



CLINIC AND COURSE OF EPILEPSY IN PATIENTS WITH COVID-19.

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Article history:	Abstract:
Received: February 11 th 2023 Accepted: March 11 th 2023 Published: April 14 th 2023	The direct effect on the nervous system of previously known viral infections was evident. But the difference in the appearance of the disease and the changing clinical symptoms of the coronavirus have sharpened the knowledge of medical personnel and led to the foundation of new research. The Covid-19 infection caused a global pandemic and entered medicine in a new way.
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RELEVANCE. According to M. Leitenger, there was an increase in status epilepticus compared to pre-pandemic (Leitenger 2020) and this change was partially confirmed by clinical and diagnostic criteria, that is, EEG monitoring (Odintsova G.V., Bannikova B.D.) (5, 3). But it is known that due to a short period of time, the data did not reach the level of full confirmation. Reports of the possible neuroinvasiveness of SARS-CoV-2, as well as pathophysiological mechanisms and indirect consequences in severe cases of COVID-19, raise questions about whether infection can increase the frequency of seizures, whether the onset of epilepsy and acute symptomatic seizures is possible with the infection itself. (8). According to ILAE, the complaints of patients with epilepsy have been reported to have increased by 25% (6). Currently, there is no adequate information on the direct impact of COVID-19 on epilepsy, but there are opinions that patients may have an increase in seizures due to the influence of the disease on the general system or due to the interaction of AA drugs and anti-COVID-19 drugs (Karlova V. A., Burd S.G., Lebedeva A., 2020.) and is clearly one of the problems that need to be solved (1). The change in strains of the Covid-19 infection virus changes the state of the initial complications that have not yet been elucidated from beginning to end (1). New observations suggest that Covid-19 is associated with new outbreaks and may lead to severe cases, according to Medscape (December 15, 2021) Acute Hemorrhagic Necrotizing Encephalopathy and Myelopathies (8) In terms of pathogenesis, neurological disorders in COVID-19 may be due to a "cytokine storm" (9) In addition to these symptoms, mental disorders may occur in patients with epilepsy. Fear, disappointment and loneliness reigned in society. The COVID-19 outbreak clearly qualifies as a stress crisis and provided an opportunity to explore the possible independent role of stress in triggering

seizures. In addition, the COVID-19 outbreak also allowed us to identify other convulsant triggers related to daily life and PWE (10) health care. characterized by polymorphism of clinical symptoms with a variety of neurobiological, neuropsychological, pathopsychological, social manifestations. Worldwide, there is a high prevalence of this disease, which is 0.5-2%. Annually, 50-70 cases are recorded per 100,000 population. Important features of this disease include a combination of both psychotic and non-psychotic - registers of disorders [1-3], various complaints, and multiple repeated requests for medical help. According to the available data from a number of studies [4-6], various factors contribute to the development of this disease: genetic, perinatal, environmental, and personal factors. A large number of works are devoted to the study of psychological aspects in epilepsy [7-9]. Moreover, over the past years, in the structure of psychopathological disorders in epilepsy, there has been a decrease in the proportion of epileptic manifestations proper, with a simultaneous increase in the proportion of non-psychotic affective disorders, in particular, the depressive pole, which is a reflection of clinical pathomorphosis.

The prevalence of DR among patients with epilepsy is extremely high and, according to different authors, ranges from 10% to 55% (7). Despite the high incidence of DR, these disorders often remain unrecognized in 50% of patients with epilepsy (BE), due to both atypical manifestations and misdiagnosis (8). The presence of depression reduces the quality of life to a greater extent than the frequency and severity of epileptic seizures (6). Depression not only worsens the quality of life, but also negatively affects the dynamics of neurological symptoms during treatment (3). Depression claims the lives of about 1 million people annually due to suicide, and the incidence of suicide in



combination with epilepsy of depression is 5-10 times higher than in the general population (4).

