Psychological Study on the Functional State of a Patient with Ischemic Stroke

Психологічне дослідження функціонального стану хворого на ішемічний інсульт

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ABSTRACT

The purpose of this article is to present psychological study of the functional state of the patient.

Methods of the research. The following theoretical methods of the research were used to solve the tasks formulated in the article: a categorical method, structural and functional methods, the methods of the analysis, systematization, modeling, generalization. The method of organizing an empirical research was used as an experimental method.

The results of the research. The results show, that there are four primary clusters. They consist of one basic variable, with the help of which we identify them. These clusters characterize the current state of patients with ischemic stroke at the time of the start of rehabilitation measures. The interaction of "Factor of deviation from the autogenous norm, pathology of the somatic state" and "Factor of instability of health and well-being" make up the first and second primary clusters, which are dominant. "Anxiety Factor" and "The Factor of passivity, physical limitation of activity" form the third and the fourth primary clusters.

Conclusions. Such interaction of the studied variables indicates the presence of psychological discomfort or a state of a physiological discomfort. It is a source of anxiety. In the first place, in order of significance, the restoration of lost motor functions appears in a case of such patients, when the patient feels only a certain anxiety from the view of his/her psycho-physiological state, without giving himself/herself an account of the reason for the presence of anxiety. The limits of psychological capabilities of patients are significantly narrowed – this is evidenced by the value of the interaction of the indicator "Factor of deviation from the autogenous norm, pathology of the somatic state" and "Anxiety Factor". These indicators are quite low, although their rehabilitation potential is often high (forecast by a specialist neurologist). Such patients are not fully oriented

to the process of physical rehabilitation, they have no or rather low motivation to engage in physical exercises. This should also be taken into account when planning and implementing rehabilitation measures, which we have done in the formative experiment.

Key words: functional state of the patient, psycho-physiological state, rehabilitation measures, rehabilitation potential, passivity, physical limitation of activity, anxiety.

Introduction

The problem of psychomotor retraining of patients with ischemic stroke is very actual nowadays. The severity of motor disorders, aggravating for this patient and others, explains the desire of the most researchers, primarily to find ways to correct this defect (Choi, Chau, Tsang, Tso, Chiu, Tong, Lee, Tak, Wai, Lee, Lam, Yu, Lai & Sik, 2003). Physical rehabilitation, in a modern sense, should have the aim at maximizing the use of adaptive and compensatory functions of a sick person in the fight against the disease. One of the main principles of physical rehabilitation is also taking into account the patient's personality, and this determines the close relationships in the rehabilitation program of biological, psychosocial and psychological-pedagogical methods (Chan, Ng & Chan, 2003).

The methodological side of the process of psychomotor retraining is also of great importance. The existing classifications of motor disorders do not adequately reflect the complex pathogenetic mechanisms of the formation of post-stroke motor deficit; the clinical structure of motor deficit is insufficiently studied, the peculiarities of the psychological state of the patient, which arose as a result of the disease, are not taken into account (Epstein, Blake & González, 2017). Nowadays, with all the variety of techniques doctors use to restore lost motor function of patients with ischemic stroke, there is no a single system of differentiated use of means and methods of physical rehabilitation, which take into account not only the development of stroke, but also the development of normal motor function in the process ontogenesis, the possibility of a rational combination of the advan-

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tages of different schools of movement recovery (kinesitherapy) (Hayden, Farrar & Peiris, 2014).

In this case, the results of psychological research can be used to determine the specifics of the use of motor retraining techniques and assess the effectiveness of rehabilitation measures, as one of the criteria for effective rehabilitation measures and changes of the quality of life to improve psychosocial adaptability of a person (Lane, Marston & Fauci, 2016).

A stroke (from the Latin Insulto "to jump, a jump"; also, a stroke) is an acute disturbance of cerebral blood circulation (CBC), which causes a great damage to brain tissues and disorders of its functions (Hardeman, Medina & Kozhimannil, 2016). Strokes include cerebral infarction (ischemic stroke), cerebral hemorrhage (hemorrhagic stroke), and subarachnoid hemorrhage (SH), which have etiopathogenetic and clinical differences. Stroke is the second leading cause of death worldwide and the main cause of long-term disability (Mykhalchuk, Pelekh, Kharchenko, Ivashkevych Ed., Ivashkevych Er., Prymachok, Hupavtseva & Zukow, 2020).. Strokes include cerebral infarction (ischemic stroke), cerebral hemorrhage (hemorrhagic stroke) and subarachnoid hemorrhage (SH), which have etiopathogenetic and clinical differences (Lin, Chen & Hsu, 2019).

