DYNAMICS OF THE CLINICAL AND VISUALIZATION DATA IN THE COMPLEX TREATMENT OF PATIENTS WITH LUMBOSACRAL RADICULOPATHY

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Introduction: The low back pain is the main cause of disability. Due to the prevalence of the low back pain, especially among young and middle-aged people of working age, this problem is of a great socio-economic importance.

Purpose: The aim of this study was to compare the clinical picture, the intensity of pain and MRI data before and after the complex treatment of patients with lumbosacral radiculopathy.

Method: Thirty-one patient with the large herniated disk (extrusion) with a chronic back pain were enrolled into this study: 20 (62.1%) males, 12 (37.9%) females. 15 patients (48.3%) were under 45 years old, 17 patients (51.7%) were at the age of 46-60 years old. Among all examined, 15 patients (46%) were given a diagnosis of the radiculopathy of one root (L5 — two patients – 6.3%, S1 — 13 patients – 40.6%), 17 (54%) patients were given a diagnosis of the radiculopathy of two roots (16 patients (50%) had L5–S1; 1 patient (3.1%) had L4-L5). 19 patients (58.6%) had right-side involvement (compression of the nerve root), whereas 13 patients (41.4%) had left-sided one. The intensity of pain was assessed with the use of the visual analogue scale (VAS). All patients underwent magnetic resonance imaging. 26 (80%) patients were identified the large herniated disc were on segments L5-S1, 5 (15%) patients had on L4-L5, and one patient (5%) had on L3-L4.

Classically, according to the literature, the chemonucleolysis is defined as the treatment without surgery for a resorption. The treatment involves the injection of an enzyme in order to dissolve the inner part of the disc, the nucleus pulposus. We used the selective nerve root injection of an enzyme Hyaluronidase (Lydase 64 Units) up to 10 blockades on the level of the actual segment, to dissolve the displaced disc material with the exit to spinal canal (extrusion into the epidural space) that narrows root canal in intervertebral foramina and para-medially puts the pressure on the spinal nerve. Structural modifying therapy was injected into interspinous ligaments and paramedially with 10-15 per course of treatment.

Moreover, we gave blocks in the combination with lidocaine into myofascial pain and trigger (vertebral and extravertebral) points as well as neostigmine (acetylcholinesterase inhibitor) into the motor points in the presence of the muscles weakness. All patients were given anti-edematous and analgesics in combination with electrostimulation (ES). ES was performed on the muscles of the lumbar zone (zone of the affected segment), muscles of the lumbar spine, muscles of the gluteal region, thigh and lower leg. After blockades and ES, the patients under-went manual treatment in the form of a soft technique - post-isometric relaxation, which was terminated by immobilization of the lumbosacral spine with the aid of a corset. The complex therapy included a complex of B vitamins, massage and kinesitherapy. All patients underwent ultrasound and magnetic laser therapy onto the area of the affected segment and muscles of the lumbar spine, ischialgia zone. 12-15 procedures were used for the course of treatment.

Results: After the treatment, the patients showed a statistically significant increase in the range of spine movements, a decrease of motor functional blockages in the lumbar spine and sacroiliac joints, and an increase in the muscles strength ($p < 0.05$). All the patients improved their gait and normalized the configuration of the spine (scoliosis), decreased the tone of the muscles of the back, decreased tenderness of the paravertebral points of the lumbar region, tenderness of the interspinous ligaments and extravertebral points, hypotrophy of the muscles decreased, Lasegue's sign decreased, deep tendon reflexes normalized (knee, Achilles), sensitivity improved in the zone of innervation of the affected roots.

On the basis of MRI data, in patients with radiculopathy, extrusion (4-10 mm) was detected in the actual segments and protrusion was found in the adjacent ones. The average extrusion size was 7.39 ± 0.44 mm. The average sagittal spinal canal diameter was 10.49 ± 0.66 mm. The intensity of the pain on the visual analogue scale was 8.49 ± 0.29 cm. The data of MRI, conducted after 1 year, and after two courses of complex treatment, showed the positive dynamics: the reduction in the average size of extrusion in patients made 5.91 ± 0.39 mm ($p < 0.05$) and the increase in the average sagittal spinal canal diameter in patients made 11.80 ± 0.21 mm and it was not statistically significant ($p > 0.05$). The positive dynamics (decrease) of VAS ($p < 0.001$) was found to be 3.9 ± 0.32 cm.

Conclusions: To sum it up, after the courses of the complex treatment aimed at dissolving hernia by the chemonucleolysis, in patients with the lumbosacral radiculopathy, the sizes of the extrusion are decreased. After the treatment, the reduction in the pain intensity is also observed.

Before the treatment: posterior paracentral foraminal left extrusion 9 mm.

After the treatment: posterior paracentral foraminal left protrusion 3 mm.