UDC: 616.853-092-053.754.0

FEATURES OF COGNITIVE AND EMOTIONAL DISORDERS IN PATIENTS WITH POST-COVID SYNDROME

O'rinov Raximjon Musayevich[1], Po'latov Sadriddin Sayfullayevich[2]

[1]Assistant of the department of Rehabilitology, sports medicine and physical education, Bukhara state medical institute, Bukhara, Uzbekistan

[2]Associate professor of the department of Rehabilitology, sports medicine and physical education, Bukhara state medical institute, Bukhara, Uzbekistan

dilrux.khodjayeva93@gmail.com

Resume: Neurological and mental disorders of the central nervous system can occur with every serious infectious disease; currently, during the coronavirus pandemic, this is one of the leading complication of viral damage. Virtually all COVID-19 survivors experience asthenia, anxiety disorders, and depression. Of particular concern is the development of cognitive impairments of varying severity. It has been established that in the studied groups, disorders of cognitive functions are revealed: the pace of information processing slows down, short-term, long-term memory, productivity and accuracy of task performance suffer.

Keywords: cognitive impairment, Covid-19, reactive anxiety, personal anxiety, pace of information processing.

Relevance. Despite the fact that acute respiratory disorders and the possibility of their correction are in the focus of COVID-19, an understanding has been formed that many patients who have been ill and no longer have manifestations of acute infectious disease, with negative PCR test results, experience persistent physical, cognitive and psychological disorders.

Neuronal lesions of patients who have undergone COVID-19 are associated with the fact that the infection itself can damage nerve fibers, vascular endothelium with the development of both local and systemic lesions. As for the central functions of the brain, they can be disrupted due to viral, dysmetabolic, cytotoxic, vascular effects, which are accompanied by cerebral edema and, as a consequence, leads to neuronal degeneration. Almost all patients who have undergone COVID-

2610

Eur. Chem. Bull. 2023, 12(Special Issue 4), 2610-2617

19 have asthenia, anxiety disorders and depression. Of particular concern is the development of cognitive impairments of varying degrees of severity. Currently, the question of the reversibility of cognitive impairments and the factors contributing to their severity remains not sufficiently studied. The problems of cognitive rehabilitation and the possibility of non-drug correction of patients with coronavirus infection, as well as their differences from post-stroke cognitive disorders, remain unexplored. Thus, the development of a differentiated rehabilitation program for patients with cognitive impairments, depending on the etiopathogenetic mechanism of their development, as well as the prognosis of the identified disorders, prevention, correction of risk factors is relevant and socially significant.

The purpose of the study: To identify the features of clinical, neurological and neuropsychological disorders in patients with postcovid syndrome.

Materials and methods of research:
The examination of patients was carried out on the basis of the Bukhara regional multidisciplinary Medical Center and the private clinic "Kahramon-Rahimjon". At the first stage of the study, screening clinical examination and selection of patients were carried out. The study included 100 young and middle-aged people from 30 to 55 years old, with a verified diagnosis of the consequences of COVID-19 coronavirus infection, confirmed by laboratory methods of investigation and after negative results (PCR, ELISA) on SARS-CoV-2, 15 to 35 weeks after the onset of the disease, who made up the main group.

At the second stage of the study, the patients of the main group were divided into subgroup I – 70 people who suffered from COVID-19 disease in mild form and subgroup II - 30 patients who suffered from moderate and severe form of the disease complicated by pneumonia.
All patients received standard therapy: vitamin and mineral complex, relaxing back muscle massage, inhalation with mineral water according to indications. The control group consisted of 20 healthy subjects of the appropriate gender and age composition who had not had a coronavirus infection or other viral infection over the past 6 months and did not have acute and decompensated chronic pathology at the time of observation.