The first mention of a stroke comes from the descriptions made by Hippocrates in the 460s B.C., which refer to a case of loss of consciousness as a result of brain disease. Later, Claudius Galen described the course, which begins with a sudden fainting and then a deeper loss of consciousness, and designated them with the term ἀποπληξία, that is, paralysis. Since that time, the term "apoplexy" has entered medicine quite firmly and for a long time, denoting at the same time a stroke.

In 1628 William Harvey studied how blood moves in the person's body and determines the function of the heart as a pump, describing the process of blood circulation. This knowledge laid the foundation for studying the causes of stroke and the role of blood vessels in this process. Rudolph Virchow made a signifi-

cant contribution to the understanding of stroke pathogenesis. He proposed the terms "thrombosis" and "embolism". These terms are still key ones in the diagnosis, treatment and prevention of stroke. Later, Rudolph Virchow also established that arterial thrombosis is not caused by inflammation, but by fatty degeneration of the vascular wall, and linked it to atherosclerosis (Villar, Blanco & del Campo, 2015).

Most often, a stroke occurs with arterial hypertension, atherosclerosis, aneurysms of brain vessels, vasculitis, heart diseases, etc. Strokes are caused by disturbances in blood circulation, coagulation characteristics of blood, changes in vascular reactivity, spasm, vascular dystonia, fluctuations in blood pressure, psychotrauma, physical exertion (Kimball, Hatfield, Arons, James, Taylor, Spicer, Bardossy, Oakley, Tanwar & Chisty, 2020).

Risk factors are various clinical, biochemical, behavioral and other characteristics that indicate the increased likelihood of developing a certain disease. All directions of preventive activity are focused on the control of risk factors, their correction both for specific people and in the population as a whole. Risk factors for stroke include the following ones:

· the old age;
· arterial hypertension;
· heart disease;
· transient ischemic attacks, significant predictors of the development of both brain infarction and myocardial infarction;
· diabetes;
· smoking;
· asymptomatic carotid artery stenosis.

Many people in the population have several risk factors at the same time, each of which can be moderately expressed. There are such scales that allow the patient to estimate the individual risk of developing a stroke (in percentage) for the next 10 years and compare it with the average population risk for the same period. The most famous of them is the Framingham scale (Khwaja, 2012).

According to the nature of the course, strokes are divided into *hemorrhagic* and *ischemic* ones. At the same time, there are three main types of stroke: ischemic stroke, intracerebral hemorrhage (hemorrhagic stroke) and subarachnoid hemorrhage. Intracerebral hemorrhage and (not in all classifications) nontraumatic subdural hemorrhage are classified as hemorrhagic stroke. According to International Multicenter Studies, the ratio of ischemic and hemorrhagic strokes is on average 4:1-5:1 (80-85% and 15-20%, respectively) (Huang, Oquendo, Friedman, Greenhill, Brodsky, Malone, Khait & Mann, 2003).

Ischemic stroke, or brain infarction, develops when the main vessels of the neck or brain are blocked by a thrombus, embolus (embolism) or when there is insufficient blood flow due to a blood vessel narrowed by an atherosclerotic process or spasm. Ischemic strokes occur with significant blood loss, drop or rise in blood pressure, weakening of cardiac activity. If the supply of nutrients and oxygen to the brain is reduced or stopped, this leads to softening of the brain tissues (cerebral infarction). Ischemic stroke is characterized by impaired movement (including partial paralysis), speech, sensitivity against the background of unconsciousness (Gorbalenya, Baker & Baric, 2020).

Ischemic stroke most often occurs in a case, when patients are over 60 years old, who have a history of myocardial infarction, rheumatic acquired heart disease, heart rhythm and conduction disorders, diabetes (Corbitt, Malone, Haas & Mann, 1996). Violations of the rheological characteristics of blood and the pathology of main arteries play a major role in the development of ischemic stroke (Chenguang, Zhaoqin, Fang, Yang, Jinxiu, Jing, Fuxiang, Delin, Minghui, Li, Jinli, Haixia, Yan, Jiuxin, Ling, Li, Zhixiang, Ling, Yanjie, Haixia, Feng, Kun, Yujing, Dongjing, Zheng, Yingxia & Lei, 2020). Characteristic development of the disease is at night without fainting (Brodsky, Oquendo, Ellis, Haas, Malone & Mann, 2001).

So, **the purpose** of our article is to present psychological study of the functional state of the patient.

