



## ASSESSMENT OF POST-STROKE PATIENTS USING SCALES AND QUESTIONNAIRES

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### ABSTRACT

*Acute cerebral circulatory failure (ACF) is one of the most pressing problems of modern medicine and public health. It is necessary to apply certain evaluation systems - scales - to assess the condition of patients. The article describes the results of the study 85 patients with STEMI. The correct representation of each patient's condition allowed to reasonably set strategic and tactical treatment objectives, to weigh the potential risk and advantages of individual treatment methods in cases when the patient's condition is extremely severe and the probability of lethal outcome is high. The use of scales in the practice of a neurologist allows to increase the efficiency of decision-making in therapy, the effectiveness of predicting stroke outcomes, and to compare treatment methods.*

## INSULTDAN KEYINGI BEMORLARNI SHKALALAR VA SO'ROVNO MALAR ORQALI BAHOLASH

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Insult, hayot sifati, Bartel indeksi, Waterlow shkala, MMSE shkala.

### ABSTRACT

*O'tkir miya qon aylanishining yetishmovchiligi (BMQAO'B) zamonaviy tibbiyot va sog'liqni saqlash tizimidagi eng dolzarb muammolardan biri hisoblanadi. Bemorlarning holatini baholash uchun maxsus baholash tizimlari – shkala va so'rovnomalardan foydalanish zarur. Ushbu maqolada 85 nafar bemor ishtirokida o'tkazilgan tadqiqot natijalari yoritilgan. Har bir bemorning holatini to'g'ri baholash strategik va taktik davolash maqsadlarini aniq belgilashga, og'ir holatlarda individual davolash usullarining xavf va foydasini sinchkovlik bilan baholashga imkon berdi. Nevrologik amaliyotda shkala va so'rovnomalarni qo'llanilishi terapiya bo'yicha qaror qabul qilish samaradorligini oshiradi, insult natijalarini prognoz qilish imkonini beradi hamda turli davolash usullarini taqqoslash imkoniyatini yaratadi.*



**Relevance.** Acute cerebral circulatory failure (ACF) is one of the most urgent problems of modern medicine and public health. The incidence rates in different countries vary from 0.2 to 3 cases per 1000 population [5, 7]. In Uzbekistan, the incidence of cerebral strokes ranges from 0.9 to 1.5 per 1000 population, in Tashkent

- 1.5 per 1000 population [2, 4]. More than 60 thousand cases of stroke (acute cerebral circulation disorder) are registered annually in Uzbekistan. At the same time, disability after stroke is 83.8%, and the percentage of hospital mortality is 17.3% [2, 4]. At the same time, about 75% of patients with acute cerebral circulatory failure survive, but most of them develop functional limitations of varying severity [3].

As a result of stroke, the most frequent manifestation of neurologic deficit is hemiparesis, which, as a rule, persists in the future. The loss of motor function largely determines the physical, psychological, social, and spiritual state of the patient, i.e., changes the level of many quality of life indicators [6]. In order to objectify the patient's condition, to assess the severity and dynamics of the disease, to optimize diagnosis and treatment tactics, as well as to standardize the statistical analysis of clinical material, it is necessary to apply certain evaluation systems - scales. Scales allow to unify approaches to comprehensive assessment of the patient's condition. A number of evaluation scales are currently proposed in stroke diagnosis

**Purpose of the study.** To study the peculiarities of using scales and questionnaires to assess the condition of patients after stroke.

**Materials and Methods of the Study.** In this study 85 patients who had suffered acute cerebral circulatory failure (ACBF) were under observation. Depending on the rehabilitation measures, the patients were divided into two groups

- the main group (the first group) of 55 patients who received neurorehabilitation; the comparison group (the second group) - patients who received standard rehabilitation therapy (30 patients).

The mean age of the patients at the time of the examination was  $61.7 \pm 11$  years (from 26 to 88 years), men - 55 (64.7%), women - 30 (35.3%). The data on the sex and age composition of the examined patients are presented in Tab. 1.

Table 1. Distribution of patients by sex and age

Age of patients	men		women		Total	
	abs.	%	abs.	%	abs.	%
25-40 years old	2	2,3	1	1,2	3	3,5
41-50 years old	7	12,7	3	10	10	11,8
51-60 years old	15	27,3	8	26,7	23	27
61-70 years old	24	43,6	14	46,7	38	44,7
71-80 years old	3	5,5	3	10	6	7,1
81-90 years old	4	7,3	1	1,2	5	6
<b>Total:</b>	55	64,7	30	35,3	85	100

The Barthel scale was used to assess activities of daily living, where the patient's condition was taken into account. The Barthel index, which assesses daily activities, the ability to serve oneself, is based on the assessment of 10 functions, taking into account the degree of

their fulfillment [7]. When conducting this scale, it is necessary to interview the patient, his relatives or friends, and medical staff.

