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CLINICAL-NEUROLOGICAL STRUCTURE OF NERVOUS SYSTEM INJURIES IN PATIENTS SUFFERING WITH COVID -19

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ABSTARCT

Currently, the coronavirus (COVID-19) pandemic is an urgent problem for all countries of the world. Like all countries, the incidence of this virus is increasing in our republic, and new clinical features are being observed. Observations show that the disease affects all body systems and leaves its obvious complications. In particular, it causes various pathological symptoms and syndromes of the central and peripheral nervous systems.

Keywords : coronavirus (COVID-19) , body systems , central and peripheral nervous systems

Covid-19 infection is an acute respiratory infection caused by the SARS-CoV-2 virus, which belongs to the Betacoronivirus family, and is zooatroponosis. SARS-CoV-2 is an enveloped single-stranded (+)RNA virus and was first identified in December 2019. In January 2020, it spread as an epidemic, and on March 11, 2020, it was declared a pandemic by the World Health Organization. The disease spreads rapidly through contact and airborne droplets and has an incubation period of 14 days. SARS-CoV-1, like a virus, remains viable outside the body on the surface of an object for 3 hours to 4 days [14,18,20,21,23]

In addition to the respiratory system, SARS-CoV-2 also affects the central and peripheral nervous systems. It causes acute inflammatory diseases of the brain such as meningitis, encephalitis, cerebrovascular diseases such as stroke, peripheral nervous system diseases such as Guillain-Barré syndrome, epileptic seizures, ataxia and other syndromes. There are also post-covid syndromes that cause socio-economic problems. These include prolonged post-exposure syndrome, cognitive impairment, depression, insomnia, myalgia, general weakness, headache, dizziness, anxiety. It should be emphasized that patients suffering from one or another central/peripheral nervous system disease before infection with SARS-CoV-2 virus have a specific clinical course. In particular, the course of Parkinson's disease, Alzheimer's disease and other neurodegenerative diseases can deepen. Vascular-endothelial, neuroimmune and cytokine pathological processes are the basis of these events [15,25,26]

Over two million years of evolution, the human immune system has learned to fight most known infections. But the new coronavirus that suddenly appeared has taken the human immune system by surprise - so it is very difficult to fight against it, but it is very easy to catch the virus. Coronaviruses are likened to rogues in disguise. Because the tip of each of its spikes pretends to be a molecule of a useful substance, and cell receptors that "fly" to it are attracted to it, as a result, the virus spreads through the spikes to the cell. This is how the infection works. A virus that enters a cell takes control over it and starts producing endless copies of itself instead of the usual proteins for the cell. Thus, a chain reaction starts and the cell dies as a result [24].

Coronaviridae is a common pathogen of the respiratory system. Two important outbreaks of coronavirus infection have occurred in recent decades, namely the outbreak of severe

respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV). Since December 2019, the number of people infected with severe acute respiratory syndrome - covid 2019 (COVID-19) caused by coronavirus 2 (SARS-CoV-2) has increased. The virus shares 79.5% [22] and 50% [47] gene sequence homology with SARS-CoV and MERS-CoV, respectively. During the current pandemic, the medical field is facing enormous challenges. COVID-19 has become the highest public health burden among infectious respiratory diseases. The rate of central nervous system (CNS) damage associated with Covid-19 is increasing [16]. In addition, many literatures associate Covid-19 with the growing incidence of peripheral nervous system (PNS) diseases. In light of this background, we discuss the impact of Covid-19 on diabetic polyneuropathy.

PubMed, Scopus and Google Scholar databases of a lot of information about coronavirus infection (Kovid-19) showed that the pathological process occurs in the brain parenchyma and blood vessels, as well as in the meninges. Cranial and peripheral nerve fibers and skeletal muscles are damaged and are manifested in the form of mono- and polyneuropathies, myalgia, rhabdomyolysis [15, 24, 26, 28, 35, 36, 40, 41, 44, 45].