Methods of the research

The following theoretical methods of the research were used to solve the tasks formulated in the article: a categorical method, structural and functional methods, the methods of the analysis, systematization, modeling, generalization. The method of organizing empirical research was used as an experimental method.

The effectiveness of the cardiovascular support of the exercises having been performed by us was assessed by the type of response to autogenic training and heart rate. Blood pressure was measured daily using a standard tonometer (Chen, Zhou & Dong, 2019). The heart rate was calculated on the radial artery at rest and in the first 10 seconds after doing exercises (recovery period), followed by recalculation of data for 1 minute.

Vegetative indicators under conditions of physical exertion are determined by the functional state of the body and, first of all, by the state of the cardiovascular system (de Wit, van Doremalen, Falzarano & Munster, 2016). The activity of the cardiovascular system is the most closely related to all the functional links of the body, largely determining its vital activity and adaptation mechanisms, and therefore largely reflects the functional state of the body as a whole (Edwards, Lee & Esposito, 2019). This determines the choice of functional tests for assessing the patient's real condition (Grunebaum, Oquendo, Burke, Ellis, Echavarria, Brodsky, Malone & Mann, 2003).

The study of the functional state consists of the systematic registration of the reaction of the pulse and blood pressure to consecutive represented test loads. An indicator for the use of a more demanding functional test and for the expansion of psychomotor activity is an adequate reaction of the cardiovascular system of a patient with an ischemic stroke in relation to the corresponding functional test (Onufriieva & Ivashkevych Ed., 2021). During the initial examination of the patient, ventilation tests are performed (a test with a comfortable breath hold on exhalation and a hyperventilation test) in sequence. During the tests, the patient's reaction to the test load is determined (Onufriieva,

Chaikovska, Kobets, Pavelkiv & Melnychuk, 2020). The use of the starting position for the purpose of active correction of motor deficits is also determined not only by the good performance of the exercises of the previous stage, but also by the reaction to the corresponding tests (Gorbalenya, Baker & Baric, 2020).

Analyzing the empirical data having been obtained by us as a result of functional testing, the psychomotor mode of the activity for patients with ischemic stroke was determined.

1. *A test with a comfortable breath hold on exhalation.*

Measurement of heart rate and blood pressure at rest in a supine position with calm breathing and after performing a comfortable breath hold on exhalation. A normal reaction is considered to be a decrease in the heart rate and blood pressure and recovery of these indicators within not more than 3 minutes. In the event of a violation of the vegetative supply, an increase in heart rate and blood pressure is observed, as well as a prolongation of a recovery period.

2. *Test with hyperventilation.*

Measurement of the heart rate and blood pressure at rest in the supine position and after the patient has performed maximally deep and maximally frequent breathing for 20 seconds. The frequency and depth of breathing is controlled by the patient himself/herself, taking into account his/her well-being.

Adequate reactions: immediately after hyperventilation (no more than in 3 minutes) there is a rise in systolic pressure up to 20 mm Hg, to a lesser extent – a rise in diastolic pressure and a corresponding increase in heart rate by 30 per minute. A decrease in any indicator is considered an inadequate reaction.

3. *Orthostatic test when moving from a lying position to a sitting one.* Measurement of heart rate and blood pressure while lying down at rest, then the patient slowly sits up independently or with a help in a sitting position with legs off the bed and maintaining the position at least for 3 minutes.

Adequate reaction: a short-term rise in systolic pressure up to 20 mm Hg, to a lesser extent in diastolic pressure and a gra-

dual increase of a heart rate up to 30 per minute. After returning to the initial position (horizontal one), the heart rate and blood pressure should return to the initial level after 3 minutes.

Inadequate reaction: a) rise in systolic pressure by more than 20 mm Hg. At the same time, the diastolic pressure also increases, sometimes more significantly than the systolic pressure, in other cases it falls or remains at the previous level; b) rise only in systolic pressure when taking a sitting position; c) increase in heart rate when taking a sitting position by more than 30 per minute; d) at the moment of changing the position, a feeling of blood flow to the head, darkening of the eyes may appear.

Mandatory drop in systolic pressure by more than 10-15 mm Hg. immediately after the change of the position. At the same time, the diastolic pressure can simultaneously increase or decrease in such a way that the pressure amplitude (pulse pressure) decreases significantly.

