

THE EFFECTIVENESS OF ANGIOPROTECTIVE TREATMENT IN PATIENTS WITH LUMBAR-SACRAL RADICULOPATHY

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Abstract: Pain in the lower back is the most urgent problem of neurology. The cause of back pain can be premature aging and wear of the intervertebral discs, as well as developmental abnormalities, autoimmune reaction to the disc tissue, etc. However, vascular disorders, especially the venous system in the area of spinal nerve segments, have not been sufficiently studied. The paper considers the use of the Doppler mapping method to determine the indicators of regional blood flow in the affected areas and the possibility of using the drug L-lysine escinate in the complex treatment of lumbar dorsopathies. Doppler framing in dorsopathies can reveal a disturbance of regional blood flow in the affected areas. Complex medical treatment with the inclusion of L-lysine escinate restores regional blood flow with subsequent porlanization of peripheral blood parameters, which contributes to a more rapid regression of neurological symptoms.

Key words: lumbar-sacral radiculopathy, angioprotective treatment

At the beginning of the 20th century, the founders of vertebroneurology presented osteochondrosis as a multifactorial disease, with characteristic degenerative changes in the intervertebral discs. Modern etiological multifactoriality has many theories, vascular, hormonal, hereditary, traumatic, which consider the origin of the disease.

But the most important factor is decompensation in the trophic system and local congestion. In parallel with the disturbance of inflammation, a number of damaging factors are turned on at the cellular level. The degenerative process in the spine itself occurs against the background of many developmental anomalies, the main initiator of which is the heterogeneity of the density of the pulposus nucleus, the fibrous ring [1,2,4,5,8,9]. Against the background of structural damage to the intervertebral disc, an autoimmune reaction to the disc tissue occurs, as a result, trophic disorders and hypoxia, leading to a dysmetabolic shift in the affected area.

Along with vertebrogenic compression, ischemic vascular disorders in the area of spinal nerve segments are no less significant. Spinal disorders of arterial circulation are irreversible in the case of sequestration of the hernia and in the event of its penetration into the foraminal hole, all this leads to the development of myelohematomy [2,3,5,9]. In recent years, in literary sources, much attention has been paid to possible features of the venous system of the spinal cord, or rather to disorders of venous outflow. In the mechanism of formation of difficult-to-treat neurovascular disorders, extensive experience of surgical intervention at the lumbosacral level has been accumulated. In favor of the systemic nature of anti-inflammatory reactions, in dorsopathy, an increase in C-reactive protein is a finding. The phasing of the processes of release of metabolites in the culture of tissues of the intervertebral disc TNF-L and interferon and the formation of IL-17 in them is not very informative, and also suggest complex mechanisms of cytokine formation in radiculopathies with the regulation of processes at the systemic level. This may explain the ability of the neurotrophic factor to cause axon demyelination, degeneration, and increased sensitivity to pain in dorsopathies [1,4,6,7,10].

Aim of the study. Based on the mechanism of hemodynamic disturbance of the venous plexus in patients with dorsopathies, to assess the effectiveness of the inclusion of the remedy L-lysine escinat in complex treatment

Materials and methods. Patients with vertebrogenic neurological syndromes of the lumbar level were examined. The main group of 70 patients was divided into two groups: the first with acute lumbalgia and the second with lumbosacral radiculitis, the third group of 30 patients without signs of dorsopathy, of identical age. The first two groups were further divided into two subgroups, during treatment. All patients underwent a traditional neurological examination, with detailed vertebroneurological examinations.

The degree of pain was measured on an analog scale VAS. The diagnosis was evaluated according to neuroimaging data. Duplex scanning of vessels of the epidural venous plexus and radicular veins was carried out. Patients with dorsopathy were offered the use of L-lysine escinate for complex treatment. L-lysine escinate reduces the activity of lysosomal hydrolases, which prevents the cleavage of mucopolysaccharides in the walls of capillaries and in the connective tissue that surrounds them, and thus normalizes the increased vascular-tissue permeability and has an antiexudative (decongestant) and analgesic effect. Remedy increases vascular tone, has a moderate hypoglycemic effect. Statistical processing of the results was carried out on an individual computer

Results of the study. The study included patients with vertebrogenic neurological syndromes of the lumbar level, who are on inpatient treatment in the 1st clinic of the SamMI Department of Neurology, for the period 2019-2020, 70 patients, 30 people, taken for the control group, without signs of dorsopathy, of identical age. The main group was divided into two groups: patients with acute lumbalgia and patients with lumbosacral radiculitis (35 patients each) (as a result, there were three groups of examined patients).

The first group with acute lumbalgia, were admitted to the hospital with pain, due (as described in the literature) to structural changes in the lumbar region, of a dystrophic nature. The patients felt pain suddenly, the reason was the lifting of a heavy object. The consequence of such acute pain was a fixed position of the

patient, with limited activity, since, with any, even not significant change in position, the pain increased. In our cases, the pain in patients was limited to the lumbar region, in 2 patients it radiated to the iliac region, almost all patients could not walk independently, preferred the position of lying on their back or on their side, 4 patients were delivered on a stretcher. On the VAS scale, the pain sensation was evaluated from 7-8 points. In 10 patients, this manifestation of the disease was the first time, the rest had a history of the disease up to 3 years (respectively, patients were admitted during the period of exacerbation).

