Study of quality of life and health in the restorative period of treatment in patients have hemispheric ischemic stroke

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Summary. Studies of the quality of life in the recovery period were conducted in 84 patients who had ischemic stroke. We used the MOS SF-36 questionnaire. The obtained results indicate a significant decrease in the quality of life indicators in the recovery period after cerebral ischemic stroke. The quality of life in this cohort of patients deteriorates significantly due to a decrease in physical functioning, role-based emotional functioning, general health, and the presence of somatic pain. Under these conditions, social activity decreases, the psychological state and emotional health of patients deteriorate. A comparative assessment of the effectiveness of therapeutic measures with the dynamic changes in the quality of life has been carried out. The best results on the improvement of the MOS SF-36 scale were obtained in the conditions of the implementation of medical rehabilitation according to the developed adapted treatment approaches. The findings suggest that emotional and psychological indicators should be taken into account when choosing an individual approach to rehabilitation and rehabilitation in patients who have had cerebral ischemic stroke, since the improvement of the quality of life and the success of treatment in general will depend on this.

The revealed patterns occurring in changes in the quality of life activity in patients with the consequences of hemispheric ischemic stroke open up new approaches to predicting the outcomes of the used rehabilitation methods.

Keywords: ischemic stroke, drug rehabilitation, quality of life and health.

At present, it is difficult to imagine any serious research assessing the effectiveness of the treatment of any pathology without taking into account its impact on the quality of human health and life. Given the importance of such work, the development and adaptation of various questionnaires to identify the quality of life in a number of diseases, including ischemic stroke, is being carried out. One of the main general quality of life questionnaires used in clinical practice is MOS SF-36 (1,2,3). It is universal, reliable, and sensitive to clinically significant changes in the health status of each respondent, the test (test retest) is simple to perform and brief, different from the standard assessment tests of health parameters. A sufficient amount of data has been accumulated which makes it possible with their help to evaluate and correct treatment programs in the dynamics of the course of the recovery period in patients with the consequences of hemispheric ischemic stroke (4,5,6).

Today, the issue of general basic therapy in patients with ischemic stroke during the recovery period and ways to optimize the therapeutic measures taken to improve the quality of health and life in these patients remains relevant (7,8).

The foregoing determined the direction of our research, which consisted in conducting a comparative assessment of the dynamic changes in the indicators of quality of life in patients with post-ischemic effects in the process of using basic therapy and improved rehabilitation tactics.

Objective: to study the effectiveness of restorative basic treatment and an improved method of drug rehabilitation for indicators of disability and health of patients with the consequences of hemispheric ischemic stroke.

Materials and methods of examination.

The study included 92 patients who had an ischemic stroke between the ages of 51 and 64 years. Among the examined were 40 (43.4%) women and 52 (56.6%) men.

Patients at the preliminary stage underwent rehabilitation treatment after 3-4 months after acute circulatory disorders in the right pool (in 66.3% of cases) or left (33.7% of cases) of the middle cerebral arteries.

Depending on the drug rehabilitation therapy, the patients were divided into two control groups (36 patients) and the main group (46 patients). Patients in the control group received protocol symptomatic and antihypertensive treatment according to the recommendations of the European Stroke Organization (E 50 2008).

Patients of the main group were treated with an improved rehabilitation medical complex, which, along with symptomatic treatment, provided for the use of correcting means of stabilizing blood pressure, hemostasis, cholesterol metabolism and blood glucose (strictly individualized and indicated). Related specialists carried out monitoring the dynamics of the normalization of the above risk factors: family doctors, general practitioners, cardiologists and endocrinologists.

All surveyed in the course of this work completed the standard version of the MOS SF-36 questionnaire, which is most often used in medical practice to compare the effectiveness of different treatment regimens for many diseases. The questionnaire allows you to get the ball characteristics of the quality of life of patients before the start of rehabilitation activities, after the end of the course of rehabilitation treatment of patients with post-stroke consequences and after 3 months.

The assessment of the quality of life was based on a wide coverage of aspects of the individual's life activity. The following sub spheres of the MOS SF-36 questionnaire were analyzed: physical functioning, role-based physical functioning; somatic pain; general health; viability; social functioning; role emotional functioning; psychological health.

Statistical processing of the research results was performed using the Statistica 10.0 software package, which includes the calculation of the reliability of
differences of mean values using the T-Student criterion, the Y criterion, Mann-Whitney, carrying out correlation and discriminant analysis.

**Research results and discussion.**

Studies of the quality of life in patients of the main and control groups performed prior to medical rehabilitation measures did not reveal statistically significant intergroup differences in all indicators of the MOS SF-36 questionnaire (Fig. 1).

Evaluation of changes in the quality of life directly after treatment allowed us to establish significant differences in the effects of therapeutic effects: the negative dynamics in all sub sphere of the MOS SF-36 questionnaire was more pronounced in the main group of patients than in the control group.