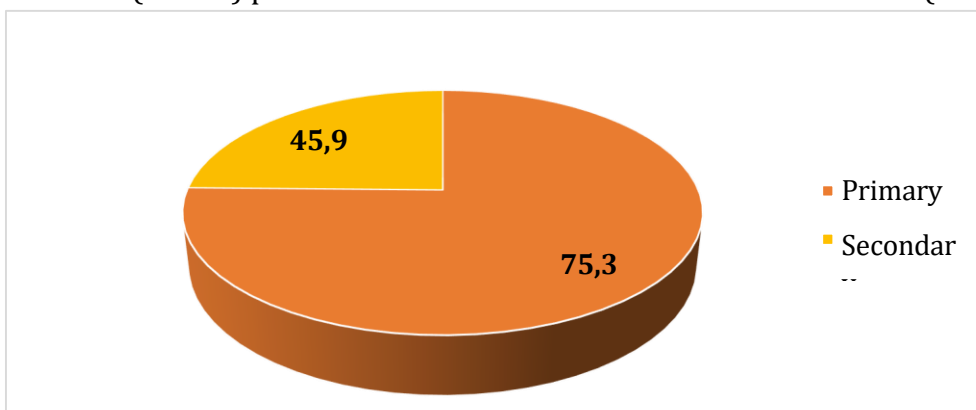
The Waterlow scale was used to assess the degree of pressure sores. The Waterlow scale is an effective tool for preventing complications in partially paralyzed or completely bedridden patients. By individually assessing the development of pressure sores using the Waterlow Scale, it is possible to prevent complications by taking special care of the patient. If necrotic changes have begun, appropriate treatment may be prescribed.

Cognitive functions were assessed using the Mini-Mental State Examination (MMSE) [9]. According to the results obtained on the MMSE scale, the state of cognitive functions was defined as follows: 28-30 points - no impairment of cognitive functions, 25-27 points - moderate cognitive disorders, 20-24 points - dementia of mild severity, 11-19 points - dementia of moderate severity, 0-10 points severe dementia; the degree of improvement of cognitive functions was determined as follows: insignificant improvement - increase in score by 1-6 points; satisfactory by 7-13 points; pronounced improvement - by 14 and more points.

The most commonly used instrument is the EuroQOL questionnaire (EQ-5D- 5L). It is a standardized health assessment technique developed by the EuroQOL group as a simple universal method for a wide range of conditions and samples [10]. The time taken to complete this questionnaire is approximately 18 min. This scale assesses 5 aspects of health - mobility, self-care ability, daily activity, pain/discomfort and anxiety/depression. The status for each parameter is rated by the patient on a 3-point ordinal choice scale. This is accompanied by a visual analog scale (VAS) to self-assess the patient's own health from 0 (worst health) to 100 (best health) [11]. The EQ-5D-5L differs from other techniques in its simplicity and accessibility to the patient [8].

Statistical processing of data was carried out using Statistical Package for Social Science (SPSS) 23.0 for Windows. The following indicators were used to present the data: mean value, standard error of the mean, standard deviation and percentages. For pairwise comparisons of non-parametric characteristics, t-test with two-sided 5% ( $p < 0.05$ ) level of significance was used. Tables and graphs give mean results with 95% confidence interval.

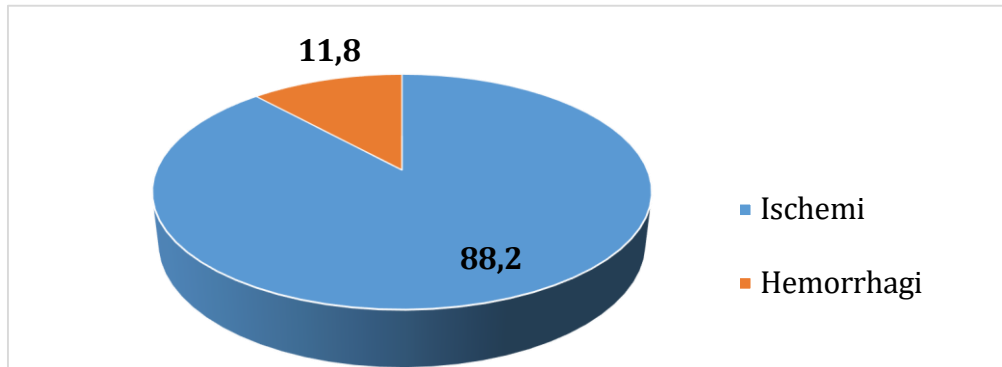
**Results and their discussion.** According to the results of this study, primary stroke was detected in 64 (75.3%) patients and recurrent stroke was detected in 21 (24.7%) patients.



