

EXPERIENCE WITH THE USE OF MEMANTINE IN THE TREATMENT OF COGNITIVE DISORDERS

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Abstract. *An increase in the share of cognitive disorders in the composition of the disease is one of the main problems of modern medicine. The main role in the development of cognitive disorders is played by the phenomenon of separation — a violation of communication between the cerebral cortex (especially the frontal lobes) and subcortical structures. Successful therapy for cognitive disorders is one of the most important tasks of modern medicine.*

Keywords: *cognitive disorders, treatment, memantine, modern medicine.*

Introduction. Certain achievements in local medicine, health and social achievement have made it possible to increase the life expectancy of people. At the same time, these achievements are important in combination with a decrease in fertility — an increase in the number of elderly in the population and, as a result, a change in the structure of the disease, an increase in the proportion of vascular and neurodegenerative dementing diseases. Thus, an increase in the share of cognitive disorders in the composition of the disease is one of the main problems of modern medicine [1-5]. In clinical neurology under cognitive functions (lat. cognitio-cognition, learning, awareness) it is customary to understand the most complex integral processes necessary for the perception, processing and use of external data. Such functions include information perception (gnosis), its analysis and processing (called executive functions), data storage (Mnestic functions — memory) and data transfer (praxis and speech) [6-9]. Cognitive disorders are said in cases where, in one or more of the above areas, worsening with respect to the premorbid level, that is, a decrease in Mnestic-intellectual abilities with respect to the individual norm for a particular person is noted. Cognitive disorders are not an independent nosology, but a syndrome that can manifest various organic diseases in the etiology of the central nervous system [10-14]. However, a number of diseases become a mandatory symptom the phenomenon of separation of the main role in the development of cognitive disorders — a violation of the connections between the cerebral cortex (especially the frontal lobes) and subcortical structures plays. And yet, in most cases, the trigger factor is uncontrolled chronic arterial hypertension [15-20]. In combination with dyslipoproteinemia in the vessels of the microcirculatory canal, secondary changes in the form of lipogialinosis and, as a result, arteriolosclerosis occur as a result of a violation of the vascular trophic level, which leads to a violation of the reactivity of the vascular wall and a lack of its function. In the future, this process will be exacerbated by heart failure or a violation of systemic hemodynamics against the background of overly aggressive antihypertensive therapy. Changes are most pronounced in the form of leukoareosis in the periventricular and subcortical zones. With a

severe course of hypertension, diffuse damage to the white substance is also possible-Binswanger's disease [21-25].

The second important factor is acute episodes of cerebrovascular disorder. The most obvious cognitive changes are caused by several "dumb" brain infarcts and infarcts of "strategic" zones [26].

According to the literature, often the "strategic" zones are the prefrontal cortex, the medial parts of the temporal lobes, the thalamus, the basal ganglia (primarily the caudate nucleus, to a lesser extent — the pale ball), the adjacent white matter, the occipital, the temporal and the junction of the parietal cortex (especially the oblique gyrus), and the cerebellum. It is also involved in the processing of data from zones associated with cognitive functions, automated actions and the execution of procedural memory. The clinical picture that damages each of the "strategic" zones can be relatively digital. In recent times, the concept of "strategic" zone infarcts is being revised, as modern research methods suggest changes in other parts of the brain as well as "strategic" zone infarcts [27-32].