In patients with the consequences of ischemic stroke, the physical condition was restored much more effectively using the developed method of drug rehabilitation. So, with approximately equal initial indicators of physical functioning in patients of both groups (46.72 ± 2.1 points and 45.34 ± 1.9 points, respectively, p> 0.05), the total number of points in the studied patients of the main group under the influence of individually selected Drug rehabilitation regimens increased to 66.02 ± 2.0 points and remained at a higher level for a long time (73.38 ± 2.4 points, in follow-up). At the same time, patients of the control group who underwent rehabilitation according to the traditional (protocol) method had the worst indicators of physical functioning during this observation period; after drug therapy, their average score increased to 54.08 ± 2.3 points, and in the follow-up period it remained at the same level - 59.11 ± 2.2 points.

### Figure 1. Average values of the scale of MO3 SF-36 in patients with the consequences of ischemic stroke, who underwent various drug rehabilitation.

When analyzing the state of role-based functioning of the MOH SF-36 scale, before and after the completion of rehabilitation measures, a similar pattern of changes was revealed as with changes in the sub sphere of physical functioning. In patients with the consequences of ischemic stroke who underwent rehabilitation treatment according to the traditional method, the total number of points of role functioning before the course of drug therapy was 18.4 ± 1.8 points upon completion - 24.6 ± 1.6 points. The dynamics of the values of role-playing when using the developed scheme of drug rehabilitation treatment were statistically the best: 3 months after treatment, the average rose to 35.8 ± 1.4 points relative to the baseline (17.3 ± 1.6 points).

Considering that role-playing is accentuated on the performance of current (household) work, it can be said that the developed method of drug rehabilitation
has contributed more to the adaptation of patients with the consequences of ischemic stroke to this section of activity than the traditional (protocol) one.

It is generally accepted that the presence of pain limits physical and social functioning. Comparison of the average pain scores on the MOSF-36 scale of patients who underwent various drug rehabilitation revealed the same unidirectional changes of this test. However, it was found that the dynamics of change in the intensity of pain was more significant in patients of the main group, for example, approximately equal initial pain indicators in patients of the control and main groups (respectively 50.2 ± 1.9 points and 48.6 ± 1.7) decreased after treatment to 34.9 ± 1.7 points and to 26.3 ± 1.4 points.

Possessing the properties of an individual pathogenetic orientation, the medical complex of patients of the main group had a more significant effect on other parameters of the quality of life, primarily on the restoration of vital activity.

It is known that general health is the most vulnerable sub sphere of the quality of life, since it depends not only on the physical condition, but also on the emotional component and the psychological environment of the patient.

Having the same indicator of overall health at the initial stage of rehabilitation drug interventions in patients of both groups (46.43 ± 1.4 points in control patients and 45.2 ± 1.2 points in patients of the main group (p> 0.05), respectively) in the course of treatment it was found that in the conditions of using the developed method of recovery in this sub sphere, the quality of life was more fully fulfilled. The total number of points immediately upon completion of rehabilitation measures increased and amounted to 60.9 ± 1.1 points, and in patients who received conventional treatment it increased only to 54.1 ± 1.4 points (p <0.05).

Thus, our observations showed that improvement in the sub sphere of quality of life “Overall health” of patients undergoing ischemic stroke was observed in both groups, but in the group using individual medical rehabilitation, recovery of general health occurred much more efficiently than in the group receiving the traditional rehabilitation complex.

Identical changes were established in other parameters of the quality of life in the process of rehabilitation of patients with post-ischemic effects, so in the subsystem “Vital activity”, before treatment, the results in patients of the control and main groups did not differ (respectively 41.93 ± 1.9 points and 39.8 ± 1.4 points; p> 0.05). At the same time, after the rehabilitation measures, the greatest changes in this sub sphere were detected in patients of the main group who received individual, strictly differentiated medical pathogenetic therapy. The total number of points increased by almost two times and amounted to 62.2 ± 1.8 points. In the control group of subjects undergoing rehabilitation according to the protocol scheme, the number of points immediately after drug therapy increased only 1.2 times (on average, to 49.38 ± 2.2 points).

One of the most important factors influencing the results of the quality of life — social functioning — is a measure of family and other individual connections that determine participation in social activities. This indicator is usually manifested in 4 areas: marital status, contacts with relatives, friends and acquaintances, relations with social organizations and work (or basic activities for non-working). Higher ball characteristics in this sub sphere speak of subjective satisfaction in the area of their life and vice versa. The results of the study of changes in social health indicators in patients with post-ischemic effects prior to the start of rehabilitation measures on the MOSFOR-36 scale revealed a decrease in the average levels of social functioning in representatives of both groups. At the same time, there were no intergroup differences between them (54.09 ± 1.6 points and 52.84 ± 1.2 points, respectively, p> 0.05).