Based on the spread of COVID-19, symptoms of unexplained encephalopathy, memory impairment, depression, apathy, peripheral nervous system and muscle damage are interpreted as possible manifestations of the novel coronavirus infection. Given the large number of people infected with SARS-COV-2, the relative increase in the frequency of autoimmune changes of the nervous system in the near future cannot be ruled out.

It is now known that patients with many neurological diseases are at high risk for infection and severe disease from COVID-19. According to Italian colleagues, in-hospital mortality rates were significantly higher in patients with neurological disorders who were infected with COVID-19 than in similar patients without COVID-19. At the same time, initially neurologically healthy patients with coronavirus infection began to develop neurological symptoms during the course of the disease.

Along with its high infectious and fatality rates, the coronavirus infection has a strong psychosocial impact, causing mass hysteria, economic burden and financial loss. The fear of COVID-19, called "Coronaphobia", has created various mental health problems in all aspects of life.

can cause mandatory quarantines, national restrictions, long-term anxiety , depressive, phobic disorders, reactive psychoses, and post-traumatic stress disorder (PTSD) to combat COVID-19 The "infodemic" spread through various platforms of social networks plays a key role in the pathogenesis of mental disorders. There are also widespread reports of increased racism, stigma and xenophobia against certain communities. However, front-line health workers are at increased risk of contracting the disease, as well as experiencing negative psychological effects in the form of burnout, anxiety , fear of contagion, feelings of inadequacy, depression, increased drug dependence, and post-traumatic stress disorder.

Psychosocial aspects of the behavior of older people and their caregivers, the mentally ill, and different communities have been affected by the pandemic in different ways and require special attention.

Coronavirus infection can also cause somatogenic mental disorders at the neurological and psychological levels in patients with other infectious diseases. Signs of the emergence of mental disorders with somatic causes have been previously identified:
- presence of somatic disease;
- time ratio between the occurrence of somatic and mental diseases;
- the parallelism of the course of mental and somatic diseases;
- possible, but not mandatory, appearance of organic symptoms.
depends on the nature of the disease, severity, stage of the course, level of effectiveness of the therapeutic effect, as well as characteristics such as heredity, constitution, premorbid personality, age, sex, reactivity of the body, and the presence of previous risks. Somatogenic mental disorders develop as a result of the direct effect of COVID-19 on the activity of the central nervous system and are mainly manifested in the form of neurosis-like symptoms, but in some cases, psychotic conditions can also develop against the background of severe organic pathology, as well as , cases of significant impairment of higher mental functions up to dementia were also observed .
Asthenic syndrome is a reaction of the body to various external influences, which leads to the consumption of energy resources and develops in patients with acute somatic pathology or during the exacerbation of a chronic disease. Asthenia is manifested by nonspecific complaints of pathological weakness, fatigue (regardless of workload), insomnia, irritability, muscle pain, headache, dizziness, and autonomic dysfunction. . The prevalence of asthenic syndrome in general somatic practice varies from 15% to 57%: 45% in patients with chronic somatic diseases, 55% in patients with an acute disease, including infectious diseases. from COVID-19 next asthenic syndrome (SKAS) is bacterial in 75% of patients or viral from illness after appear will be of asthenia clinical appearance in 1-2 weeks appear will be and contagious disease signs from missing and then one how many moon continue reach can _ Increase of SKAS intoxication _ syndrome to the severity of the complications to existence , to age and premorbid background depend _ SK AS is caused by SARS-CoV-2 has been contagious disease with COVID - 19 sick in patients the most wide spread out and constant from syndromes one being his _ signs from infection then 100 days or from him more continue reach can _ CK AS _ in pathogenesis main role hypothalamus - pituitary -adrenal system considered essential neurohormonal system stress cause produces _ Various factors , that's it including contagious factors effect under his in the function changes kidneys through Kyo , of Mg2yo too much except release with electrolytes of exchange to the violation and usually combined imbalance in the form of hypokalemia and hypomagnesemia development take will come Asthenia in COVID-19 development pathogenetic the concept , in particular , of the virus to himself special features with depend _ Endothelial dysfunction conditions thromboxane of synthesis increase of platelets aggregation features increases this _ of microcirculation violation because of the brain of perfusion to decrease take it comes _ asthenia and cognitive of disorders causes development. Endothelial dysfunction conditions thromboxane synthesis increases . Brain perfusion decline because of of platelets aggregation features increases . Microcirculation disorders , this asthenia and cognitive of disorders contribute to pathogenesis adds _ With COVID-19 at that sick renin-angiotensin- aldosterone in patients system (RAAT) over except activation can _ of the SARS-COV-2 coronavirus purposeful through ACYe2 into cells come in to go with their on the surface