Currently, there are several views on the pathogenesis of post-stroke cognitive disorders. According to one view, a stroke leads to a violation of the compensation of an already existing Alzheimer's disease or other cerebrovascular dementing process [33-36]. Another concept suggests that acute ischemia can trigger or accelerate the neurodegenerative process (perhaps with a certain predisposition of the patient). Thus, coronary brain disease (IBM), stroke and neurodegeneration should be considered components of a vicious circle. The pathophysiological basis of cognitive disorders is a violation of the neurotransmitter (acetylcholinergic, dopaminergic, noradrenergic, serotonin) systems. Degeneration of dopaminergic neurons in the midbrain leads to a decrease in dopamine and its metabolites in the associative zones of the prefrontal cortex, striatum, and temporal cortex [37-41]. A decrease in the activity of norepinephrine neurons negatively affects the processing of sensitive stimuli and the strengthening of the memory footprint in the associative zones of the temporoparietal-occipital cortex. In these processes, a certain role plays excitotoxicity - a pathological phenomenon that leads to damage and death of nerve cells under the influence of neurotransmitters capable of overactivating NMDA and AMPA receptors - one of the modern areas of treatment for cognitive disorders is to smooth out the effects of excitotoxicity and pathological hyperactivity of NMDA receptors. Currently, the most promising memantine in this regard is voltage-dependent, intermediate Affinity is an uncompetitive antagonist of nmdareceptors. Memantine blocks the effects of abnormally elevated glutamate levels, which can lead to neuronal dysfunction [42-45].

The purpose of the study: to determine the effectiveness of the use of memantine. Today, the guidelines for the use of memantine are cognitive disorders associated with diseases such as Alzheimer's disease, vascular and mixed vascular-degenerative dementia, Parkinson's disease with dementia.

Materials and methods. For the study, 30 (17 women and 13 men) patients were treated and examined, suffering from moderate to severe cognitive decline as part of organic brain disorders. The age of patients ranged from 52 to 75 years. Of these, 18 people suffered from cerebrovascular diseases (atherosclerosis of the vessels of the brain, hypertension), the consequences of brain damage with psychoorganic syndrome-4 people, mixed Genesis — 8 people. During admission, patients experience dizziness, headaches of different character and localization, exacerbation with psycho-emotional and physical exercises, weakness in the limbs

with impaired motor functions, speech disorders (lubrication, dullness of the pronunciation of certain sound compounds), decreased memory, attention disorders, mood, inability to concentrate, fatigue, psycho-emotional instability. the predominance of a depressive background. Some patients noted sleep disorders that often become shallow with wakefulness.

In the group of patients with cerebral atherosclerosis and hypertension, 2 patients reported mild Parkinsonia syndrome, 6 patients reported pyramidal insufficiency, and 3 patients reported vestibuloatactic syndrome. In the group of patients with stroke consequences in 2 patients, mild hemiparesis, vestibuloatactic syndrome in 4 patients, dysarthria in 2 patients was the leading neurological syndrome. The leading syndrome in patients suffering from the effects of traumatic brain injury was psychoorganic.

Before the study was carried out, the history of patients was widely studied. Outpatient map, hereditary and allergological Anamnesis data were analyzed, a detailed neurological examination was carried out. Also, relevant specialists were involved: all patients were advised by a therapist, Optometrist, neurologist. Diagnostic tests include brain CT, EEG, reg.

All patients were given a psychological test, which included an analysis of a short mental state assessment scale, A Mattis dementia scale, a clock drawing test; memory impairment was checked using a 10-word memorization Test (number of missed). Neuropsychological testing plays an important role in the diagnosis of cognitive disorders. The following methods have been used: a short scale of mental state assessment (KSHOPS), a series of tests to assess frontal dysfunction, a clock drawing test. Psychological research, assessment of the potential that has occurred, was carried out twice — before the appointment of therapy and after the completion of its course. Moderate to severe cognitive impairment has been found in all patients observed.

All patients were prescribed a three-month course of taking the memantine drug according to the scheme. It was not observed during studies such as serious complications or the appearance of other exclusion criteria that prevent the drug from continuing to be taken. The drug is well tolerated. Only one patient has been recorded to have increased headache, while 2 patients have reported episodes of sleep disorders (difficulty falling asleep) that do not require additional medical correction.

Research results. In 13 out of 30 patients, repeated psychological test results showed positive results. A complete restoration of long-term and operational memory function was noted, computational functions were improved, and the manifestation of cerebrastrhenic syndrome was significantly reduced.

Patients with chronic cerebrovascular disorder have less positive dynamics. Despite the improvement in the condition of patients, no significant dynamics was observed during repeated psychological studies. In 3 out of 4 patients with cognitive impairment after suffering from TBI, memory function was significantly restored, with improved short-term and long-term memory.