The second group of patients with lumbosacral radiculopathy, as well as patients of the first group, was admitted to the hospital with complaints of sharp pain, they were into a pattern of rapid escalation.. The experience of the disease of patients was on average more than 10 years. Several patients (3) pain radiating to groin and genitals, have come a long survey period, on admission to the hospital to exclude (in their opinion) issues with female reproductive organs. In 2 patients, the pain gave radiation to the knee joint, respectively, before they consulted with rheumatologists, traumatologists, not having received the proper effect from the treatment of the knee joint, turned to neurologists.

All patients (listed above) had lesions of the L4 root. Most of the patients in this group described pain along the outer edge of the thigh, lower leg, in some cases in 3 patients, reaching the foot. In a more thorough neurological examination, patients experienced weakness in the limb «the leg is not its own», «hanging», not being able to stand for a long time, and especially on the heel in 50% of cases. Sensory disturbances in the form of hypesthesia were found in all patients. Since this was the L5 level, muscle atrophy (more than the lower leg) was added to the motor and sensory prolapses.). In patients with S1 root lesion, on the background of loss of motor functions, the pain was localized on the medial side of the lower leg, while walking the leg rotated outward. The results of MRI studies in comparative groups indicate changes in all patients, the kind of the lesion had signs of osteochondrosis, degenerative-dystrophic disorders of the spine. If in the first group neuroimaging revealed 50% only signs of protrusion, then in the second group all patients showed protrusion of intervertebral discs, in 70% of cases a combination with herniated discs, reaching up to 7.0-9.0 mm. Localization of hernias and protrusions was mostly median.

Table 1 Venous blood flow rate in group I patients

Localization of the level of blood flow velocity study	Group I (n = 35)	
	The affected side (M + SD) (sm/sek)	The affected side (M + SD) (sm/sek)
L4–L5	19,0+2,40	19,0+2,40
L5–S1	17,0±3,0	17,0±3,0

**Table 2
Venous blood flow rate in group II patients**

Localization of the level of blood flow velocity study	Group II (n = 35)	
	The affected side (M + SD) (sm/sek)	The affected side (M + SD) (sm/sek)
L4–L5	10,0+1,0	10,0+1,0
L5–S1	9,5±1,0	9,5±1,0

To study venous blood flow, the Doppler mapping mode was used. No changes in the lesion area were found in patients with lumbalgia syndrome. In contrast to patients in the second group, where blood flow rates in the affected areas were reduced, from 35 to 41 percent. In the same patients, lesions in the root vein system were found, blood flow decreased to an average of 41%. All this confirms the signs of stagnation in the veins at the level of the lumbosacral spine, which in turn exacerbates the degenerative, inflammatory process and deformation of the lesion of dorsopathy.

Summing up all the clinical and diagnostic data, in our opinion, it was correct to use the medicine L-lysine escinate in complex therapy, taking into account the severity of the pain syndrome, the localization and nature of the symptoms of the disorder. Patients of the first and second groups were divided into subgroups, one of which received traditional complex therapy, the second subgroup, in addition to the complex treatment of L-lysine escinate. Traditional treatment included medication (NSAIDs, muscle relaxants, chondroprotectors, etc.), physiotherapy and physical therapy. L-lysine escinate was prescribed at 10 ml per 200 ml of phys.

Solution (sodium chloride) in/v 5 days 1 time a day. After treatment, in the acute period, patients of the first group with acute lumbalgia in the subgroup (15) with traditional treatment showed positive changes, in the second subgroup (20), the effectiveness of treatment showed faster results, decreased pain sensation. Patients with acute lumbosacral radiculopathy were also divided into two subgroups, the first subgroup (15) received traditional treatment, the second (20) with the addition of the drug L-lysine escinate.

For treatment, there were no differences in pain indicators on the affected side and corresponded to a severe degree. After the proposed therapy, pain decreased in both subgroups, but in the subgroup with traditional treatment, the pain intensity was within 1.8 ± 0.1 , and in the second subgroup 1.1 ± 0.1 , weakly expressed.

As a result of complex treatment with the inclusion of L-lysine escinate in therapy, the regression of the manifestations of vertebrogenic syndrome was achieved much faster, and was significantly pronounced. Especially, this indicator was characteristic, when studying blood flow by Doppler mapping.

Thus, in patients with lumbosacral radiculopathy syndrome on the background of additional treatment, there was a significant decrease in epidural blood flow in the root veins of the lesion from 36 to 24%.

Table 2

Localization of the level of blood flow velocity study	Group I (n = 35)	Group II (n = 35)	Control group III (n = 30)
L4–L5	11,0±1,0 8,0-12,0	10,0±1,0 9,0-12,0	19,0±2,0
L5–S1	11,0±1,0 8,0-12,0	11,0±1,0 7,0-12,0	19,0±3,0

Thus, the results of the therapy indicate that the inclusion of L-lysine escinate in the complex therapy leads to a significant recovery of local blood flow in the veins of the epidural venous plexus.

Conclusions. Patients with lumbosacral radiculopathy are recommended to include in the diagnosis the method of duplex mapping, to establish indicators of regional blood flow in the affected areas. Complex medical treatment with the inclusion of L-lysine escinate, restores regional blood flow with subsequent normalization of peripheral blood parameters

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