THE IMPACT OF COVID-19 ON THE NEUROLOGICAL STATE OF AN INFECTED PERSON

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COVID-19 has managed to radically change the vector of our lives in just three years, remaking the system of doctor-patient interaction and leaving an indelible imprint.

The first case of coronavirus in Ukraine was confirmed on March 3, 2020, a man who returned to Chernivtsi from Italy.

Current statistics on coronavirus as of 3.10.2022 - a total of 5,177,217 were infected in Ukraine, of which 109,206 were fatal. 4,983,781 people have defeated the disease but does everyone who has been infected with the insidious virus return completely to normal life or are there consequences that can change the patient's body forever?

Nervous system damage is one of the main syndromes that accompany COVID-19. Starting with symptoms of respiratory damage, coronavirus quickly progresses to severe conditions accompanied by severe complications. Unfortunately, neurological disorders have become an integral part of both the acute and late periods of COVID-19 development.

For the first time, the link between severe cases of COVID-19 and subsequent neurological problems was identified by a group of scientists from the Department of Neurology, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, Hubei, China in 2020 [1, p. 146]. In their work, they found that more than one-third of patients with COVID-19 suffer from neurological symptoms during and after the disease. [1, p. 147].

A striking sign of nervous system damage that occurs in almost half of patients is an unstable psycho-emotional state and general apathetic-depressive mood. In total, out of 220 patients who were examined, symptoms of the neurological syndrome were found in 37% of patients, and among people who severely suffered
from the disease, this figure rises to 47 percent.

In October 2020, scientists at King's College London analyzed more than 85 thousand cognitive function tests and found a correlation between suspected or confirmed COVID-19 and a significant decrease in memory, the mental capacity of the patient, and other impairments in the function of perception and processing of information [2, p. 5].

Other scientists from New York noted that of the 4,491 patients examined, 606, or almost 14%, developed new neurological diseases after COVID-19. Most often, they found metabolic encephalopathy, the share was almost 7%, seizures in almost 2%, stroke in 2%, and hypoxic injury in 1.4% [3, p. e578].

The symptoms that may indicate are quite extensive, starting with the already mentioned unstable psycho-emotional state and continuing with severe acute psychosis and exacerbations of schizophrenia. Severe encephalopathy can be the cause of inadequate behavior, which can include incorrect orientation of the patient in space and dates, often they do not accept the recommendations of the doctor and may refuse treatment, considering themselves completely healthy.

Also, scientists published a report in Trends in Neurosciences in which it was noted that people who had coronavirus and did not have any signs of parkinsonism before the disease was found both clinically and neuroimaging signs of the initial stage of the disease [4, p.1].

The main question is why neurological problems arise after COVID-19. As we have already noted, there are quite a few neurological consequences of coronavirus and scientists distinguish each of them separately, because each has its own scientific explanation.

Stroke, which often occurs not only during coronavirus but also because of cholera, is caused by the vulnerability of the inner walls of blood vessels. The virus attacks their cells, which contributes to the formation of blood clots, which in turn migrate through the network of blood vessels and can lead to blockage of small branches of the system that supplies blood to the brain and, accordingly, to stroke.

The consequences that occur inside the brain after coronavirus infection are also being actively studied. Scientists are aware of the ability of this pathogen to migrate to the central nervous system and cause an overreaction of the immune system, which in turn can lead to pathological mobilization of the body's defense system and attack on healthy cells.

This pattern was also noted by scientists-pathologists at the University of Hamburg clinic. They conducted autopsies of 43 bodies and found signs of nerve cell damage in almost 35% of cases. Despite this, in their conclusion, the scientists noted that they could not find direct evidence that the damage found during the research came from the coronavirus. The main finding was that activated inflammatory cells, which were found in 80% of tissue samples, were located not only in places where the virus was found. This is what indicates the excessive work of the immune system due to the coronavirus, which can lead to the death of important nerve cells in the brain.

Having analyzed these data, we can conclude that COVID-19 almost never passes without a trace for patients. That is why it is necessary to follow all quarantine rules in order not to endanger others, and to take care of prevention in advance -
distance, personal protective equipment, and vaccination. Particular attention should be paid to patients who are at risk - the elderly, people with chronic diseases of the cardiovascular system, and people with weak immunity. It is necessary to carry out activities that will encourage people to be vaccinated and raise their awareness of this disease, its consequences, and its prevention. These measures and timely and proper treatment become the driving force in defeating the ongoing global pandemic.

References: