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PATIENTS WITH HEMIPARESIS AND MYOFASCIAL PAIN SYNDROME DURING THE IMPLEMENTATION OF THE PHYSICAL REHABILITATION PROGRAM

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Summary

Introduction. Hemorrhagic stroke causes significant deviations in the psycho-emotional, moral-volitional and social spheres. Kinesiotherapy is a new effective method used in rehabilitation and physical therapy programs for post-stroke patients with myofascial pain syndrome. This publication presents the results of the study of the quality of life of post-stroke patients before and at different times after complex kinesiotherapy, as well as the characteristics of the answers related to the quality of life after the program of combined rehabilitation and physical therapy are given.
The aim of the study is to substantiate the inclusion of kinesiotherapy in the basic rehabilitation and physical therapy programs for post-stroke patients with myofascial pain syndrome.
Materials and methods. The study included 105 patients aged 57 to 64 with a verified diagnosis of hemorrhagic stroke complicated by myofascial pain syndrome». The SF-36 general questionnaire was used to assess the quality of life.
Results. It was established that indicators of the quality of life of post-stroke patients before implementation programs of rehabilitation and physical therapy are significantly reduced on most scales of physical, mental and social functioning; the quality of life profile of patients is characterized by compression and deformation. Conducting kinesiotherapy with acupuncture is accompanied by a marked improvement in quality of life indicators of post-stroke patients with myofascial pain syndrome. Responses related to the quality of life, in the form of improvement or stabilization, were registered in the majority of post-stroke patients with myofascial pain syndrome after complex kinesiotherapy – in 96 % of patients after a combined program of rehabilitation and physical therapy and in 87 % of patients after kinesiotherapy.
Conclusions. The profile of the quality of life of patients with hemiparesis indicates its compression and deformation, which is caused by a significant decrease in indicators that characterize the physical, mental and social scales of functioning. Long-term monitoring of such patients after the implementation of the author's physical rehabilitation program indicates a stabilization of the quality of life, which is manifested by a pronounced improvement in the profile of 96 % of post-stroke patients with myofascial pain syndrome after complex and in 87 % of patients in combination with acupuncture.

Keywords: **hemiparesis, quality of life, muscle relaxation, kinesiotherapy, acupuncture**

INTRODUCTION

Hemorrhagic stroke as an acute violation of cerebral blood circulation is a critical disease of the central nervous system, often ends fatally (up to 80 %), is accompanied not only by physical disorders in the form of paresis and paralysis, but is also combined with the development of myofascial pain syndrome (MFPS), as well as deviations in psycho-emotional, moral and willful and social spheres. Such patients have a wide range of symptoms that significantly impair their quality of life (QoL) [8; 12].

The main goal of treatment for this condition is to improve/maintain the polyintegral index a sufficient

level of quality of life of a post-stroke patient and elimination/reduction of the severity of pathological symptoms characteristic of MFBS [5; 10]. In this regard, the assessment of the quality of life, the spectrum and severity of symptoms in the post-stroke period and during the development of MFBS, as a comorbid disease, which is an integral component of the rehabilitation and physical therapy program (RPT) of such a patient [9; 11].

Kinesiotherapy is a new effective method of treatment of a post-stroke patient with MFBS, which makes it possible to influence individual links of the pathogenesis of this disease at the regulatory level [6; 7]. Along with traditional clinical and instrumental parameters (EDSS, MRT, ENMG), assessment of quality of life parameters during treatment and at the stage of physical rehabilitation is an important component of evaluating the effectiveness of various restorative measures in post-stroke patients with MFBS. The results of the effectiveness of kinesiotherapy in combination with acupuncture and physical exercises for stretching spastically shortened muscles based on clinical and instrumental data are presented in our earlier separate publications [6; 7].

This publication presents an analysis of quality of life indicators in post-stroke patients with MFBS at different times after a complex program of RFT. The purpose of the work is to substantiate the inclusion of kinesiotherapy in basic rehabilitation and physical therapy programs for a post-stroke patient with MFBS.