In the vertical position the systolic pressure drops by more than 15-20 mm Hg. below baseline. Diastolic pressure remains unchanged or slightly rises. It is a hypotonic dysregulation, which can be considered as insufficient autonomic support, as a violation of adaptation. It is also possible to estimate the drop in diastolic pressure. A decrease in the amplitude of arterial pressure can be compared to the initial level by more than 2 times, and it means not only regulatory disorders, but also disorders of autonomic support.

An increase in the heart rate in a standing position by more than 30-40 beats per minute with relatively unchanged blood pressure – excess autonomic support (*tachycardic regulatory disorder*).

The use of the proposed tests for assessing the patient's condition allows the doctor fairly objectively use the principle of gradualness in the appointment of physical exertion at the earliest stages of restorative treatment for patients with different levels of functional status, which allows to prepare the patient for use in the further activation of walking and other

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forms of physical rehabilitation. It will allow to reliably prepare the patient's body for the next stage of the activity, mainly it is a reserved stage, not compensatory capabilities of the patient's body.

Proposed control methods make us possible to give a fairly objective assessment of the functional state of patients and to study its dynamic changes over a longer period of observation under the influence of certain rehabilitation measures. The results of these tests reflect the individual capabilities of each patient, the tolerance of certain types of loads.

4. *Using of the goniometry method.* Determination of the range of motion in the joints of the affected limbs was carried out according to the standard method of measuring the range of motion using a combined protractor, on one side of which a semicircle of the protractor is fixed, and on the other side it is arrow. When determining the number of movements in the joints of the limbs, the number of movements having been performed due to only concentrated reduction of the patient was taken as the norm. The range of motion in the elbow joint of the affected limb under conditions of high tone was estimated from the initial position of the forearm. The method of measuring the range of motion (in active and passive forms) in the joints of affected and unaffected limbs is presented in Table 1.

5. For our research we proposed "*The author's methodology of measuring the number of active movements in the joints of the patient's limbs*" (Table 1).

6. *Manual Muscle Testing.* To assess the degree of muscle strength disorders, Manual Muscle Testing and assessment of muscle strength according to the six-point scale were used. The Muscle Strength Rating Scale is presented in Table 2.

The determination of muscle tone. Muscle tone was assessed under patients' conditions that performed rather passively on the Modified by us Ashworth's Scale of Muscle Spasticity (1992) (see Table 3).

Table 1

The methodology of measuring the number of active movements in the joints of the patient's limbs

Movement which has measured and the plane of motor activity	Starting position the patient	Indexes of the volume of normal movements
Flexion and extension in shoulder joint; sagittal plane	Sitting or lying on your back, a hand is along the torso, unbent in the elbow joint	Bending – 180 times Extension – 60 times
Withdrawal of the arm in the shoulder joints; a frontal plane	Sitting or lying on your back, hand along the torso, unbent in the elbow joint	Bending – 180 times Extension – 180 times
Internal and external rotation in the shoulder joint; transverse plane	Lying on the abdomen, removal in the shoulder joint – 90 times, flexion in the elbow joint – 90 times, pronated forearm	External rotation – 90 times Internal rotation – 90 times
Flexion in the elbow joint; sagittal plane	Sitting or lying down, forearm is supine	External rotation – 150 times Internal rotation – 150 times
Pronation and supination of the forearm; transverse plane	Sitting or lying down, flexion of the elbow joint – 90 times, wrist joint in a neutral position (intermediate between pronation and supination), fingers are gripping the pencil	Pronation – 90 times Supination – 90 times
Flexion and extension in the wrist joint; sagittal plane	Flexion in the elbow joint – 90 times, forearm pronated	Bending – 80 times Extension – 80 times
Flexion in the hip joint during extension in the knee joint; sagittal plane	Lying on your back or side, a leg is stretched at the knee joint	Bending – 90 times Extension – 90 times

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Withdrawal in the hip joint; a frontal plane	Lying on your back or side, a leg is stretched at the knee joint	Bending – 45 times Extension – 45 times
External and internal rotation in the hip joint; transverse plane	Lying on your back or sitting, flexion is in the hip joint and knee joint – 90 times	External rotation – 45 times Internal rotation – 35 times
Flexion is in the knee joint; sagittal plane	Lying on your stomach or sitting, the hip joint is in a neutral position	Bending – 135 times Extension – 135 times
Posterior and plantar flexion in the ankle joint; sagittal plane	Lying on your back or sitting, bending at the knee – 90 times	Rear flexion – 20 times Plantar flexion – 50 times

Table 2

Six-point scale for assessing muscle strength

Points	Muscle strength
0	There are no signs of stress when the person is trying to perform arbitrary movement
1	The feeling of tension when the person is trying to make an arbitrary movement
2	A movement in full in the conditions of physical unloading
3	A movement in full under the action of gravity
4	A movement in full under the action of gravity and slight external resistance
5	A movement in full under the action of force with maximum external resistance

Statistical processing of the obtained empirical results was carried out using the program STATISTIKA 2000_10 (StatSoft Ins, USA), designed for statistical processing of results in Windows. The 5% level of significance was taken as statistically significant, which ensures the necessary accuracy of comparisons in similar researches. The F-test (Fisher's test) and the Student's t-test were used as criteria of reliability.