2611

Eur. Chem. Bull. 2023, 12(Special Issue 4), 2610-2617

Table 1. Distribution of patients by age and sex categories

Group	Sign	Patients		
		Paul		Total
		Male	Female	
Main	Abs.	42	58	100
	%	42	58	100
	Average age, years	59±7,2	63±7,5	62±6,7
Control	Abs.	8	12	20
	%	40	60	100
	Average age	55,6±6,79	59,4±6,8	58±7,03

All patients did not have decompensated chronic pathology. Patients with severe concomitant decompensated pathology, type 1 diabetes mellitus, and oncological diseases were excluded from the study.

The diagnosis of postcovid syndrome was made according to the classification of postcovid conditions proposed by the National Institute of Health and Excellence (NICE) UK and WHO approved (postcovid syndrome – symptoms lasting more than 12 weeks, not explicable by an alternative diagnosis, capable of changing over time, disappearing and reappearing, affecting many body systems).

Research results and discussions: Due to the Covid-19 pandemic, much attention is currently being paid to the mental state of the population. It is noted that the main psychological consequences of the pandemic are expressed in an increased level of stress and anxiety.

Testing of follow–up groups on the Spielberger-Hanin scale revealed higher rates of both personal and reactive anxiety in patients who had a coronavirus infection in mild and moderate-severe and severe forms

(Table 2).

Table 2 – Results of testing of patients with postcovid syndrome who underwent Covid-19 in mild and moderate-severe and severe forms and persons of the control group on the Spielberger –Hanin scale   (M ± m, points)

Anxiety	Patients with waxy syndrome (n = 100)		Control group (n = 20)
	Patients subgroups I (n = 70)	Patients subgroups II (n = 30)	
Reactive	46 ± 0,37	51,5 ± 0,67[+]	37 ± 0,56[+, *]
Personal	47,5 ± 0,87	49,5 ± 0,49[+]	39,5 ± 0,16[+, *]

2612

Eur. Chem. Bull. 2023, 12(Special Issue 4), 2610-2617

Note. Statistical significance of differences

in comparison with the indicators of patients of subgroup I : + – p < 0.001;

in comparison with the indicators of patients of subgroup II: * – p < 0.001;

As a result of the analysis of the level of anxiety disorders, it was revealed that in patients of the main group it exceeds that in the control group. A comparative intra-group analysis of the level of anxiety in patients with postcovid syndrome revealed significantly high levels of anxiety in the group of those who had a coronavirus infection in moderate to severe form. An increased level of reactive anxiety (RT) was detected in the control group in 56.7% of cases, whereas in patients of the main group – in 82%, which is significantly higher (p < 0.001). Intragroup analysis of RT indicators showed a significant excess of values in group c of those who had a coronavirus infection in moderate to severe form, in contrast to those in persons with those who had this infection easily (p < 0.001).

It was found that the level of personal anxiety (LT) as a stable innate component of personality characteristics was significantly higher in patients of the main group – in 76%, and exceeded the indicators of the control group – in 20% (p < 0.001). An analysis of the severity of anxiety disorders showed that RT was more pronounced, significantly exceeding the level of LT, which is explained by the reaction to the Covid 19 disease.

In patients of the second group, the RT indicators were the highest, and the clinical manifestations of postcovid syndrome were more severe. However, an increased level of reactive anxiety also occurred in individuals of the control group, which is associated with the current pandemic, fear of getting sick, anxiety associated with isolation and post-pregnancy activities.

A comparative intra-group analysis obtained data indicating that patients of the main group were significantly more likely to have moderate (from 30 to 45 points) and high (from 46 points and above) levels of anxiety, and the increased level of both LT and RT was more pronounced in patients who had a coronavirus infection in moderate and severe severe form.

As a result of the evaluation of the dependence of anxiety indicators and the presence of complaints and changes in the neurological status in patients with postcovid syndrome who have had a coronavirus infection in moderate to severe form, complicated by pneumonia.

There was a moderate positive correlation between LT and the presence of headache, between RT and the presence of dizziness, a weak positive correlation between reactive anxiety and tremor of the fingers and distal hyperhidrosis.