MATERIALS AND METHODS

The study included 105 patients aged 57 to 64 years with a verified diagnosis: intracerebral hemorrhagic stroke complicated by myofascial pain syndrome. Inclusion criteria were also kinesiotherapy, values on the EDSS scale from 1.5 to 8.5 points unit, absence of cognitive impairment, presence of concomitant MFBS. Depending on the type of RFT measures, patients were divided into two groups [1; 3]: 1st (I Gr) – patients underwent kinesiotherapy (EDSS 3.5-8.5) in combination with acupuncture and physical exercises to stretch spastically contracted muscles; 2nd group (II Gr) – patients received only kinesiotherapy (EDSS 1.5-3.0). It should be noted that before the adoption of the protocol on the provision of medical care for hemorrhagic stroke in accordance with the order of the Ministry of Health of Ukraine No. 225 dated 17.04.2022, physical rehabilitation programs for hemorrhagic stroke did not include various types of kinesiotherapy, therefore, this technique is proprietary, based on the mechanism impact of kinesiotherapy on the musculoskeletal system and general improvement of well-being, is used for the first time in such a combination with other means of physical rehabilitation and requires experimental verification of its effectiveness.

RESULTS

Moreover, in the modern system of physical therapy, the means of medical rehabilitation are increasingly being used, which in the complex show high efficiency for patients with various forms of musculoskeletal disorders.

The general RAND SF-36 questionnaire [4] was used to assess QOL. The tool consists of 36 questions that form 8 scales: physical functioning, role physical functioning, pain, general health, vitality, role emotional functioning and mental health. The questionnaire data are expressed in points from 0 to 100 on each of the eight scales. The higher the score on the scale of the SF-36 questionnaire, the better the quality of life (QoL) indicator.

Patients filled out a questionnaire before and after 3, 6, 9 and 12 months after the implementation of the RFT program. On the basis of the data of the SF-36 survey, an integral indicator of quality of life was calculated for each patient and a description of the distribution of patients according to the gradations of reduction in the quality of life is given. For this, a comparison of the patient's quality of life index with the value of the integral index of the population norm was carried out.

The following gradations of reduction of the integral index of the quality of life were distinguished: no reduction (there are no differences in the value of the integral index of the patient with the integral index of the population norm); a slight decrease in the integral indicator of quality of life (a decrease in the integral indicator <25 % of the integral indicator of the population norm); a moderate decrease in the integral index of quality of life (a decrease in the integral index by 25-50 % of the integral index of the population norm); a significant decrease in the integral index of quality of life (decrease of the integral index by 51-75 % of the integral index of the population norm); critical reduction of the integral indicator of quality of life (decrease of the integral indicator > 75 % of the integral indicator of the population norm) [1; 2]. Evaluation of answers was determined using the informational indicator of quality of life by the method of integral profiles. Three gradations of responses related to quality of life were distinguished: improvement, stabilization, and deterioration.

Research results. When comparing the indicators of the post-stroke quality of life of patients with MFBS included in the study with the indicators of the population norm, statistically significant differences ($p < 0.05$) were found for all scales of the SF-36 questionnaire, except for the scale «role emotional functioning» (table 1).

For greater clarity, the obtained indicators of the quality of life compared with similar healthy people (fig. 1).

