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Research Article

Features of the Complex Effect of Electroneuromyostimulation and Acupuncture in the Lumbosacral Dorsopathy

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Abstract

The article presents the results of the assessment of the impact of the integrated use of low-frequency electrotherapy and acupuncture on the lumbosacral condition in 42 patients with degenerative-dystrophic diseases of the spine. It was found that under the influence of the developed complex, a stable improvement in the condition of patients with lumbosacral dorsopathy and an improvement in hemodimeamics in the lower extremities is observed. The effect of the combined use of low-frequency electrotherapy and reflexotherapy on the clinical course of dorsopathy is more pronounced compared with traditional medical treatment. It is almost the same according to the criteria for the effectiveness of treatment, but it differs according to the mechanism of action on the body.

Keywords: Degenerative – Dystrophic Diseases; Dorsopathy; Intervertebral Hernia; Electrotherapy; Acupuncture

Introduction

Increasing the effectiveness of sanatorium-resort treatment of patients with lumbar dorsopathy is currently impossible without the use of the latest methods of physiotherapy, especially with the use of various complexes.

Improving the effectiveness of treatment of dorsopathy of the lumbosacral spine, one of the most common diseases of the peripheral nervous system, is an important medical and social problem in the world [3,5].

Despite the large arsenal of drug and non-drug drugs currently used in this pathology, it is not possible to achieve high clinical results [2,4,8].

There is still a high rate of increase in incidence - from 40 to 78% among all vertebrogenic pathology, a high incidence of exacerbations of diseases leading to long-term disability and disability of patients, high financial costs for treatment and rehabilitation [1,6].

In this regard, the use of complex physiotherapeutic and reflexotherapeutic techniques, in particular electrotherapy and acupuncture, is of great interest.

The search for new methods of treatment and rehabilitation of patients with vertebrogenic diseases is important for modern rehabilitation, which served as the basis for conducting this study.

Material and Research Methods

The study included the results of the examination and treatment of 42 patients aged from 23 to 69 years (mean age 35 years). Among surveyed were 24 (57.14%) men and 18 (42.86%) women. The inclusion criterion in the study was the presence of a herniated intervertebral disk confirmed by the results of the examination.

Examination and treatment was carried out at the State Budgetary Institution "Dagestan State Medical University" and the Department of Medical Rehabilitation of the Federal State Budgetary Educational Institution of Higher Medical Education.

An interventional, multicenter, prospective, selective, controlled, unblinded, randomized study was conducted.

Before the examination and treatment, all patients signed a voluntary informed consent to participate in the study. The number of patients was selected for statistical significant study results. Patients participating in the study were randomly assigned to three groups:

- Group 1 (n = 14) in the treatment low-frequency pulsed electrotherapy was used;
- Group 2 (n = 14) - acupuncture was used in the treatment;
- Group 3 (n = 14) - the combined effects of pulsed electro therapy and acupuncture were used in the treatment.

Examination of patients included a clinical neurological study, as well as reovasography of the vessels of the lower extremities. They paid attention to tendon and periosteal reflexes on the lower limbs, disturbances of sensitivity in the respective segments, strength and muscle tone, the presence and severity of tension symptoms, painful palpation of the paravertebral points, pain in the lumbosacral region, painful palpation of the spinous processes, painfulness palpation along the nerve trunks, pain in the lumbosacral region.

All the studied patients showed various signs of osteochondrosis of the lumbosacral spine: sclerosis of the closing plates, narrowing of the intervertebral gap, instability of the vertebral motor segments, the presence of anterior and posterior marginal bone growths (osteophytes), etc.

X-ray examination revealed straightening of lumbar lordosis, parallelization of the integumentary plates of adjacent vertebral bodies, "skewness" of the anterior vertebral bodies, reduction of the height of the intervertebral disk, sealing of the closing integumentary plates of adjacent vertebral bodies, expansion of the caudal areas of the vertebral bodies, lateral and anterior osteophytes, which are continuations. plates, transparency of the posterior angles of the vertebral bodies.

Examination using magnetic resonance imaging confirmed the presence of elastic protrusions in 36 patients (100%), in 21 patients (58.66%) - hernias of intervertebral disks.

Patients of the first 1 group in the lumbosacral region underwent pulsed low-frequency electrotherapy using the Miorhythm-040 device (Russia, St. Petersburg). The exposure was performed by a pulsed electric current with a current of 20–35 mA with a pulse repetition rate of 100 Hz. In the 2nd group, acupuncture was applied to the biologically active points of the gallbladder meridian by sedation. The exposure was carried out on points VB 41, VB 39, VB 35, for 20 minutes in the time interval from 15.00 to 17.00. In the 3rd group, combined simultaneous exposure to low-frequency pulsed current and acupuncture was used [7]. The course of treatment was 12 sessions.

In order to determine the effectiveness of treatment, we investigated the dynamics of pain and quality of life before and after the treatment in all 36 patients. The quality of life of patients was assessed by the questionnaire based on the Oswestry Index Questionare. The following indicators were evaluated: the severity of pain and its painkiller analgesics, the patient's ability to serve themselves, lift weights, sit, stand, walk, sleep duration, possibility and duration of walks, social and sexual life.

All statistical procedures were performed using the Statistica 7.0 application package. To identify differences in the level of the test trait in two samples, we used t-student criterion for independent samples, F-Fisher criterion and U-criterion Mann – Whitney. To compare three or more samples, the Kruskal – Wallis test was used.

Results and its Discussion

When exposed to the combined use of pulsed low-frequency electrotherapy and acupuncture in patients of group 3, there is a significant improvement in peripheral blood circulation (POK) (ml) 2.2 ± 0.3 to 6.9 ± 0.4 and CSC / 100 (ml / min / 100) s 3.5 ± 0.6 to 7.8 ± 0.6 ($p < 0.05$). After the course of treatment, under the influence of laser-laser therapy and mechanical traction of the spine, a complete restoration of blood circulation in the affected limbs was observed.

After the course of rehabilitation, the degree of pain syndrome in patients of all groups changed, but to varying degrees. The effectiveness of the elimination of pain depended on the degree of its severity, however, it should be noted that, after the course of the procedures, no pronounced pain syndrome was observed in any group. In addition, according to clinical data as a result of the treatment carried out in group 3, the maximum clinical efficacy was manifested in the reduction of pain syndrome (according to Anton Antonov) from 2.21 ± 0.19 to 1.30 ± 0.21 ($p < 0.05$), which is a significant indicator in the clinic of the neurological symptoms of this disease.

After treating patients in group 3, the intensity of neurological symptoms changed significantly and was the best indicator in treatment.

According to the results of the study, the quality of life of patients in group 3 improved significantly. The Oswestry Index Questionare Index decreased from 53.83% ± 3.34 to 16.89% ± 5.61% ($p < 0.05$).

As a result of the treatment carried out in group 3, the most effective combined complex effects of low-frequency pulsed electrotherapy and acupuncture compared with other groups, where these techniques were used in the form of an isolated effect.

Conclusion

Thus, according to research results, the use of the developed complex of combined effects of low-frequency pulsed electrotherapy and acupuncture is a powerful result of the rehabilitation of patients with degenerative-dystrophic diseases of the lumbosacral spine compared to other known methods of physiotherapy.

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