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Today, doctors are faced with a new type of pathology - premature (or accelerated) aging. The symptoms are the same everywhere - exhaustion and slow destruction of vital systems of the body: the immune system, endocrine system, nervous system, cardiovascular system, reproductive system, visual system.

Clinical studies have shown that the main process of accelerated aging is a dysfunction of cell metabolism. The cells of various body tissues cannot live on. They first fall into anabiosis, stop dividing and eventually die. Leading scientists in many countries have been arguing for many years that many diseases are directly related to a dysfunction of protein synthesis, that is, of cell metabolism.

The main criticism of modern drugs is that drug molecules, while affecting tissues at the molecular level, are too primitive to feel, plan, and act independently. On the other hand, drugs based on tissue-specific short peptides act on human tissue cells with extreme atomic precision. In addition, they do not cause any side effects. They fully correspond to the genetic characteristics of a particular organism. It should be noted that short peptides by their effect do not replace the work of the affected tissues, but only activate their own resources given by nature.

More than 40 years ago, Russian scientists isolated short biopeptides from various tissues and organs of young, healthy animals (pigs, calves) and carried out a series of experiments with them. It was found that the short biopeptides have a tissue-specific function. They only work in the tissue from which they were originally extracted. For example, liver peptides only work in the liver, thyroid peptides only work in the thyroid, and so on. A short biopeptides can only penetrate into a tissue-specific cell. It has no suitable connection mechanisms with other cells. This was the first official discovery of tissue-specific bioregulation.

In other animal experiments it has been shown that the introduction of short biopeptides can partially normalize the metabolism in tissue specific for these biopeptides. Surprisingly, this effect was only observed in older animals. So in animals with slow and disturbed metabolism. The introduction of biopeptides in young animals did not change anything. This means that only an old and diseased cell has an increased need for biopeptides and absorbs

them. Healthy cells do not need or absorb additional biopeptides. Conclusion: Short biopeptides have a tissue-specific effect on cells by being able to normalize their metabolism and their functional activity.

In further experiments, scientists showed that short biopeptides can activate stem cells. In laboratory experiments, short biopeptides from a specific tissue were dropped onto stem cells. As a result, the very tissue from which these peptides were originally isolated began to develop. A tissue was formed that is specific for a certain peptide.

All human organs have about 30% of the stem cell reserve. By activating this reserve, it is possible not only to normalize the functions of organs and systems, but also to increase life expectancy, which has also been shown in other experiments.

Since the effects of all short biopeptides are the same, these experiments provide a solid basis for the assumption that the use of short peptides from the thyroid gland can improve metabolism and function of the thyroid gland.

Isolation of short peptides from biological tissue is a very complex and therefore very expensive process. Therefore, all short peptides are mostly synthetic. They are copies of the active center, made up of 2, 3 or 4 amino acids, natural peptides isolated from animal tissues.

Recent discoveries in biology show that animal proteins in the digestive tract are not only broken down into individual amino acids, as previously assumed, but also into dipeptides and tripeptides. These short peptides can be quickly absorbed into the bloodstream and can thus reach exactly the cells that need them.

Based on these data, studies were carried out with extracts isolated from various organs and tissues of young animals. These extracts consisted of a complex of natural peptides with a molecular weight of up to 10 kDa. These studies have shown that using natural peptides gives almost the same results as using short synthetic peptides. At the same time, it was found that synthetic peptides develop their effects faster than natural peptides, but immediately after the use of these peptides is stopped, this effect ceases. Natural peptides (extracts) show their effects, albeit more

gently and slowly, but their use creates what is known as an after-effect. Its effects can be observed even 2-3 months after the end of use.

Preparations / products that supply cells with biologically active short regulatory peptides are often referred to as peptide bioregulators. First, these are preparations that contain only a short synthetic peptide. Their disadvantage is that they can only be administered by a doctor and should only be used under medical supervision.

Preparations based on extracts from tissues and organs of healthy young animals (pigs, calves), which consist of a complex of natural peptides with a low molecular weight of up to 10 kDa, are a good alternative. They are considered natural nutrients and are classified as dietary supplements, superfoods, or medicinal foods. It is much safer and easier to work with such preparations.

It should be noted that natural biopeptides from the glands of the endocrine system, such as thyroid or adrenal peptides, do not contain hormones and have no hormonal effects. It is impossible to obtain stable, functioning natural hormones from the endocrine organ. All hormones used in medicine are synthetic. This fact confirms once again that natural biopeptides are not drugs, but intelligent nutrients for cells. They simply restore the physiological level of regulatory peptides in the cells where it is needed. The rest is done by nature itself. Physiologically normal levels of regulatory peptides in the cells is a prerequisite for physiologically normal cell function.

In traditional medicine, endocrinologists are taught that external hormones must be added to the body when an endocrine organ such as the thyroid is not producing enough hormones (underactive). On the other hand, if the thyroid is producing too many hormones (overactive), hormone production must be suppressed. It is usually practiced that way too. The problem with this approach is as follows. When you add substances to the body that the cells must produce themselves, the cells gradually forget (unlearn) how these substances are produced. The cells can lose their essential functions. For example, if thyroid hormones are regularly added to the body, the thyroid gland may be able to stop producing these hormones. The better approach is to force the cells to perform their most important functions. And this can be achieved with tissue-specific regulatory biopeptides.

