs, which created prerequisites

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for the nutritional deficiency of these important microelements. M. In clinical medicine, such as So, Fe, Cu. preparations of are used in the treatment of certain types of anemia, Vg and I as pharmacological substances. M. it is used with success in hygiene (mas, memorization of salt and bread in obtaining the Oddi of an endemic bull, fluoridation of against water for tooth decay, etc.). For most ME, The Last way is no more than 1-4% of the amount excreted in the feces. The triggering mechanism of absorption of a number of trace elements (iron, zinc, etc.) in the gastrointestinal tract is a decrease in their concentration in tissue depots. However, the way to transfer information from tissues to epithelial cells of the gastrointestinal mucosa is still unknown. Therefore, the balance of trace elements is a specific form of the general homeostatic system of the body. The elementary state of a person depends primarily on the nature of his diet. Nutritional and metabolic correction of the state of microelements is a difficult task. This cannot always be solved by replacing me, which is only missing or moderately missing. The coordinated effect of several microelements is common in nature. There are pairs and triads of trace elements that have synergistic or ontogonistic effects on various physiological and pathological indicators. Interactions of iron and zinc, iron and manganese, cadmium and copper have also been identified. A deeper study of the mechanisms of absorption and destruction provides more and more evidence in them of the involvement of the body's regulatory systems - the nervous, endocrine and immune systems. Contains a variety of biologically active compounds in the body: enzymes, vitamins, hormones and other components. The effect of these substances is mainly manifested in a change in the activity of the processes of metabolism in the body. It sometimes affects the growth of organisms, blood formation, processes of respiration through tissues, intracellular metabolism, etc. Graves' disease is the most common cause of all tyreotoxicosis, on the basis of which lies hyperfunctions of the thyroid gland and excessive processing of the hormone thyroxine. The disease is considered to have three main symptom characteristics: 1) hyperthyroidism, 2) infiltrative ophthalmopathy, 3) infiltrative dermatopathy is characteristic. Graves' disease can begin at any age, but observed in people aged 30-40 years and more often in women with. The NLA is believed to be dependent on DR3, which is also the reason for the genetic predisposition to the disease. Today, observations confirm that, like the Hashimoto's bull, autoimmune processes are important in the pathogenesis of. Graves' disease. It is not surprising that with. Graves' disease, the Hashimoto's bull continues along with autoimmune changes, such as perniciosis anemia, rheumatoid arthritis, insulin-related diabetes mellitus, Addison's disease. In more than 80 percent of cases, microsomal thyroid autoantibodies and anti-tyreoglobulin antibodies are found. How many antibodies there are that affect the receptors of the tyreotropes. For the most part, these consist of thyroid-stimulating immunoglobulins that cause hyperfunctions of follicular epithelial cells. It is during these changes that the thyroid gland is infiltrated evenly with lymphocytes, in this regard it is assumed that part of the thyroid-stimulating immunoglobulins, apparently, are produced by these cells. Immunoglobulins have also been identified, which have been implicated in the gilerplasia of the follicular epithelial cells of the gland and play an important role in the origin of. Graves' disease. This may also be the importance of cellular immune response, t - suppressors defect in the origin of toxic Bullock. The mechanism of onset of dermopathy with ophthalmopathy is less clear. Graves' bull. Follicles are misshapen, they appear to have a stellar distribution follicular epithelium prismatic, growing into the follicular cavity. The colloidal

