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A METHOD FOR INCREASING THE EFFECTIVENESS OF CHONDROPROTECTIVE THERAPY IN PATIENTS WITH TMJ ARTHRITIS-ARTHROSIS ACCOMPANYING CERVICAL OSTEOCHONDROSIS.

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Relevance. Many scientists dealing with the problem of spinal osteochondrosis (SO) believe that one of the most important factors that predetermine the trend towards chronicity of the main clinical syndrome - pain syndrome in lumbar osteochondrosis (LO) is the progression of the main pathogenetic element - catabolic metabolism in the affected interstitial space ringing disk – MTD [1-22]. Based on this, in order to restore the destroyed part of the affected IVD, chondroprotective drugs are used in the complex of conservative therapy for osteochondrosis of the spine [3-7, 9-12]. According to these factors, under the influence of chondroprotective drugs in the cartilaginous tissue of the affected IVD, protein synthesis from amino acids and mucopolysaccharide (glucosaminoglycans, chondroitin sulfate) from monosaccharides is restored, with a simultaneous increase in their expression from chondrocytes into the matrix, where the self-assembly of the IVD macromolecule, aggrecan, is enhanced [1-25].

However, the practice of treating AP, the study of the results of randomized mega-studies and data from dynamic neuroimaging (MSCT, MRI) research methods have shown that the use of chondroprotective drugs in the complex of conservative treatment of osteochondrosis of the vertebral column does not significantly affect the results of treatment (1-12). This means that the development of new methods of treatment that increase the effectiveness of chondroprotective therapy for osteochondrosis of the spine is an urgent problem of modern medicine.

The object is to create a new method of treatment that increases the effectiveness of chondroprotective therapy.

Material and research methods. Based on the fact that the cessation of all constructive - anabolic and the progression of catabolic (destructive) processes with increased apoptosis of the cartilage cells of the affected IVD, developing as a result of depression of intracellular energy synthesis (anaerobic glycolysis) constitutes the pathogenetic basis of osteochondrosis of the spine [1-25], In order to enhance anabolic (creative) processes, we propose to enhance intracellular energy synthesis (IES) in the chondrocytes of the affected IVD by switching anaerobic glycolysis to the aerobic pathway [8,12,13], with the help of antihypoxant drugs. Thus, the entire biology, physiology and morphology of our body, including anabolic processes in organs and tissues, are built on adequate intracellular IES synthesis, a decrease in which leads to a decrease in anabolic and an increase in catabolic processes in the IVD cartilage tissue [1-22]. An increase in intracellular energy synthesis in the chondrocytes of the affected IVD, which develops as a result of switching from anaerobic glycolysis to the aerobic pathway, leads to an increase in anabolic processes in the cartilaginous tissue of the affected IVD. Thus, as a result of increased intracellular energy synthesis (IES), mitosis of chondrocytes is enhanced with restoration of the matrix of the damaged part of the affected IVD.

The foregoing shows that the use of a chondroprotective drug against the background of antihypoxic therapy increases the effectiveness of chondroprotective therapy for spinal osteochondrosis.

Given that, according to the modern concept, succinic acid (SA) is a powerful antihypoxant that switches anaerobic glycolysis to the aerobic pathway, in order to increase the effectiveness of chondroprotective therapy for spinal osteochondrosis, we propose to combine intramuscular injection of 1.0 chondroprotective drug alflutop

with intravenous drip transfusion of succinic acid. acids - 400 mg of succinasol, daily for 10 days.

After completing the course of antihypoxic therapy, patients took 100 mg succinic acid tablets for a month. 2 times a day.

The study was conducted in 176 (99 males, 87 females) patients aged 30 to 50 years (mean age 42.8 +/- 3.2) with neurological manifestations of lumbar osteochondrosis.

The inclusion criteria for the study were:

- 1) The presence of unilateral acute lumboischialgia;
- 2) The presence of symptoms of nerve root tension on the side of acute lumboischialgia;
- 3) The presence of vertebral syndrome;
- 4) The presence of neurovisual signs of osteochondrosis of the spine;
- 5) Established diagnosis: Osteochondrosis of the lumbar vertebrae with acute radicular pain syndrome.

Diagnosis of osteochondrosis of the lumbar spine was carried out by a thorough study of the clinical and neurological status using MRI of the lumbar spine in dynamics according to H. Hall criteria [22].

Patients included in the study by simple randomization and "blind" were divided into two groups:

Group 1 consisted of 88 (50%) patients who received traditional conservative treatment (NSAIDs, vasoactive drugs, peripheral muscle relaxants using alflutop and intravenous drip transfusions of the succinic acid preparation 400.0 ml. succinasol. The antihypoxant drug succinasol was administered intravenous drip, daily, for 10 days. The 2nd group of patients also consisted of 88 (50%) patients who received only traditional conservative treatment with intramuscular injection of 1.0 alflutop (without intravenous drip transfusion of succinasol).

There were no differences between groups in age, disease duration, severity of symptoms assessed using clinical scales (see below) and the frequency of certain vertebral-neurological syndromes.

To determine the effectiveness of treatment methods, 3 scales were used:

The 1st scale of the overall assessment of the results of treatment by a doctor, provided for 5 grades -1 - worsening score; 0 - points no effect; 1 - score slightly pronounced effect; 2 - points moderate effect; 3 – significant effect score (7).