In patients with post-ischemic effects who underwent restorative treatment according to the traditional scheme, the indicators of the “Social functioning” sub sphere did not change significantly, both directly after treatment and in the long-term follow-up periods (respectively - 60.5 ± 1.4 points and 67.3 ± 1.4 points). In the group using the developed method of drug rehabilitation, the recovery of this sub sphere was much more effective: the average score after the completion of therapeutic measures increased 1.3 times (67.91 ± 1.4 points, in follow-up by 1.4 times (72.2 ± 1.4 points).

It is possible to express a judgment that the positive dynamics of changes in social functioning largely depend on the degree of recovery, under the influence of the rehabilitation complex, in other sub spheres of quality of life (physical and role functioning, general health, etc.).

Role-based emotional functioning implies an assessment of the degree of emotional state, which is expressed by the patient’s response to everyday actions and his activity (including a large amount of time, a decrease in workload, a decrease in its quality, etc.).

A significant negative impact on emotional well-being has the inability to adequately use their time in the manner characteristic of the patient’s gender, age and cultural practices. Low indicators of the sub sphere “Emotional functioning” is interpreted as a restriction on the performance of daily activities due to the deterioration of the emotional state.

Prior to the rehabilitation activities on the sub sphere “Emotional functioning” indicators, the patients of both groups were found to have unidirectional changes that do not have a statistically significant difference.

In control group patients, the initial total number of points was 26.03 ± 3.2, and in patients of the main group, this indicator was 24.71 ± 2.8 points (p> 0.05).

When re-examining the parameters of emotional functioning, after the rehabilitation medical measures were carried out, a significant improvement in the emotional status was obtained in patients of both groups: the number of points during this observation period in control group patients was 37.72 ± 2.8 points, in patients of the main group - 45.2 ± 2.1. It was noted that the role-based emotional functioning in both the control group and the representatives of the main group remained at the achieved level in the
follow-up history. The number of points characterizing the level of this subsphere of quality of life after 6-12 months did not have statistically significant differences with the previously obtained data (respectively 38.06 ± 2.9 points versus 37.72 ± 2.8 points in control patients; and 46.0 ± 2.1 points versus 45.2 ± 2.1 points for representatives of the main group). As a result, it must be said that, in general, the emotional functioning in the patients of the main group was restored much more efficiently than in the observed control group.

Our research confirmed that physical condition, somatic pain and general health affect the rest of sub spheres of quality of life. Awareness of their physical distress led to a worsening of the psychological state in the majority of patients who had ischemic stroke. So, in the study of psychological health on the MOSFF-36 scale, before the rehabilitation medical measures were taken, a decrease in the average indices of the said sub sphere of quality of life was found in the same measure in control and main group patients (45.21 ± 1.6 points respectively in control group and 44.92 ± 1.2 points in patients of the main group; p> 0.05).

After conducting a re-study of the psycho-emotional state after the rehabilitation of drug interventions, we found its improvement in all subjects. The total number of points in patients of the control group after rehabilitation corresponded to 54.21 ± 1.6 points, which was 1.2 times higher than the baseline data. Statistically more significant results of recovery of psychoemotional status were obtained in patients of the main group after completion of drug therapy: the average psychological health score increased by 1.48 times and was therefore 68.8 ± 1.4 points.

Thus, the carried out rehabilitation drug-related measures contributed to the improvement of psychological health in the recovery period in patients undergoing ischemic stroke.

The results of the impact on the quality of life of traditional and developed methods of complex drug rehabilitation, taking into account all the sub sphere spheres (physical functioning; role-based physical functioning, somatic pain, general health, vitality, social functioning, emotional functioning and psychological health) presented in Figure 2.

![Figure 2. Dynamics of changes in the quality of life in patients with post-stroke effects of the control and main groups.](image)

Based on a detailed analysis of the dynamics of changes in the quality of life in terms of the MOSFF-36 scale, the advantage of using the developed drug rehabilitation complex compared to the protocol-based method has been established. Thus, the average score in patients of the main group after rehabilitation increased by 40.5%, and in patients of the control group by 12%, in follow-up, by 45.4% and 16.3%, respectively.

**Findings:**

1. The decline in the quality of life in patients with cerebral ischemic stroke is due to post-stroke disorders in the psycho-emotional and social spheres, occurring against the background of changes in physical functioning, somatic pain and deterioration of general health.

2. Positive and sustained impact on the quality of health and life of patients with post-stroke effects is more likely to have rehabilitative medical measures aimed at individual correction of neuropsychological and cognitive impairments than traditional restorative treatment.

3. Dynamic assessment of the state of quality of life in patients with post-stroke consequences during the recovery period allows monitoring the effectiveness of the drug rehabilitation carried out according to changes in the dynamics of psychological and emotional health.

**Bibliography:**