Table 3

Modified Ashworth's Scale of Muscle Spasticity

Points	Muscle tone
0	Increased tone is not diagnosed
1	A slight increase of the tone felt when bending or unbending the limb segment in the form of low resistance at the end of the movement
2	Moderate increase of tone, which is detected throughout the movement process, but does not diagnose complications in the presentation of passive movements
3	Significantly increase of the tone, which complicates the presentation of passive movements
4	The affected segment of the limb is fixed in the position of flexion or extension

The main method of the program STATISTIKA 2000_10 (StatSoft Ins, USA) was mathematical statistics by the method of cluster selection. Cluster analysis includes a set of various researched parameters and determines the most important (relevant) researched parameters. The main goal of this statistical method is to combine parameters into fairly large clusters, using some degree of similarity of empirical results.

Results and their discussion

The empirical research was provided at the Department of Human Health and Physical Therapy of the International University of Economics and Humanities named after Academician Stepan Demianchuk on the basis of Ternopil Regional Municipal Clinical Psychoneurological Hospital, Neurological Department for Patients with Cerebral Circulatory Disorders (Neuroreability Unit).

In accordance with the purpose of the research and in order to solve the tasks, in our experiment 48 patients with ischemic stroke participated who had disturbances in the area of the internal carotid artery in the acute and residual period, who were treated at the Ternopil Regional Communal Clinical Psycho-neurological Hospital during the period from June to November, 2022.

Let us look at the protocol of a patient of 48 years old. The diagnosis of him is ischemic stroke, cerebral infarction in the left middle cerebral artery. Right hemiparesis. He does not express active complaints.

Also, we used M. Lüscher "Color Test" (2012). Cards were ranked in order of preference: 2, 4, 7, 3, 5, 1, 6, 0 and 5, 4, 3, 6, 0, 1, 2, 7. Colors 3, 4 and 1, 7 were located in different ends of the color range. The main colors (blue, green) are placed at 6 and 7 positions, respectively (there is a rejection of these colors). In position 1, as the compensation for the rejection of colors is purple (5) – as a rule, it should be located in the indifferent zone or deviate. The main colors are: blue (1) and green (2) are in the indifferent zone and the zone of rejection. Analyzing the test results, we can assume the presence of disorders of autonomic regulation and sources of stress of this person. Deciphering / - - / functions were indicated: the source of stress is frustration caused by limited freedom of actions, the desire for independence. Interpretation of / + - / functions emphasizes the patient's desire to avoid criticism, any restrictions of personal freedom.

As the next illustration we'll give another example of protocol of a 58-year-old patient. The diagnosis is ischemic stroke, brain infarction in the area of the middle cerebral artery, left-sided hemiplesia.

Color ranking is: 7, 1.5, 0, 3, 2, 6, 4 and 7, 0, 5, 1, 2, 3, 4, 6. The following interpretation of the test results is possible: "We diagnosed disorders of autonomic regulation and clearly expressed sources of stress having been caused by the need to be in the center of attention, to be respected, to play the main, but not the secondary role. Unfulfilled need facilitates anxiety, worry, fear. It manifests itself in excessive capriciousness and dictatorship in relation to relatives".

The results of the primary examination using M. Lüscher's Test were processed by mathematical analysis by the method of cluster selection. The most significant indicators characterizing

the psycho-emotional state of patients with ischemic stroke at the beginning of our research are showed in Table 4.

Table 4

Clusters, which are characterizing the psycho-emotional state of patients with ischemic stroke at the beginning of the research

The degree of significance	A cluster	Euclidean distance
1	«Factor of deviation from the autogenous norm, pathology of the somatic state»	42.3098
2	«Factor of instability of health and well-being»	51.2006
3	«Anxiety Factor»	55.3978
4	«The Factor of passivity, physical limitation of activity»	63.8710

As the results of Table 4 show, four primary clusters consist of one basic variable, with the help of which we identify them. These clusters characterize the current state of patients with ischemic stroke at the time of the start of rehabilitation measures. The interaction of "Factor of deviation from the autogenous norm, pathology of the somatic state" and "Factor of instability of health and well-being" make up the first and second primary clusters, which are dominant. "Anxiety Factor" and "The Factor of passivity, physical limitation of activity" form the third and the fourth primary clusters.