Table 1

Indicators of the quality of life of post-stroke patients with myofascial pain syndrome

Indicator Population norm Patients to physical rehabilitation Patients after physical rehabilitation	Indicator Population norm Patients to physical rehabilitation Patients after physical rehabilitation	Indicator Population norm Patients to physical rehabilitation Patients after physical rehabilitation	Indicator Population norm Patients to physical rehabilitation Patients after physical rehabilitation
Physical functioning (PF)	82,4±2,32	62,5±2,43	76,5±2,03
Role physical functioning (RP)	77,7±1,93	38,0±1,03	71,4±2,82
General health (GH)	68,2±1,44	51,7±2,03	60,5±1,93
Viability (VT)	76,7±1,93	48,6±1,12	70,2±2,14
Social functioning (SF)	82,2±2,64	54,2±1,86	78,7±2,33
Role emotional functioning (RE)	72,4±2,12	65,9±2,57	68,9±2,15
Mental health (MH)	79,9±2,53	54,9±1,83	72,2±2,14

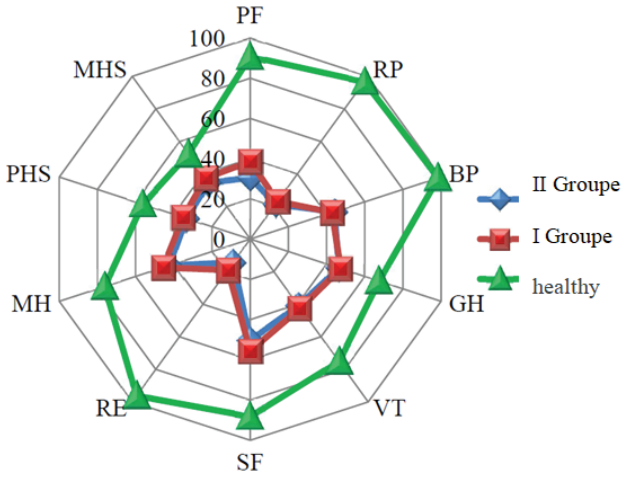

Figure 1. Diagram of indicators of the quality of life of patients with stroke in different groups, before and after complex rehabilitation

Note: PF – physical functioning; RR – role physical functioning; BP – pain intensity; GH – general health; VT – viability; SF – social functioning; RE – role emotional functioning; MH – mental health; PHS – physical component of health; MHS is the psychological component of health.

DISCUSSION

Quality of life indicators of post-stroke patients with MFBS before the RFT program are significantly lower than in the population norm. After the RFT program, quality of life indicators in the group of post-stroke patients with MFBS improve. When comparing the indicators after three months with the population norm, no statistically significant differences were found. When stratifying post-stroke patients with MFBS, before the implementation of the RFT program by the degree of reduction of the integral indicator The following results were obtained: with the absence of a decrease in the integral indicator of quality of life – 26 % of patients; with a slight decrease in the integral indicator of quality of life – 8 %; with a moderate decrease in the integral indicator of quality of life – 20 %; with a significant decrease in the integral index of QOL – 22 % and with a critical decrease in the integral index of QOL – 24 % of patients. Therefore, a significant or critical decrease in the integral quality of life indicator was noted in almost half of the patients. In each group, the quality of life indicators of post-stroke patients with MFBS are lower than in the population norm. After 12 months after the implementation of the RFT program, a pronounced improvement in quality of life was observed, both in the group after kinesiotherapy and after kinesiotherapy in combination with acupuncture and physical exercises for muscle stretching. It should be noted that in the first group of patients, significant positive changes were observed on each scale of the questionnaire; profile of patients' quality of life after 6 months after kinesiotherapy corresponded to the population norm. These changes persisted 9 months after kinesiotherapy. In the group of patients after kinesiotherapy in combination with acupuncture and physical exercises for stretching muscles through 6 miss. after using the RFT program, there was an improvement in quality of life indicators on most scales of the questionnaire, and these changes were more pronounced than in the first group. 12 months after complex kinesiotherapy, further improvement of quality of life indicators was observed according to individual scales of the questionnaire; at the same time, the quality of life profile was characterized

by some deformation and compression, compared to the profile corresponding to the population norm. Therefore, the effectiveness of kinesiotherapy in post-stroke patients with MFBS is demonstrated not only on the basis of clinical and instrumental data, but also on the basis of monitoring of quality of life parameters. In the group of patients after the complex program of RFT, a positive effect was observed in more patients than in the group of patients only after kinesiotherapy.

