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MULTIDISCIPLINARY APPROACH IN THE TREATMENT OF SPIN DISEASES

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Abstract

The article discusses the method of multidisciplinary treatment of patients with a diagnosis of M54.5 "Low back pain" based on the combined use of

physiotherapy, kinesitherapy and correction of anxious depression. It was established that treatment of patients with lower back pain based on the proposed method reduces the level of subjective assessment of pain according to the VAS scale by 28 ± 3% reduces the clinical manifestations of pain and by 21 ± 4% the level of depression according to A. Beck's psychometric table compared to the control group.

Key words: lower back pain, anxiety and depressive disorders, magnetic laser therapy, electroneurostimulation, neuroacoustic binaural stimulation, kinesitherapy.

Резюме. В статье рассматривается метод мультидисциплинарного подхода лечения больных с диагнозом М54.5 «Боль внизу спины» на основе сочетанного применения физиотерапии, кинезотерапии и коррекции тревожной депрессии. Установлено, что лечение больных с болью внизу спины на основе предложенного метода снижает уровень субъективной оценки боли по шкале ВАШ на 28±3% снижают клинические проявления боли и на 21±4% уровень депрессии по психометрической таблице А.Бека по сравнению с контрольной группой.

Ключевые слова: боль внизу спины, тревожно-депрессивные расстройства, магнитолазерная терапия, электронейростимуляция, нейроакустическая бинауральная стимуляция, кинезотерапия.

Formulation of the problem. According to WHO experts, the prevalence of pain syndromes reaches the size of a pandemic and is a serious medical and socio-economic problem for most countries [1]. For example, in Ukraine, pains of various localization — headache and facial pain, neuropathies, myofascial pains, fibromyalgia, arthralgia, visceral pain with different etiologies, are the second most frequent initial treatment for medical care, after respiratory diseases and the third cause of hospitalization. If other pain syndromes are added to this problem, then a peculiar pandemic of pain really emerges.

Analysis of research and publications

According to the definition approved by the International Association for the Study of Pain (IASP) - “Pain is an unpleasant sensory or emotional sensation caused by actual or potential tissue damage or described in terms of such damage” (The Kyoto protocol of IASP Basic Pain Terminology. Pain 137 (2008) 473-477).

Pain performs an emergency signaling function for the body, warning of external or internal damaging effects. As a rule, pain, especially chronic, is a pathogenic factor, being the main, and often the only manifestation of a number of diseases that pose a serious danger to the body (Tsimbalyuk V.I., Sapon N.A., 2003).

Z. Freud, within the framework of his own metapsychological concept of pain [2], considered pain as the key in a person’s own body awareness, which helps to obtain a spatial representation of “representative knowledge” of a part of his own body. In a metaphorical sense, grief and the experience of loss acquire, according to Freud, special significance in understanding pain. Physical pain gives rise to a strong narcissistic cathexis, which causes the concentration

of energy in the mental representation of a certain part of the body (that is, the transformation of the narcissistic cathexis into an objective, bodily).

In the awareness of the intensity of pain by a person, the emotional aspects of trauma are more important than the degree of physical damage.

According to Karvasarsky B.D. (2007), determining are not only sensory, but emotional components, the personality's response to pain. It is known that the interpretation by a person of pain, his emotional reaction and behavior may not correlate with the severity of the injury. Sensory perception of pain is a physiological process, whereas the emotional sensation of pain depends largely on the personality traits.

In clinical and dynamic terms, they distinguish the primary (etiological) values of the psychological and psychopathological aspects of pain or their secondary nature, as a result of the patient's long suffering from pain.

There are three ways that psychological factors can be involved in the process of pain:

1. Psychogenic increased physical pain;

2. Psychogenic muscle pain (as a result of stress);

3. Psychogenic regional (conversion) pain.

Neurological manifestations of back pain make up from 60 to 70% of all diseases of the peripheral nervous system, and vertebral radiculopathy takes from 8 to 10% among other complications of diseases of the spine (Makarov A.Yu., 2002). Most often, pain in the lower back (M54.5, ICD 10) affects people of working age (from 30 to 60 years). This disease has a tendency to a protracted course with repeated relapses, which often leads not only to temporary, but also permanent disability.

Prolonged, chronic pain becomes a hardship for both the patient and his family, and for the doctors treating him. Quite often, patients in this group

experience worse state of health due to pain, which in turn leads to the development of anxiety and depressive disorders in this group of patients [3].

Pain is always colored by emotional experiences [3,4], and this gives it an individual character. The most important factors determining the level of pain are the emotional and personal characteristics of the subject, the level of his neuroticism, the presence of depressive-hypochondriacal manifestations.

In the works of scientists of the Ukrainian school for the treatment of pain and pain syndromes [3], for the first time, a multi-level polyfactorial approach to the treatment of pain and pain syndromes was proposed. According to the developed prof. Samosyuk I.Z. (2010-2014) concept of pain, treatment should be performed at several levels at the same time: the central nervous system <=> the peripheral nervous system <=> the pathology zone using the optimal combination of pharmaco-, physiotherapy and kinesitherapy.

Unfortunately, the authors are not aware of the protocols for the treatment of pain and pain syndromes for low back pain, providing for the combined implementation of psychological correction of the patient's condition and the implementation of therapeutic procedures in a state of relaxation.

An analysis of domestic and foreign literature has shown [5–8] that manual therapy, physiotherapy, spinal column traction, and other recommended methods for the treatment of pain syndromes do not completely solve this problem.