Conclusions

Such interaction of the studied variables indicates the presence of psychological discomfort or a state of a physiological discomfort. It is a source of anxiety. In the first place, in order of significance, the restoration of lost motor functions appears in a case of such patients, when the patient feels only a certain anxiety from the view of his/her psycho-physiological state, without giving himself/herself an account of the reason for the presence of anxiety. The limits of psychological capabilities of patients are significantly narrowed – this is evidenced by the value of the interaction of the indicator "Factor of deviation from the

autogenous norm, pathology of the somatic state" (42.3098) and "Anxiety Factor" (55.3978). These indicators are quite low, although their rehabilitation potential is often high (forecast by a specialist neurologist). Such patients are not fully oriented to the process of physical rehabilitation, they have no or rather low motivation to engage in physical exercises. This should also be taken into account when planning and implementing rehabilitation measures, which we have done in the formative experiment.

According to all patients of the experimental and control groups, during the entire period of inpatient treatment, the following data were analyzed daily: well-being, frequency and nature of pain sensations, other complaints (shortness of breath, palpitations, sleep and mood disorders, tolerability of restorative treatment procedures). A clinical, functional and psychological examination was conducted for all patients before and after the complex rehabilitation course.

The study of the initial state of voluntary motility of ischemic stroke patients at the beginning of the physical rehabilitation course showed the presence of disorders of static and dynamic motor function of the arm, leg, coordinated action of the arms and legs, head, trunk, but quite different in their explanation in the studied groups of patients.

The state of motor functions of patients with ischemic stroke is characterized in such a way: on the affected side, the maximum values of the volume of active and passive movements of strength and muscle tone are diagnosed in the "hemiparesis" subgroup, the smallest one – is in the "hemiplesia" subgroup. On the side of the lesion lacuna, the most pronounced muscle strength and tone are diagnosed in the subgroup "hemiparesis", the largest amount of active and passive movements, in turn, there are in the subgroup "plesia + paresis", "hemiparesis".

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Харченко Євген, Сімко Алла. Психологічне дослідження функціонального стану хворого на ішемічний інсульт.

Мета дослідження – *здійснити психологічне дослідження функціонального стану хворого.*

Методи дослідження. *Для розв'язання поставлених завдань використовувалися такі теоретичні методи дослідження: катего-*

ріальний, структурно-функціональний, аналіз, систематизація, моделювання, узагальнення. Метод організації емпіричного дослідження використовувався у якості експериментального методу.

Результати дослідження. *Було виділено чотири первинних кластери, що складаються з однієї базової змінної, яка характеризує актуальний стан хворих на мозковий інсульт на момент початку реабілітаційних заходів. Доведено, що взаємодія «Фактора відхилення від аутогенної норми, патології соматичного стану» і «Фактора нестабільності здоров'я та самопочуття» складають перший та другий первинні кластери, які є домінувальними. Показано, що «Фактор тривожності» і «Фактор пасивності, фізичного обмеження діяльності та активності» утворюють третій та четвертий первинні кластери.*

Висновки. *Показано, що взаємодія досліджуваних змінних свідчить про наявність психологічного дискомфорту чи стану фізіологічного неблагополуччя, є джерелом тривоги. Доведено, що на першому місці, за значущістю, у таких хворих постає відновлення втрачених рухових функцій, хворий відчуває лише певне занепокоєння з огляду на свій психофізіологічний стан, не даючи собі звіту щодо причини наявності тривоги. Межі психологічних можливостей хворих значно звужені – про це свідчить значення показника взаємодії «Фактора відхилення від аутогенної норми, патології соматичного стану» і «Фактора тривожності». Ці показники є досить низькими, хоча їхній реабілітаційний потенціал часто буває високим (прогноз спеціаліста-невролога). Такі хворі повною мірою не зорієнтовані на процес фізичної реабілітації, у них відсутня або досить низька мотивація до занять фізичними вправами. Це також було враховано при плануванні та впровадженні реабілітаційних заходів у формувальному експерименті.*

Ключові слова: *функціональний стан хворого, психофізіологічний стан, реабілітаційні заходи, реабілітаційний потенціал, пасивність, фізичне обмеження активності, тривога.*