The 2nd scale is a specially designed back pain self-assessment scale that uses the principle of the VAS visual analogue scale (23).

3rd scale for the quantitative assessment of vertebral syndrome — a modified version of the G scale by Waddell et al (24) was used.

Patients' condition was assessed before and after the end of the course of treatment, as well as 6 months after the end of the course of treatment.

The obtained data were collected in a specially designed form.

Statistical processing of the obtained data was carried out using descriptive methods and the ANOVA model. Assessment of changes in indicators in comparison with the initial level, as well as comparison of indicators between groups, was carried out using a t-test.

Results. Upon completion of the course of complex treatment of lumbar osteochondrosis with the use of alflutop and intravenous drip transfusion of the antihypoxant - succinazol, that is, in the first group of patients, the scale of the overall assessment of the results by the doctor showed that a good effect (2-3 points) was observed in 80 (93%) patients. And the remaining 8 (7%) patients showed a slightly pronounced effect (1 point).

Table #1

The effectiveness of the methods of treatment

Groups	Point			
	0	1	2	3
1st group (88 patients)		8	33	48
2nd group (88 patients)	35(40%)	38	10	5

The average scores on the scale of the overall assessment of the results of treatment by the doctor in the first group of patients were significantly higher than in patients who received traditional conservative treatment using alflutop. The therapeutic effect of the antihypoxic drug suxinazol was manifested in the form of a decrease in the severity of subjective symptoms after 4-5 intravenous drip transfusions. The acute period in the first group of patients lasted up to 10 days (on average), and in the second group of patients it lasted up to 2 months. 35 (40%) patients from the second group developed chronicity of acute pain syndrome, and in the first group of patients, chronicity of acute pain syndrome was not observed in anyone. The results of dynamic MRI studies of the lumbar vertebrae showed that the progression of pathomorphological substrates in the first group of patients was not observed, and the second group of patients showed signs of progression of pathomorphological substrates of SO.

Table #2

Dynamics of subjective manifestations of acute lumboischalgia

Group	Before the course of treatment	After the course of treatment	P

1-st	591 ± 123,9	210 ± 133	P < 0,05
2-nd	590 ± 120	340 ± 121	P < 0,05

Similar dynamics was noted when assessing the severity of the vertebral syndrome according to the G Waddel etal scale, presented in table No. 3.

Table #3

Dynamics of the vertebral syndrome

Group	Before the course of treatment	After the course of treatment	P
1-st	20,6 ± 2,5	4,4 ± 1,0	< 0,05
2-nd	19,9 ± 1,8	14,1 ± 3,7	< 0,05

Discussion

Reduction of the duration of the acute period, the absence of chronicity of acute lumboschialgia, rapid regression of vertebro-neurological symptoms, the absence of neuroimaging signs of progression of catabolic (destructive) metabolism on dynamic MRI of the lumbar spine and the absence of exacerbations of the disease within 2 years show that In patients of the first group, anaerobic glycolysis in the affected IVD switched to the aerobic pathway, which led to an increase in intracellular energy synthesis. So, during anaerobic glycolysis, only 200 kJ are formed (mole of total energy and only 2 ATP molecules are synthesized = 61 kJ / mol of free energy (each ATP molecule contains 30.5 kJ / mol of free energy), and with aerobic glycolysis, 2800 KJ/mol of total energy (23-25) and 38 ATP molecules are synthesized (1-13,15-21).The energy formed as a result of aerobic glycolysis (1162.8 KJ/mol of free ener-

gy) is enough to maintain a creative - anabolic metabolism in affected IVD (1-13,25,26).

It is known that DBD (OP) develops as a result of anaerobic glycolysis. Due to energy deficiency, the macromolecules (aggrecans) of the cartilaginous tissue of the affected IVD are destroyed into protein (protein) and mucopolysacchrides. In addition, under conditions of continuing energy deficiency in the chondrocytes of the affected IVD, protein synthesis from amino acids and mucopolysaccharides from monosaccharides stops, with the cessation of their expression in the matrix - catabolic metabolism (1-22). The use of a chondroprotector in conditions of ongoing energy insufficiency is not effective. Since, in order to maintain the synthesis of protein from amino acids and mucopolysaccharide from monosaccharides in the chondrocytes of the affected IVD, to continue the expression of protein and mucopolysaccharide from chondrocytes to the matrix and to continue the self-assembly of aggrecan in the matrix, a very large amount of free energy (energy currency) is needed, which is formed exclusively in as a result of aerobic glycolysis [1-5,8,12,25].

The foregoing shows that in order to increase the effectiveness of conservative therapy, a chondroprotective drug should be used after switching anaerobic glycolysis in the affected IVD to the aerobic pathway.

Based on our own and literature data, we can draw the following conclusion:

- Carrying out chondroprotective therapy after switching from anaerobic glycolysis in the affected IVD to the aerobic pathway is an effective conservative treatment for OP.

Thus, the energy sufficiency that develops as a result of aerobic glycolysis in the affected IVD leads to the restoration of anabolic processes. That is, as a result of the development of aerobic glycolysis in the chondrocytes of the affected IVD, the synthesis of protein (protein) from amino acids and mucopolysaccharide from monosaccharides is restored with their expression in the matrix, where self-assembly of the

macromolecule of cartilage tissue - aggrecan from protein and mucopolysaccharides occurs.

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