**Figure 1. Detection of stroke in patients**

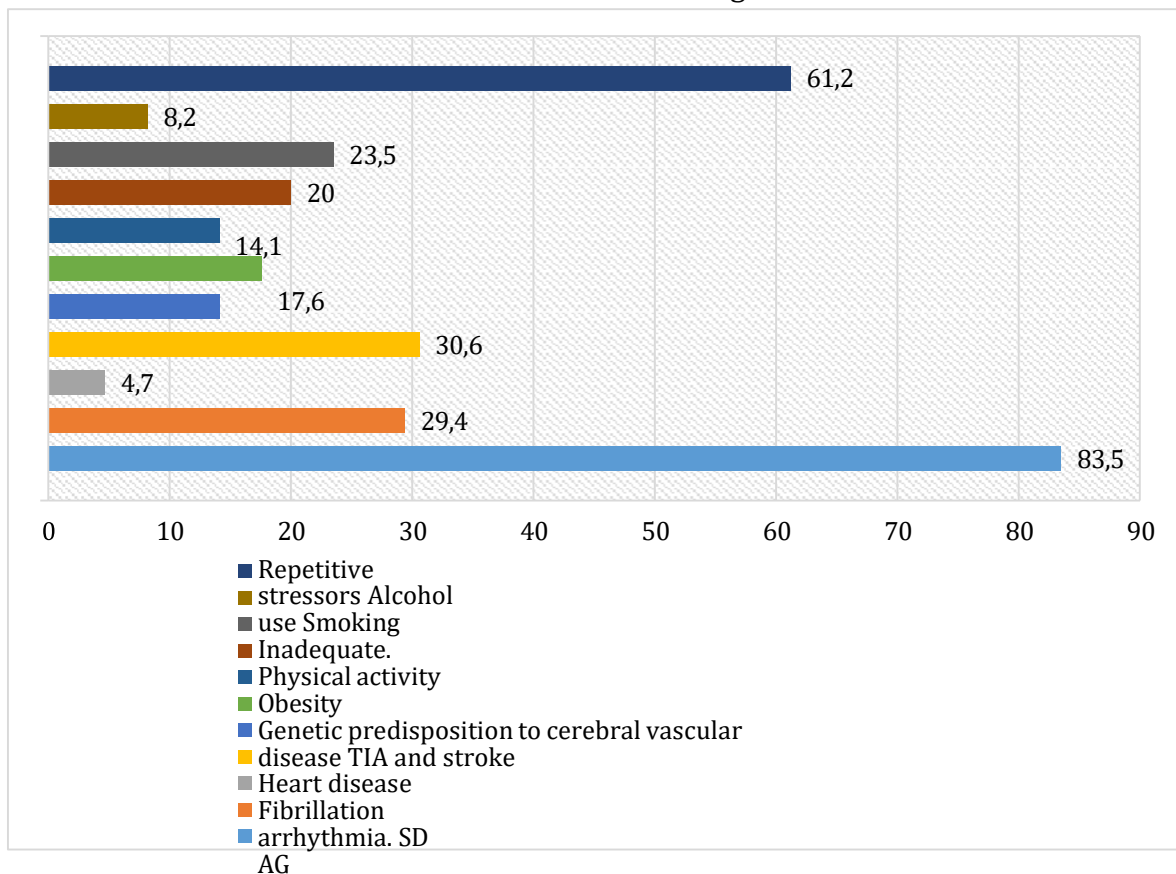
According to the main classification of strokes (according to ICD-10), ischemic stroke occurred in 75 (88.2%) cases, the cause of which was blood flow disorder, arterial occlusion

by a thrombus and/or narrowing by an atherosclerotic plaque (atherothrombotic), vasospasm, and pressure reduction. More often developed between the ages of 50-69 years. Hemorrhagic stroke - occurred in 10 (11,8 %) cases caused by vessel rupture as a result of high blood pressure, atherosclerosis, vasculitis, aneurysms, coagulation disorders. It developed more often at the age of 45-60 years (Fig. 2).



**Figure 2. Types of stroke in the study groups**

The main risk factors for stroke are summarized in Figure 3.



**Figure 3. Distribution of risk factors for stroke development**

As can be seen from Fig. 3, the main risk factors for stroke development were arterial hypertension in 71 (83.5%) cases, diabetes mellitus in 25 (29.4%), atrial fibrillation in 4 (4.7%), heart disease (congenital heart disease, myocardial infarction) in 26 (30.6%), and previous TIA and primary stroke in 12 (14.1%), in 15 (17.6%) - genetic predisposition to cerebral vascular diseases, in 12 (14.1%) - obesity, in 17 (20%) - insufficient physical



activity, in 20 (23.5%) - smoking, in 7 (8.2%) - alcohol consumption, and in 52 (61.2%) cases - repeated stress. It should be noted that such combinations of risk factors were observed among patients as:

- 1) arterial hypertension with carotid artery stenosis, heart failure and ischemic heart disease;
- 2) arterial hypertension, coronary heart disease, carotid artery stenosis, smoking, alcohol consumption and repetitive stress.