their quantity decreases , this angiotensin -2 clearance violation and of aldosterone excess secretion with will pass and kidneys by of potassium excess output because of hypokalemia development take will come with COVID-19 sick in patients vomiting and diarrhea because of gastrointestinal tract tract of potassium a lot output , hypokalemia take will come The coronavirus infection treatment according to temporary recommendations based on used drugs , in particular , glucocorticosteroids (GKS) and antibacterial drugs are also electrolytes of violation development take will come GKS skeleton Na yo / K yo - ATF in muscles by activating , from the cell except potassium to the cells transfer through to hypokalemia take will come

A study from the UK aims to provide a comprehensive and comprehensive study of the complications caused by the MNS of the coronavirus in the UK. According to the results of this study, 10 of 23 patients with neuropsychiatric disorders (43%) had new-onset psychosis, 6 (26%) had cognitive impairment reaching the level of dementia, and 4 (17%) had affective disorders. 18 of 37 patients with altered mental status (49%) were younger than 60, 19 (51%) were older than 60, and 13 (18%) of 74 patients with cerebrovascular disease were younger than 60, 61 (82 %) was over 60 years old.

MKB-10 defines the following general criteria for somatogenic (including organic) diseases. The most typical emotional disorders caused by somatogenic effects are depressive disorders. Organic depressions are characterized by phenomena of mental decline in affective symptomatology, the predominance of negative affectivity in the clinical picture (weakness, spontaneity, anhedonia, etc.) and the severity of the asthenic syndrome. Several persistent somatic and hypochondriacal complaints may also occur with vascular depressions. Dysphoric depression with brain dysfunction often develops with a predominance of melancholic, angry mood, irritability and anger. Against the background of COVID-19, depression is characterized by a significant severity of the asthenic component. Increased mental and physical fatigue, hyperesthesia, nervous weakness, fainting, tears are characteristic. An important component of depression in somatic diseases is often the dominance of the affective component itself. Somatic symptoms in the structure of a depressive disorder can mimic the symptoms of the main disease and, accordingly, significantly complicate the diagnosis of mental illness [19;58-61b] .

It should be noted that the pathogenesis of depressive states in infectious diseases, as a rule, includes the interaction and strengthening of somatogenic and psychogenic factors. Depressive experiences often appear as part of personal reactions that are incompatible with the disease, which develop against the background of a general increase in mental fatigue and insufficient personal resources to cope with the stress of the disease.

The main problems of the use of evidence-based medicine in the field of clinical practice are related to the uncertainty of the criteria for determining the norm and pathology of mental activity. Special difficulties in deciding on the presence of a specific mental pathology arise in the study of general, unselected individuals from the perspective of the population, traditional psychiatric contingents. In this case, clinical experts are faced with minimal symptoms of clinically determined mental pathology and typical daily complaints that are present in almost every healthy person . From the point of view of evidence-based medicine, the main task in differentiating mental norm and pathology is to separate clinical situations that require

intervention from those that are determined by individual personality characteristics and therefore do not require any supervision or expert advice [26;90-98b] .