CONCLUSIONS

Before the implementation of the rehabilitation and physical therapy program for post-stroke patients with MFBS, 46.3 % of patients had a significant or critical decrease in the integral quality of life indicator. In 96.0 % of such patients after complex kinesiotherapy and in 87.0 % after kinesiotherapy in combination with acupuncture, quality of life indicators improve.

Prospects for further development. The study can be used by specialists in physical rehabilitation medicine for the further recovery of patients with the specified problems.

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There is no conflict of interest: this document has no circumstances in which the authors' personal or financial interests could affect the objectivity or results of the study. The authors adhere to high standards of professional ethics and strive to avoid conflicts of interest.

COMPLIANCE WITH ETHICAL REQUIREMENTS

In accordance with the principles of the Helsinki Conference and other ethical standards, the authors guarantee the safety and confidentiality of research participants. All experiments and procedures were conducted with respect for the rights and integrity of the research participants. It is important to emphasize that all participants of the experiment gave their informed consent to participate in the study, and their information will be used only within the defined research objectives.

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Резюме

ПАЦІЄНТИ З ГЕМІПАРЕЗОМ І МІОФАСЦІАЛЬНИМ БОЛЬОВИМ СИНДРОМОМ ПРИ ВПРОВАДЖЕННІ ПРОГРАМИ ФІЗИЧНОЇ РЕАБІЛІТАЦІЇ

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Вступ. Геморагічний інсульт викликає суттєві відхилення психо-емоційної, морально-вольової і соціальної сфери. Кінезіотерапія – відносно новий та ефективний метод, який застосовується у програмах реабілітації і фізичної терапії для постінсультних хворих із міофасціальним больовим синдромом. У цій публікації представлені результати вивчення якості життя постінсультних хворих до і в різні терміни після комплексної кінезіотерапії, а також дається характеристика відповідей, пов'язаних із якістю життя після програми комбінованої реабілітації і фізичної терапії.
Мета дослідження – обгрунтувати включення кінезіотерапії в базові програми реабілітації і фізичної терапії для постінсультних пацієнтів із міофасціальним больовим синдромом.
Матеріали та методи. У дослідження включено 105 пацієнтів у віці від 57 до 64 років із верифікованим діагнозом геморагічний інсульт, ускладнений міофасціальним больовим синдромом». Для оцінки якості життя використано загальний опитувальник SF-36.
Результати. Установлено, що показники якості життя постінсультних хворих до впровадження програми реабілітації і фізичної терапії істотно знижені за більшістю шкал фізичного, психічного та соціального функціонування; профіль якості життя хворих характеризується компресією і деформацією. Проведення кінезіотерапії з голкотерапією супроводжується вираженим поліпшенням показників якості життя постінсультних хворих із міофасціальним больовим синдромом. Відповіді пов'язані з якістю життя, у вигляді поліпшення або стабілізації, зареєстровані у більшості постінсультних хворих із міофасціальним больовим синдромом після комплексної кінезіотерапії – у 96 % хворих після комбінованої програми реабілітації і фізичної терапії і у 87 % хворих після кінезіотерапії.
Висновки. Профіль якості життя хворих на розсіяний склероз указує на його компресією та деформацією, що зумовлено суттєвим зниженням показників, які характеризують фізичну, психічну й соціальну шкали функціонування. Моніторинг таких хворих у віддалені терміни після впровадження авторської програми фізичної реабілітації вказує на стабілізацію якості життя, що проявляється вираженим поліпшенням профілю в 96 % постінсультних хворих із міофасціальним больовим синдромом після комплексних та у 87 % хворих у поєднанні з акупунктурою.

Ключові слова: **геморагічний інсульт, якість життя, міорелаксація, кінезіотерапія, голкотерапія, геміпарез**