The problem of epilepsy remains at the center of attention of neuroscientists. This is due not only to the diversity of neurophysiological features of the disease, the versatility of the clinical picture, but also to various complications that develop against the background of regular use of antiepileptic drugs. Cognitive impairments, along with seizures, are among the main characteristics of patients with epilepsy [1–3, 6]. In this regard, there is an opinion that it is the cognitive defect that is one of the reasons for the violation of social adaptation and disability of such patients. In fact, as literature sources show, a history of more than 100 generalized tonic-clonic seizures in most cases leads to the development of cognitive impairment or pre-dementia disorders [4, 5, 9]. At the same time, attention disorders prevail in the structure of the cognitive defect. The situation is somewhat different in temporal lobe epilepsy with complex partial seizures. In this case, for the occurrence of a defect and dementia, it is not the number of seizures that matters, but the duration of the disease. So, according to a number of authors, irreversible changes are detected after 5 years of continuous occurrence of complex partial seizures. At the same time, other sources indicate a longer period - 20 years [10, 11]. And in this case, the cognitive defect mainly concerns the function of memory. Based on

these data, it can be concluded that cognitive disorders in epilepsy depend on many factors and differ in the polymorphism of clinical manifestations. Cognitive impairment in epilepsy, as a rule, manifests itself in the form of impaired memory, speech, attention, and thinking. As literature sources show, it is of scientific interest to study the relationship between cognitive - impairments and personality and psychopathological characteristics of patients with different forms of epilepsy and different types of seizures [14, 15]. In addition, little has been studied about the effect of antiepileptic drugs on the aggravation of cognitive impairment, which is of great importance for clinical neurology.

THE GOAL. Analysis of the clinical picture and course of the disease in patients with epilepsy after coronavirus infection.

RESULTS. Prior to COVID -19, out of a total of 42 patients, 35 had major seizures and 7 had minor seizures.

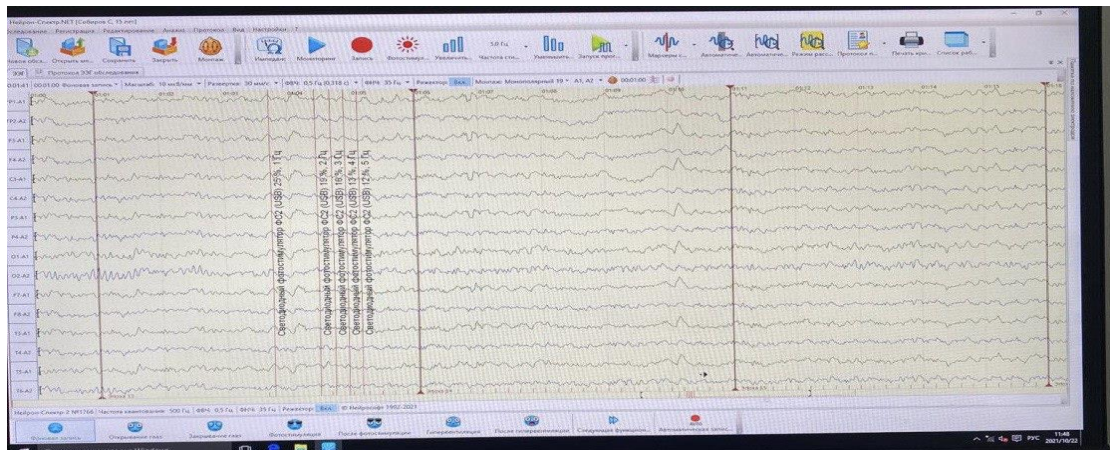
(Table 1). These patients were previously controlled with epilepsy and treated with anticonvulsants. In 5 out of 35 patients with generalized seizures of epilepsy, status epilepticus was observed. And in 30 patients, an increase in convulsive seizures was observed.

Table 1. Change in the form of seizures after suffering COVID-19.