However, in everyday clinical practice, many distributions of variables reflecting mental and personal functioning indicators cannot be easily divided into "norm" and "pathology", since these distributions do not have clear breaks or two different peaks. one of them is suitable. normal result, and the second - pathological. Dividing populations into "mentally healthy" and "mentally ill" from an evidence-based approach seems impossible for at least two reasons. First, many mental illnesses continue in a hidden manner, have a specific development period, and the dysfunction is manifested by a gradual transition from low values to high values of the studied indicator. Secondly, healthy and sick people actually belong to two different populations, it is almost impossible to recognize each of them in the general mass of the population, because the same indicator in different patients, unlike the indicators in patients with somatic diseases, take different values. to do, the values of this indicator can be adjusted to each other in a healthy way [40;24-27b] .

Thus, neuropsychology must now play an important role in the assessment and treatment of survivors of COVID-19. In addition, the ability of the virus to cause coagulopathy, thrombosis and inflammation can be the cause of neuropsychological disorders, against the background of atypical acute respiratory distress syndrome [41;11-16b]. Studies have shown that people with respiratory distress syndrome have deficits in memory, attention, speech fluency, information processing speed, and executive function. 30-80% of patients suffer from psychoemotional and cognitive disturbances for months after the atypical acute respiratory distress syndrome [53;41-54b]. Also, many severe cases of COVID-19 have been found to be associated with pre-existing medical conditions—hypertension, diabetes, cardiovascular disease, cancer, and chronic respiratory disease [51;194–200b] .] . Therefore, it is necessary to study the complex factors and medical complications that patients face after COVID-19, because the exact nature and extent of neuropsychological deficits experienced by survivors of COVID-19 is still unclear, and the results depend on a number of clinical factors and individual differences. can be very different [46;143-151b] .

The analysis of the state registration and registration materials of the studied scientific and medical documents, scientific research and experimental construction work showed that the data obtained from patients with a severe form of coronavirus infection showed that the level of neuropsychiatric consequences and further neurological examination emphasizes the need for prompt resolution of subjective cognitive complaints and diagnosis [47;50-53b] . In addition, the fear of deeper neurological and mental health disorders associated with the coronavirus infection, which is a real problem and poses a serious threat to the population, has been confirmed. In this, it should be focused on early transfer of patients to clinical trials and prevention of exacerbation of cognitive and psychoemotional disorders in young patients with novel coronavirus infection. With the ever-increasing number of reports of neurological complications caused by COVID-19, a large proportion of patients will require neuropsychological care in the coming months and years, requiring specific clinical care using evidence-based medicine [56; p.636-674] .

According to an Italian study, 56% of patients with COVID-19 developed at least one symptom of anxiety-depressive or post-traumatic stress disorder one month after discharge from the

hospital. Accordingly, special attention should be paid to the assessment of the psychoemotional state of patients after COVID-19 and, if necessary, to its correction [61;p.529-530] . Thus, during the planned study, the characteristics of psychoemotional disorders in patients with the new coronavirus infection were determined depending on their clinical and pathogenetic status.

In the early stages, anxiety -depressive disorder responds well to treatment. With properly selected therapy, the result will be noticeable after 1-2 weeks.

The effectiveness of treatment largely depends on the patient's desire and desire to understand the cause of the disease and correct the situation. An important criterion of successful therapy is a trusting relationship (compatibility) between the patient and the doctor, readiness to follow all the recommendations of the specialist.

Treatment should be comprehensive. This includes psychotherapy, medication, and physical therapy.

With timely detection of the disease and the appointment of the correct treatment, the prognosis is very favorable. The prescription of the disease is important, because with a long course without therapy, this condition can become chronic. This is due to the combination of neurotic reactions (primarily avoidance) that leave a mark on the whole personality (previously it was called the development of a neurotic personality).

Primary preventive measures:

not giving in to negative emotions;

lead a healthy lifestyle: avoid alcohol and nicotine, eat right, engage in various enjoyable sports.

Thus, a review of the literature suggests that anxiety and depressive disorders may have a distinct course in patients with Covid-19. Studying the specific clinical course of these disorders is the most urgent problem of the present time. Early detection and early correction of anxiety and depressive disorders improves patients' quality of life and reduces disability rates. That is why this dissertation work is aimed at solving the problem of today.

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