The rate of recovery after the disease was slower in patients of the second group with a higher level of LT. A high level of LT and RT affects the course and

2613

recovery after a coronavirus infection, changes the patient's attitude to the therapy, reduces adherence to rehabilitation measures and faith in a positive result of treatment. Pathological fatigue (asthenia) in patients with postcovid syndrome. In all patients, fatigue was one of the early symptoms of the disease, developed as a pathological phenomenon independent of physical activity, and significantly reduced functional capabilities and ability to work. The most pronounced manifestations of asthenia were observed in patients in the acute period of coronavirus infection, which persisted in the postcovid period to varying degrees of severity.

In the study of fatigue according to the MFI-20 asthenia questionnaire, the following indicators were established:

1. The level of general asthenia in patients with postcovid syndrome is significantly higher (78.0%) than in the control group (23.3%) ($p < 0.001$).

2. The severity of physical asthenia in patients with the main group is significantly higher (57.0%) than in the control group (10.0%) ($p < 0.001$).

3. Decreased activity was observed in patients of the main group significantly more often (69.0%) in the control group (20.0%)

($p < 0.001$).

4. Decreased motivation in patients with postcovid syndrome was detected significantly more often (48.0%) than in the control group (13.0%) ($p < 0.001$).

5. Signs of mental asthenia were observed in patients with postcovid syndrome significantly more often (48.0%) than in the examined control group (3.3%) ($p < 0.001$).

The data obtained demonstrate the highest rates of general than physical and mental asthenia in patients with postcovid syndrome in the observation subgroups.

Table 3. Assessment of asthenia on the MFI-20 scale in observation groups, M ± m, points

Indicators	Subgroup 1 (n = 70)	Subgroup 2 (n = 30)	p
General asthenia	13,5 ± 1,5	16,0 ± 1,9	p = 0,001
Physical asthenia	12,0 ± 1,8	16,0 ± 2,1	p < 0,001
Mental asthenia	10,0 ± 2,9	13,1 ± 1,9	p = 0,01
Reduced activity	13,6 ± 1,4	15,4 ± 1,6	p = 0,001
Reduced motivation	11,5 ± 1,5	12,8 ± 1,2	p = 0,001
Total score	60,6 ± 1,1	72,3 ± 2,7	p = 0,001

2614

Eur. Chem. Bull. 2023, 12(Special Issue 4), 2610-2617

The analysis of the level of asthenia depending on the severity of the coronavirus infection showed that it was higher in patients who had a severe and moderate-severe coronavirus infection. The average level of physical asthenia was 12.0 ± 1.8 points in patients of the first subgroup with mild coronavirus infection in the acute period, and in severe and moderate severe (subgroup 2) it already reached 16.0 ± 2.1 points.

A reliable statistically significant moderate positive correlation was established between the indicators of general, physical fatigue and the consequences of severe and moderate-severe coronavirus infection in the acute period ($p < 004$, $r = 0.315$).

Pathological fatigue has already been observed in patients with mild coronavirus infection, but more often and in a more pronounced form in patients with a history of severe and moderate-severe coronavirus infection ($p < 0.001$). Fatigue manifested itself as an overwhelming feeling of fatigue and lack of energy, which affects the patient's participation in daily life and work.

The data obtained demonstrate the highest rates of general, physical and mental asthenia in patients with postcovid syndrome. Patients of the first subgroup have a high level of general and physical asthenia, and patients of the second subgroup also have a high level of mental asthenia. With an increase in the severity of functional disorders in patients who have had a coronavirus infection, the severity of asthenic manifestations increases. Patients of subgroup 2 have a higher degree of asthenia and associated reduced activity with reduced motivation.

Study of cognitive impairment

in patients of observation groups. The analysis of the severity of cognitive impairment in patients with postcovid syndrome and in the control group was carried out based on the results of the use of neuropsychological tests. According to the patients, memory loss was also observed in the acute period of the disease, but diagnostic tests were not carried out in the acute period). Prior to coronavirus infection, patients did not complain about memory and attention loss.