Mild to moderate cognitive impairment has been found in all observed patients. According to neuropsychological tests prior to the appointment of therapy, 18 people (60 %) had MMSE rates in the range of 26-27 points, and 12 patients (40 %) had MMSE rates dropped to 24-25 points. The lowest MMSE test score of the patients examined (24 points corresponding to moderate cognitive impairment) was shown by three patients with recurrent stroke consequences, as well as 1 patient suffering from closed traumatic brain injury, moderate cerebral contusion consequences. In patients with single stroke consequences (7 out of 13 patients), the mmse test scored 25 points, which was also consistent with moderate cognitive impairment (Ukr).

Moderate cognitive impairment (25 points) was also found in 1 patient with Ms. According to the Mmse test, mild cognitive impairment (LCR) was found in the remaining 18 patients.

The results of the remaining neuropsychological tests were related to the MMSE test data (the most significant changes were recorded in patients below 26 points). Disorders of superior cortical visual function have been observed mainly in patients with multiple brain infarctions. The most errors in the clock drawing test (reducing the result to 5-6 points) were made by patients with multiple brain infarctions. In a group of patients with consequences of acute hypoxic encephalopathy (post-resuscitation, carbon monoxide poisoning), mild cognitive disorders, mainly short-term memory dysfunction, have been reported.

Thus, analysis of the VPs signal in patients revealed general and different selective disorders of form, amplitude, and time during the mental processing phases of the presented patterns, evidence of different levels and severity of cognitive fragmentation, regardless of the etiology of brain injury.

According to the protocol, all patients were assigned a three-month course of taking the drug mem, which was produced by the company "Aktavis" according to the following scheme:

Week 1-1/2 tablet (5 mg) in the morning ;

Week 2-1/2 tablet in the morning and evening;

Week 3-1 tablet in the morning (10 mg) and 1/2 tablet in the evening;

Week 4 and after (up to Week 8)-1 tablet in the morning and evening.

During the study, there were no serious complications or the appearance of other exclusion criteria that prevented the drug from continuing to be taken. The drug is well tolerated. Only one patient with TBI consequences has been reported to have increased headache, while 2 patients with hypertension have reported episodes of sleep disorders (difficulty falling asleep) that do not require additional medical correction.

In 28 out of 30 patients, repeated neuropsychological test results showed positive results. Improvements were particularly noticeable in patients with acute hypoxic encephalopathy (post-resuscitation), carbon monoxide poisoning. A complete restoration of long-term and operational memory function was noted, computational functions were improved, and the manifestation of cerebrasthenic syndrome was significantly reduced.

Positive dynamics was also noted in patients with onmc consequences. MMSE rates increased by an average of 1-2 points, while performance of other neuropsychiatric tests improved (with clock drawing, test rates increased by an average of 2 points).

In patients with recurrent onmc consequences, positive dynamics were observed less clearly. Subjectively, patients noted an improvement in the situation, an increase in the ability to concentrate, but during repeated neuropsychological examination, no significant dynamics was observed: the indicators of MMSE remained the same, the indicators of memory and poppelreiter's test improved slightly. Significant memory function recovery was observed in patients with TBI. Improved short-term and long-term memory.

The improvement of patients with multiple sclerosis mainly affected the emotional-physiological sphere: the mood stabilized against the background, volitional disorders reversed, and some antidepressant effects of the drug were noted. Also, the ability to concentrate increased, high visual functions improved (when performing the poppelreyter test, high indicators were recorded, the chessboard separation test).

After the course of treatment, a decrease in the severity of frontal-subcortical dysfunction was noted (increased attention), constructive Praxis, visual-spatial functions, improved short-term and long-term memory ($p < 0.05$), which is statistically significantly related ($p < 0,05$) with the dynamics of the electrophysiological parameters under study of the VPs signal. In addition to the full 10% and partial 26,7% normalization of Waveform and signal amplitude in 66.7%, against the background of therapy, the rate of sensorimotor reactions and the percentage of correct responses increased in all patients with mild to moderate cognitive disorders.