The total number of patients.	Generalized seizures _	focal seizures _
42	35	7
Increased frequency of seizures after suffering C O VID - 19	thirty	
Seizure form	5 status epilepticus	4 went into generalized form
Without change.	-	3

In 30 patients, after the post-rehabilitation period, the number of seizures increased and anticonvulsant drugs were adjusted. In 4 out of 7 patients who initially had focal seizures, seizures became generalized after coronavirus infection, and in 3 patients the number and type of seizures did not change (Table 1). All patients underwent an electroencephalographic (EEG) study during the follow-up , and according to the results of the examination, an increase in acute waves on the EEG was detected in 35 out of 42 patients in our group (Fig. 1).Figure 1. EEG before coronavirus . Patient Sobirzhonov S., 17 years

old, has been suffering from focal (absence) symptomatic epilepsy for 2 years . Regularly took lamitrigine 50 mg 2 times a day, in the dynamics there was a decrease in seizures. In September 2021, fever and olfactory disturbances were observed, according to PCR analysis COVID-19 virus was detected and outpatient treatment was recommended. The condition improved , there are no signs of intoxication. After the illness, a month later, the patient developed a sudden tonic-clonic seizure, and was taken to a neurologist by ambulance.



Picture 1.

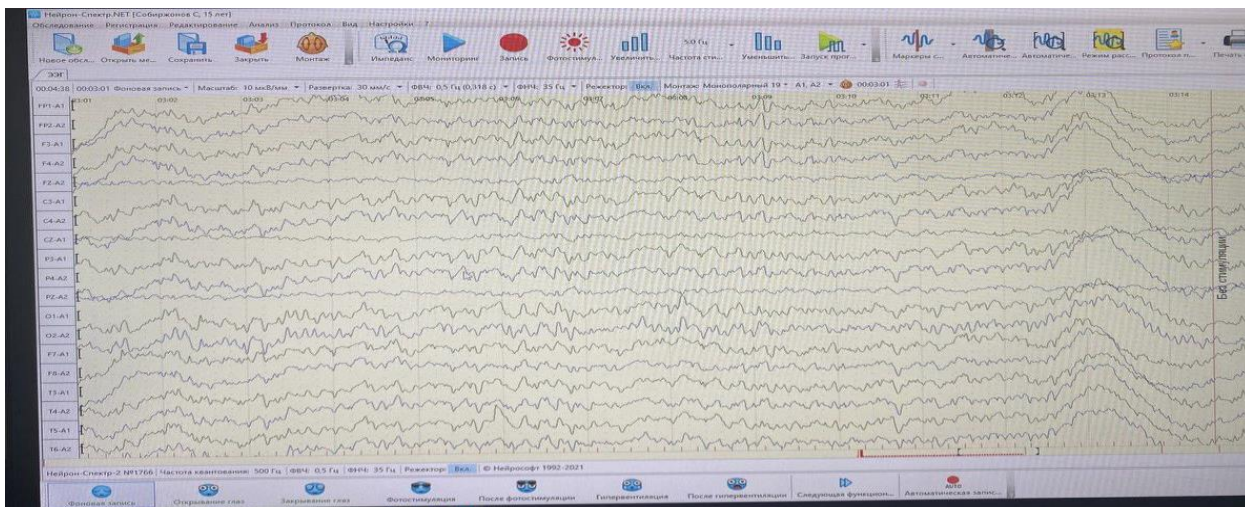


Figure 2 Examination of the same patient after a previous COVID-19 infection.

The arrow shows delta waves, slow waves of large amplitude. In 4 out of 42 patients under general observation, in addition to changes in the form of seizures, additional complaints were determined on the basis of anamnestic complaints, in particular, memory loss, impaired clarity of thought.

Based on a brief analysis, it should be concluded that in 93% of patients with epilepsy after covid-19, there was an increase in epileptic seizures, taking this into account, changes in treatment were made, and in the remaining 7% (in 3 patients) the condition was unchanged.

We determined changes in seizures in patients based on their complaints, as well as EEG data.

1. An increase in epileptic seizures was observed in 93% of patients, while the remaining 7% of patients showed no changes. Based on this, in 18 out of 42 patients, the type and order of taking drugs were changed: the main anticonvulsant drug was changed from valproic acid to levoteracetam, and for the purpose of complex therapy, monotherapy was transferred to bitherapy.

2. According to the EEG data, in 4 patients in whom focal seizures turned into generalized before infection with coronavirus, the EEG revealed accelerated epileptiform rhythms and delta rhythms.

3. According to patients' complaints, COVID-19 infection also affected their memory and attention. But



these individual scale-based tests have not been studied, and their results are planned to be considered separately in our next studies.

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