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substance is weakly stained with eosin. Lymphoid follicles are also characteristic of the gland stroma. Graves' disease, the thyroid gland enlarges evenly and symmetrically (about three times more than in a normal gland). When the gland is cut, it is red-brown in color, hard-soft, as if it were meat. When histalogically examined follicle is found in the gland tissue, but there is very little colloid in them. Its epithelium consists of a cylindrical longitudinal epithelium, the cells of which are distinguished in size, shape and form sucker-like growths. In this, most often the follicles do not have Colloids, and the walls are usually frayed. In a colloidal Mahal, it is conspicuous that it is vacuolated, liquid, and forcibly evacuated. The structure of the thyroid gland: in a - norm, in B Graves' disease. The stroma is filled with blood and infiltrates evenly with lymphocytes. At the same time, lymphoid tissue also undergoes hypertrophy: the lymph nodes, thymus, spleen become larger. The microscopic changes described above can be different, especially if the patient is treated with iodine. Colloidal lysis, which contains tyreoglobulin, stops when the patient is treated with iodine. The vacuolation of the colloid decreases, the follicular epithelium becomes cuboid, the blood saturation of the vessels decreases. In ophthalmopathy (eye flutter), the same tissues swell and bulge in connection with the appearance of a noticeable infiltration consisting of lymphocytes, in which hydrophilic mucopolysaccharides accumulate in the eye - acting muscle (extraocular muscle) and retroorbital tissue. Dermatopathy is usually observed on the dorsal surface of the legs and paws and is therefore referred to as pretibial myxidema. Mucopolysaccharides accumulate on the skin, causing significant infiltration consisting of lymphocytes. In the Graves' Bull, a sight of tyreotoxic cardiomyopathy is prominent in the heart. Graves' Bull, as described above, is characterized by hyperthyroidism, in this regard, when the serum is tested in a laboratory way, the amount of thyroxine, autoantithelos (antimicrosomal and antithyreoglobulin autoantithelos) turns out to be increased. Tyreotoxicosis, regardless of its causes, is characterized by symptoms such as neurasthenia, menstrual disorders, the fact that a person remains fertile, trembling hands, sweating a lot for a while, decreased body weight despite an excellent appetite. Often dyspnoe, a cardio - pulmonary syndrome begins, which is manifested by the play of the heart. In the case of significant toxicosis, the size of the heart increases to the left and heart failure is observed. For the diagnosis of the disease, it is important to determine the amount of thyroxine in the blood serum. Tyreotoxicosis can also be observed in a nodular toxic bull, thyroid adenoma, pituitary adenoma that produces tyreotropic hormones. However, in these cases, tyreotoxicosis does not proceed along with ophthalmopathy and dermopathy, as in. Graves' disease. Ophthalmopathy is manifested by blinking, impaired eye movement harmony, ophthalmoplegia, ptosis. Increased intraocular pressure can cause blurred vision. Ptosis shown in. Graves' disease is called "dangerous exophthalm" because it prevents the closing of the eyelids, which causes infection to fall on the cornea, causing its damage. Hypothyroidism is a condition caused by a lack of thyroxine in the body or by the resistance of target tissues to it. If hypothyroidism begins in infancy, then a myxedema occurs if it begins in cretinism, children of a slightly older age, and people who have reached adulthood. The main causes of myxedema may be: 1) deficiency of the function of the part of the gland retained after removal of a bull's or thyroid tumor; 2) Hashimoto's tyreoiditis; 3) autoimmune process, i.e. formation of antibodies that discourage the use of thyroid-stimulating hormone receptors. In such cases, primary idiopathic myxedema begins. Hashimoto's tyreoiditis (lymphomatous stroma) falls under the umbrella of

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autoimmune diseases. It can begin in people of different ages, 10-12 times more often observed in women. Basically, a characteristic feature of Hashimoto's thyroiditis is an increase in the size of the thyroid gland and, at the same time, a decrease in its function. A euthyroid condition is observed in the mahal, where the disease is just beginning. In a number of cases, hyperthyroidism can begin in the Mahal, which is somewhat similar in clinical terms to the Graves' bull. But while Hashimoto's Bull has increased NLA-DR5, . Graves' Bull has increased NLA-DR3. What confirms that autoimmune processes play a role in the occurrence of Hashimoto's tyreoiditis is that anti-thyroxine (also anti-tyreoglobulin in 95 percent of cases) is antibodies in the blood. In addition to thyreotropic receptors and antibodies against the plasmatic membranes of these are also found. Immunoglobulins in patients with Hashimoto's thyroiditis cause the thyroid gland to enlarge, as well as thinning the secretion of thyroxine. It is also thought to be particularly important that people with the NLA-DR5 genotype have an organospecific defect in the functional activity of T-suppressors. According to the features of the structure, the hypertrophic and atrophic forms of Hashimoto's tyreoiditis are differentiated. In hypertrophic the thyroid gland is symmetrically enlarged, dense, the surface is rough. When cut, it is clearly visible that it is made of pieces, the color is usually marbled white, the light pink in color, the capsule is undamaged. When examined with a microscope, it is found that the parenchyma of the thyroid gland is overrun by lymphocytes, plasmatic cells, immunoblasts, macrophages.

Conclusion

Trace elements are one of the main biogenic factors necessary for the correct course of physiological processes in the human body. Among them, trace elements such as iodine, iron, selenium, zinc, copper are distinguished by their biological and pharmacological significance. Iodine in particular is a key component in the synthesis of thyroid hormones and plays a crucial role in metabolism, growth, development, energy production and mental health. Iodine deficiency is one of the global health problems and causes diseases such as endemic bovine, hypothyroidism, cretinism, decreased intellectual development. Iodine excess can also be a risk to human health, leading to pathologies such as tyreotoxicosis and iodism. In addition, deficiency or increase in other important trace elements – iron, zinc, selenium, copper – also negatively affects human health. For example, iron deficiency causes anemia, zinc deficiency causes decreased immunity, selenium deficiency causes impaired heart muscle and thyroid function. Therefore, microelement preparations, in particular iodine preparations, are widely used not only for treatment, but also for the Prevention of diseases. Maintaining trace elements in a physiological norm is an integral part of a healthy lifestyle and is considered an important factor in ensuring the health of the whole society.

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