Conclusions. In the course of clinical studies using a comprehensive assessment of cognitive status, the effectiveness of the use of memantine in the complex treatment of moderate and severe cognitive disorders in various organic brain diseases was shown. No side effects that require discontinuation of the drug have been reported.

In the course of clinical studies using a complex assessment of cognitive status, it was shown that the drug mema is highly effective in the complex treatment of mild to moderate cognitive disorders in various organic diseases of the nervous system. No side effects that require discontinuation of the drug have been reported.

Thus, the use of memantine is a justified and effective method of complex treatment of cognitive disorders. In this regard, cognitive impairment can be considered a partial curable condition, including in the dementia stage. Timely and adequate therapy will help reduce the severity of cognitive disorders and the burden on people who care for such patients.

REFERENCES

1. Allambergenov A. J. et al. Postcovid syndrome and its neuropsychiatric consequences after covid-19 in patients with alcoholism //European Journal of Interdisciplinary Research and Development. – 2023. – T. 11. – C. 42-46.
2. Asliddinovich M. O. et al. Psychological characteristics of patients with gastrointestinal diseases //IQRO. – 2023. – T. 3. – №. 1. – C. 225-230.
3. Abdurazakova Robiya Sheraliyevna, Turaev Bobir Temirpulatovich 2023. Characteristic features of affective disorders in children with autism. Iqro jurnali. 2, 2 (Apr. 2023), 722–727.
4. Hamidullayevna X. D., Temirpulatovich T. B. Clinical and psychological features of alcoholism patients with suicidal behavior //IQRO. – 2023. – T. 1. – №. 2. – C. 711-720.
5. Holdorovna I. M., Murodullayevich K. R., Temirpulotovich T. B. Problems of consciousness disorder in modern psychiatry //Journal of healthcare and life-science research. – 2023. – T. 2. – №. 10. – C. 20-27.
6. Holdorovna, I.M. and Temirpulatovich, T.B. 2023. Features of Psychopharmacotherapy in Patients with Severe Mental Disorders. Scholastic: Journal of Natural and Medical Education. 2, 7 (Jul. 2023), 40–46.
7. Holdorovna, I.M. and Temirpulatovich, T.B. 2023. Optimization of complex methods of treatment of patients in schizophrenia. Journal of education, ethics and value. 2, 8 (Aug. 2023), 59–67.
8. Holdorovna, I.M. and Temirpulatovich, T.B. 2023. The Role of the Family in the Formation of Internet Addiction. Scholastic: Journal of Natural and Medical Education. 2, 7 (Jul. 2023), 10–15.