Surgical stabilization with spinal decompression is a rather expensive method of treatment, which is used in a small number of patients with discogenic dorsopathies, most often with a complicated course of the disease — the likely occurrence of a hernia of intervertebral discs, spinal canal stenosis, etc. [5,6]. The authors have developed and tested a method for correcting the psychosomatic condition of patients with lower back pain based on the use of

neuroacoustic binaural stimulation, electroneurostimulation and kinesitherapy in the state of spinal decompression.

The method of neuroacoustic binaural stimulation is based on the stimulation of the activity of the cerebral cortex through the use of sound waves to influence the left and right side. They differ in the frequency of rhythms of the biopotentials of the cerebral cortex. In order for such beats to be heard, the frequency of the tones should be no higher than 1500 Hz, and the frequency difference should be no higher than 30 Hz, but nevertheless, frequencies in the alpha rhythm range (8-13 Hz) are used predominantly. With a larger frequency difference a person hears two separate tones and the beating does not occur. From the physical point of view, this is the merging of two waves, the phases of which periodically coincide, thereby creating a side wave of low frequency. The choice of individual therapeutic frequency is carried out on the basis of recommendations on the use of functional therapeutic frequencies [8] or on the basis of the Samosyuk-Chukhraev method [9]. The electroneurostimulation method is implemented using the action on the central nervous system by pulsed currents with a frequency of 727 Hz, modulated in the low frequency range of 77 Hz [9]. For the procedure on the hands and feet of the patient are fixed four electrodes. Electrode "+" of the first channel is installed on the ankle zone of the left leg. Electrode "+" of the second channel is installed on the ankle of the right leg. The electrode "-" of the first channel is installed on the inside of the wrist of the right hand. The electrode "-" of the second channel is installed on the inner side of the left hand. The strength of the current increases until a slight tingling sensation appears. The procedure is painless and comfortable.

The kinesitherapy will be performed in the state of spinal decompression simultaneously with the physiotherapy and neuroacoustic binaural correction. To perform spinal decompression, the patient is located on an inclined couch, the angle of inclination is 15-30 degrees.

Procedures are carried out three times a week, lasting 30 minutes. The general course of treatment is 9-12 procedures.

Setting a research assignment

In order to increase the effectiveness of treatment of pain syndromes in the lower back, the authors proposed a multidisciplinary approach based on the combined use of electroneurostimulation, kinesitherapy and psychological correction of anxiety depression using transcranial exposure by neuroacoustic stimulation on individually selected binaural rhythms.

Materials and research methods

To determine the most effective protocol for the treatment of pain syndromes in patients with low back pain, pilot studies were conducted based on the developed method. The study involved 54 patients who gave written consent to conduct research and process the data. All study participants were divided into 2 groups of 27 patients. The criterion for inclusion in the study group was that the patient had pain in the lower back not less than 7 points (assessed on the VAS scale) and anxiety depression level was not less than 25 points (assessed on the A. Beck psychosomatic scale) and a written consent to participate in the study. The group included people aged 32-47 years, including 12 women and 42 men.

In group 1, the treatment was carried out by the method of kinesitherapy on an inclined couch. The procedures were carried out in the state of decompression of the spine (on the couch with an inclination of 20 degrees to the horizon, with fixation of the thoracic spine, additionally 8 permanent magnets were installed on the couch with induction on the surface of 20 mT. Procedures were performed 3 times a week for 30 minutes, per course treatment was prescribed 9 procedures.

In group 2, treatment was carried out by the method similar to the first group, with the addition of simultaneous correction of the patient’s

psychological state using binaural correction at an analgesic frequency of 727 Hz (left side) [9,11] and the sum of the analgesic and individual therapeutic frequencies (right side).

The individual therapeutic frequency was determined on the basis of the Samosyuk-Chukhraev method [10, 11]. An example of the procedure for determining the individual therapeutic frequency is shown in Fig. 1.

Fig. 1. An example of the procedure for determining the individual therapeutic frequency.

A variant of the procedure is presented in Fig. 2.

Fig. 2. The procedure in patients of group 2

In all patients participating in the study, it was (9.5 ± 1.1) Hz. The loudness of the sound was established by the patient independently on the basis

of comfortable subjective sensations. Electroneurostimulation was performed at a carrier frequency of 727 Hz and at a modulation frequency of 77 Hz.

In the study, the clinical picture in patients was typical. The main symptom of the patients was lower back pain and the accompanying depressive state. Before the start of the study, all the indicators, which were evaluated on the scale of the intensity of pain VAS, were homogeneous in both groups of patients and were 7 ± 1.

The research results showed a positive dynamics of clinical manifestations in both groups of patients. It was found that the combined use of electroneurostimulation, kinesitherapy on an inclined couch and correction of the psychological state based on the proposed method reduces the clinical manifestations of pain by 28 ± 3% and the depression level by almost 21 ± 4%. Therefore, in group 2, there is a more pronounced improvement in the quality of life of patients with lower back pain compared with group 1.

Findings. It was determined that the treatment of pain syndromes in patients with lower back pain based on the proposed method of combined use of electroneuro and neuroacoustic stimulation using binaural rhythms in the kinesitherapy mode in the state of decompression of the spine reduces the level of subjective pain assessment on the VAS scale by 28 ± 3% depression by 21 ± 4% on the psychometric table A. Beck compared with the control group.

The further study of the combined use of psycho-physiological methods of depressive disorders to increase the effectiveness of complex treatment of pain in patients with back pain is topical.

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