With peptide therapy of the thyroid gland, it does not matter what function it has, whether it is hyper function (hyperthyroidism) or under function (hypothyroidism). When using peptides of the thyroid gland, the pool of regulatory peptides is replenished in precisely those cells of the thyroid gland that need these peptides. This happens down to the physiologically normal level. The cell cannot absorb more peptides than is naturally given. At a physiologically normal level of regulatory peptides, the cell itself can regulate its own metabolism and thus carry out its functions at a physiologically normal level. With an optimal qualitative and quantitative supply of the cells with regulatory peptides, the cell can function normally, as in a young and healthy organism.

In 2006, Russian scientists carried out a small clinical study with an extract of the thyroid gland of young calves, which consists of a complex of natural peptides with a molecular weight of up to 10

kDa. The study enrolled 25 patients with primary hypothyroidism, including 11 men and 14 women aged 56 to 67 years. The control group consisted of 19 patients, including 7 men and 12 women. Patients in both groups complained of fatigue, drowsiness, memory loss, frequent headaches, and dizziness. In most cases, signs of atrophy were seen by palpation of the thyroid gland.

All patients had previously received symptomatic therapy based on the clinical manifestations of the disease. The control group was treated with conventional drugs. Patients of the main group received, in addition to conventional means, a dietary supplement based on thyroid extract (10 mg peptide complex / capsule), 1-2 capsules (depending on the severity of the pathological process), 2 times a day, 15 minutes before meals, for 20 Days.

As a result of the studies carried out, it was found that the use of thyroid peptides improved the clinical manifestations of the disease in 78% of cases, with the strongest effect observed in patients of older age groups with severe signs of thyroid atrophy. Against the background of the use of thyroid peptides in patients, there was an increase in the ability to work, a decrease in the frequency and intensity of headaches and pain in the heart and chest area.

Influence of natural thyroid peptides on the level of thyroid hormones in blood serum in patients with primary hypothyroidism:

T3 (nmol / l):

- before treatment: $0,38 \pm 0,03$
- after treatment with conventional methods: $1,12 \pm 0,06$
- after treatment with natural thyroid peptides: $1,58 \pm 0,07^*$

T4 (nmol / l):

- before treatment: $38,8 \pm 5,4$
- after treatment with conventional methods: $55,1 \pm 4,3$
- after treatment with natural thyroid peptides: $87,5 \pm 6,2^*$

* P <0.05 significant compared with the indicator in the control group.

When examining objective data, the normalization of the ECG parameters was observed. The restoration of the thyroid hormone level within the physiological norm was also noted (see table), which indicates a regulatory and stabilizing effect of natural thyroid peptides on the cell metabolism of the thyroid gland. It is noteworthy that the performance of the thyroid secretory function remained at this level for 3-5 months after treatment with biopeptides. The results of the clinical study therefore show the effectiveness and usefulness of the use of natural thyroid peptides in the complex treatment and prevention of thyroid dysfunction of various origins.

Many organs of a living organism work in close interaction. They form a system, so to speak. From a biological point of view, it makes sense to treat the entire system and not just one of its organs. Therefore, in peptide therapy, it makes more sense to use several specific peptides in one complex. For example, in thyroid therapy, it is recommended to use at least two peptides: thyroid

peptides + adrenal peptides.

The adrenal glands and the thyroid gland are two organs that greatly influence the energy balance of the body. They regulate the production of nearly 98% of all the energy the body needs for daily needs. Both organs work closely together. Therefore, the good functioning of both organ systems is important for our health and, above all, for a vibrant, strong and joyful life. If the thyroid and adrenal glands are not active enough, metabolism slows down and energy reserves drop. If this situation persists for a long time, it can lead to burnout and complete collapse of vital energy.

This dysfunction is often caused by the consequences of a stressful life without adequate recovery time over a long period of time. In addition to significant environmental pollution from toxins, noise, light and electromagnetic fields (EMF), constantly increasing occupational stress (physical or psychological), insufficient intake of minerals and other nutrients due to inadequate nutrition or digestive disorders, these are all causes of chronic diseases such as fatigue syndrome, Depression and all other forms of burnout. The result of this stress often leads to insufficient activity of one or both “energy organs” - the thyroid and adrenal glands. Good thyroid function cannot be achieved without the support of strong adrenal glands. If a therapist decides to include biopeptides in his plan for treating the thyroid or adrenal glands, in such cases it is recommended to use a complex consisting of at least peptides from the thyroid and adrenal glands.

When choosing preparations for peptide therapy, attention should be paid to their high quality. It is very important that the biopeptides contained in these preparations retain their natural biological activity. This should not be destroyed during the extraction of peptides or the manufacture of preparations, or when working with finished products. Strict adherence to all technological processes in production and careful handling of finished products are the key to high-quality products.

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