9. Murodullayevich K. R., Holdorovna I. M., Temirpulotovich T. B. The effect of exogenous factors on the clinical course of paranoid schizophrenia //Journal of healthcare and life-science research. – 2023. – T. 2. – №. 10. – C. 28-34.
10. Murodullayevich K. R., Temirpulotovich T. B., Holierovna K. H. Social assistance in patients with phobic anxiety disorders //Iqro jurnali. – 2023. – T. 2. – №. 2. – C. 408-413.
11. Ochilov U. U., Turaev B. T., Zhumageldiev N. N. Peculiarities of the formation and course of alcoholism in persons with character accentuations and personality disorders //Bulletin of Science and Education. – 2020. – №. 10-4. – C. 88.
12. Temirpulotovich T. B. Depressive disorders in alcohol recipients and its socio-economic consequences during the covid-19 pandemic //Web of Scientist: International Scientific Research Journal. – 2023. – T. 4. – №. 1. – C. 162-168.
13. Temirpulotovich T. B. et al. Alkogolizm bilan kasallangan bemorlarda covid-19 o'tkazgandan keyin jigardagi klinik va laborator o'zgarishlar //journal of biomedicine and practice. – 2023. – T. 8. – №. 1.
14. Temirpulotovich T. B. et al. Clinical Manifestations of Suicidal Behaviors as a Result of Depressive Disorders During Adolescence //Eurasian Medical Research Periodical. – 2022. – T. 8. – C. 55-58.
15. Temirpulotovich T. B. Effects of social factors in children with anxiety-phobic disorders //Journal of healthcare and life-science research. – 2023. – T. 2. – №. 10. – C. 35-41.
16. Temirpulotovich T. B. et al. Covid-19 pandemiyasi vaqtida spirtli ichimliklarni iste'mol qiluvchi shaxslarda depressiv buzilishlarning tarqalishi //Journal of biomedicine and practice. – 2022. – T. 7. – №. 1.
17. Temirpulotovich T. B. et al. Prevalence of borderline personality disorder among people addicted to alcohol and drugs //IQRO. – 2023. – T. 2. – №. 2. – C. 395-400.
18. Temirpulotovich T. B. et al. Study of the dominant signs of a manifest attack of schizophrenia with the use of psychoactive substances //IQRO. – 2023. – T. 2. – №. 2. – C. 388-394.
19. Temirpulotovich T. B. Optimization of psychopharmacotherapy of affective disorders during the covid-19 pandemic in alcohol-dependent patients //IQRO. – 2023. – T. 2. – №. 1. – C. 175-180.
20. Temirpulotovich T. B. Patients With Alcoholism Functional Changes in the Liver After Covid-19 Disease //The Peerian Journal. – 2023. – T. 15. – C. 38-47.
21. Temirpulotovich T. B. Sexual behavioral disorders after the covid-19 pandemic in patients with alcoholism //World Bulletin of Public Health. – 2022. – T. 10. – C. 207-209.
22. Temirpulotovich T. B., Hamidullayevna X. D. Clinical and laborator changes in patients with alcoholism who have undergone covid 19, with various pathologies in the liver //Open Access Repository. – 2023. – T. 4. – №. 2. – C. 278-289.
23. Temirpulotovich T. B., Hamidullayevna X. D. Neuropsychiatric disorders that develop in a complication of covid-19 to alcoholism //European Journal of Interdisciplinary Research and Development. – 2023. – T. 11. – C. 47-51.
24. Temirpulotovich T. B., Murodullayevich K. R. Characteristic features of postkovid syndrome in patients with alcoholism, the presence of various liver diseases //Open Access Repository. – 2023. – T. 4. – №. 2. – C. 266-277.

25. Temirpulotovich T. B. Somatoform variant post-traumatic stress disorder //Journal of healthcare and life-science research. – 2023. – Т. 2. – №. 9. – С. 45-52.
26. Turaev B. the course of the disease during the covid-19 pandemic in patients with alcoholism //Science and innovation. – 2022. – Т. 1. – №. D8. – С. 130-134.
27. Turaev B., Velilyaeva A. Formation and course of alcoholism in young women with alcoholic psychosis //Eurasian Journal of Medical and Natural Sciences. – 2022. – Т. 2. – №. 6. – С. 226-232.
28. Turaev Bobir Temirpulatovich 2023. Socio-demographic, personal and clinical characteristics of relatives of alcoholism patients. Iqro jurnali. 1, 2 (Feb. 2023), 685–694.
29. Turaev Bobir Temirpulatovich 2023. Ways to prevent negative disorders in schizophrenia. Iqro jurnali. 1, 2 (Feb. 2023), 35–44.
30. Turaev Bobir Temirpulatovich, Kholmurodova Hulkar Holierovna, Ochilova Nigina Ulug'bek qizi. Prevalence of borderline personality disorder among people addicted to alcohol and drugs. Iqro jurnali. 2, 2 (Apr. 2023), 395–400.
31. Shernazarov Farrukh ORGANIZATION OF DIGITALIZED MEDICINE AND HEALTH ACADEMY AND ITS SIGNIFICANCE IN MEDICINE // SAI. 2023. №Special Issue 8. URL: <https://cyberleninka.ru/article/n/organization-of-digitalized-medicine-and-health-academy-and-its-significance-in-medicine> (дата обращения: 08.11.2023).