Memory disorders (associative, short-term and long-term), attention stability, memory productivity, and slowing down of information processing (TOI) were recorded in patients who had a coronavirus infection. Mild and moderate cognitive impairments have already been identified in patients who have had a mild coronavirus infection, they were found in 54% of patients of the first subgroup and in 76% of those examined in the second subgroup.

The indicators of short-term, long-term and associative memory in patients of the second subgroup were significantly lower than in healthy individuals and in patients of the first subgroup.

2615

Eur. Chem. Bull. 2023, 12(Special Issue 4), 2610-2617

One of the most frequent cognitive disorders in patients of both groups who had a coronavirus infection was a slowdown in the rate of information processing (TOI) and was detected in 86% of patients with postcovid syndrome.

Conclusions. Thus, patients of the main group showed significantly high rates of both LT and RT, while moderate (from 30 to 45 points) and high (from 46 points and above) levels of anxiety were more common, which was more pronounced in patients of the second subgroup. Reactive anxiety was increased in all observation groups, which is associated with the Covid 19 pandemic, fear of getting sick, isolation and other anti-epidemic measures, however, patients who had a coronavirus infection in moderate and severe form had higher RT indicators, and the manifestations of post-ovoid syndrome were more pronounced. Personal anxiety was initially high in patients who had a coronavirus infection, and the indicators were higher in patients with a more severe course, which may be one of the risk factors for a more severe course of infection, probably associated with the manifestation of vegetative maladaptation. It is established that cognitive function disorders are detected in the studied groups. TOI slows down, short-term, long-term memory, productivity and accuracy of task execution suffer. One of the most frequent cognitive disorders was a slowdown in TOI, which occurred in almost all patients who had a coronavirus infection.

Литература

Literature

1. Antonovich Zh.V. Long-term COVID: definition, mechanisms, clinical manifestations, approaches to diagnosis and treatment. Focus on cough /Prescription. - 2021. - volume 24 No. 4, part 2. p. - 23-44.

2. Temporary methodological recommendations. Medical rehabilitation for new coronavirus infection (COVID-19), M3 RF, Version 3 rehabilitation medicine / and Physical, medical rehabilitation. - 2021. - T.Z, No. 1, Appendix 1.

3. Zenkov L.R. Clinical electroencephalography (with elements of epileptology). Manual for doctors / L.R. Zenkov. - 8th ed.-Moscow: MEDpressinform, 2017. - 360 p.

4. Methodology of two-component model of neurovegetative and metabolic stabilization of patients with complicated course of coronavirus infection COVID-19: manual for doctors / A.N. Kondratiev, Yu.S. Alexandrovich, N.V. Dryagina, N.A. Lesteva, D.M. Rizakhanov, L.M. Tsentsiper. - St. Petersburg: Association of Anesthesiologists and resuscitators of the North-West, 2020. - 24 p.

5. Pulatov S.S., Urinov R.M. General clinical and neurological assessment in patients with postcovid syndrome. Journal of Research in Neurology and Neurosurgery / Volume 3, ISSUE 5. 2023, 81-84.

2616

Eur. Chem. Bull. 2023, 12(Special Issue 4), 2610-2617

6. Pulatov S.S., O'rinov R.M. Modern views on neurological disorders in patients with postcochlear syndrome (literature review) // International Journal of Health Systems and Medical Sciences. Vol. 1 | No. 4 | October-2022 266-271.

7. Recommendations for supporting independent rehabilitation after the disease caused by COVID-19 (2020) / WHO/Europe

8. Chaturvedi S.K. COVID-19-related mental disorders and new Psychosocial rehabilitation 11 J. Rehabilitation. Improvement. Health (2020)7:103-105.

9. Chan, Yu. The role of acupuncture during the COVID-19 pandemic: from a historical perspective to practical application / Yu.Chan // Traditional medicine and modern medicine, volume 3, No. 1 (2020) 27-35.2020) 27-35.

2617

Eur. Chem. Bull. 2023, 12(Special Issue 4), 2610-2617