The Barthel index is an integral characteristic of the degree of "safety" of the patient, his ability to self-care. Indices from 0 to 20 points corresponded to complete dependence, which was revealed in 7 (12,7%) patients of the main group and in 8 (26,7%) patients of the comparison group; from 21 to 60 points - expressed dependence, in 29 (52,7%) of the main group and in 18 (60%) of the comparison group; from 61 to 90 points - moderate dependence, in 12 (21.8%) of the main group and in 2 (6.7%) of the comparison group; from 91 to 99 points - mild dependence in everyday life, in 7 (12.7%) patients of the main group and in 2 (6.7%) of the comparison group (Table.2).

Table 2. Barthel scale score value

Indicators	Group I (n=55)		Group II (n=30)	
	abs.	%	abs.	%
<b>0 to 20 points</b>	7	12,7	8	26,7
<b>21 to 60 points</b>	29	52,7	18	60
<b>61 to 90 points</b>	12	21,8	2	6,7
<b>91 to 99 points</b>	7	12,7	2	6,7

The total score on the Waterlow scale is given in Tab. 3

Table 3. Waterlow scale score value

Indicators	Group I (n=55)		Group II (n=30)	
	abs.	%	abs.	%
<b>0 to 9 points</b>	28	50,9	10	33,3
<b>10 to 14 points</b>	18	32,7	15	50
<b>15 to 19 points</b>	8	14,5	3	10
<b>20 and up</b>	1	1,8	2	6,7

As shown in Table 3, 28 (50.9%) patients in group I and 10 (33.3%) patients in group II had no risk of pressure sores; risk of pressure sores existed in 18 (32.7%) patients in group I and 15 (50%) patients in group II; risk of pressure sores was high in 8 (14.5%) patients in group I and 3 (10%) patients in group II; very high risk was in 1 (1.8%) patient in group I and 2 (6.7%) patients in group II.

The MMSE scale was used to assess cognitive function and the results are summarized in Table 4.

Table 4. MMSE score value

Indicators	Group I (n=55)		Group II (n=30)	
	abs.	%	abs.	%



<b>29- 30 points</b>	2	3,6	-	
<b>28 points</b>	3	5,4	1	3,3
<b>25-27 points</b>	8	14,5	2	6,7
<b>20-24 points</b>	12	21,8	2	6,7
<b>10-19 points</b>	18	32,7	9	30
<b>0-10 points</b>	-		3	10

As shown in Tab. 4, 2 (3.6%) patients of group one had no cognitive impairment; mild cognitive impairment was observed in 3 (5.4%) patients of group one and 1 (3.3%) of group two; moderate cognitive impairment was observed in 8 (14.5%) patients of group one and 2 (6.7%) of group two; mild dementia was in 12 (21.8%) patients of the first group and 2 (6.7%) of the second group; moderate dementia was in 18 (32.7%) patients of the first group and 9 (30%) of the second group; severe dementia was in 3 (10%) patients of the second group.

Table 5, presents the scores of the study groups on the EQ-5D-5L questionnaire.

Table 5. EQ-5D-5L questionnaire score value

Points	Group I (n=55)		Group II (n=30)	
	abs.	%	abs.	%
0-20 points	-		1	3,3
21-40 points	4	7,3	11	36,7
41-60 points	21	38,2	13	43,3
61-80 points	19	34,5	4	13,3
81-100 points	11	20	1	3,3
Total	55	100	30	100

As shown in Table 5, 1 (3.3%) patient in the second group had 0-20 points; 4 (7.3%) patients in the first group had 21-40 points, and 11 (36.7%) in the second group; 41-60 points had 21 (38.2%) patients in the first group, and 13 (43.3%) in the second group; from 61-80 points were in 19 (34,5%) patients of the first group, in the second group in 4 (13,3%); from 81-100 points were in 11 (20%) of the first group, and in 1 (3,3%) patient in the second group.

**Conclusions:** The results obtained allowed us to draw the following conclusions. Assessment of the patient's condition using scales is characterized by its objectivity and accuracy. Patients who received neurorehabilitation had significantly better results on scales and questionnaires than patients who received standard rehabilitation therapy. The correct representation of the condition of each specific patient allows to reasonably set strategic and tactical objectives of treatment, to weigh the potential risk and benefits of individual methods of treatment in cases where the patient's condition is extremely severe and the probability of lethal outcome is high. In addition, the use of scales allows objective decision making on the issues of the patient's length of stay in the hospital, transfers from one unit to another and discharge from the hospital. The use of scales allows to increase the efficiency of decision-making in therapy, the effectiveness of predicting stroke outcomes, and to compare treatment methods.



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