Journal of Medical Genetics and Clinical Biology
Homepage : https://journal.antispublisher.id/index.php/JMGCB
Email : admin@antispublisher.com

e-ISSN : 3032-1085
JMGCB, Vol. 2, No. 2, February 2025
Page 126-134

Direct Effect of Comorbid Mental Disorders on The Clinical Course of Alcoholism

Gaybiyev Akmal Axmadjonovich[1], Mamurova Mavludaxon Mirxamzayevna[2], Turayev Bobir Temirpulotovich[3]
[1,2,3]Samarkand State Medical University, Uzbekistan

DOI : https://doi.org/10.61796/jmgcb.v2i2.1215

Sections Info

Article history:
Submitted: January 30, 2025
Final Revised: January 31, 2025
Accepted: February 01, 2025
Published: February 03, 2025

Keywords:
Alcohol addiction
Mental disorders
Comorbid withdrawal
Prevention
Treatment and reablitation

ABSTRACT

Objective: *This study focuses on the growing concern of mental disorders combined with alcohol addiction, highlighting the need for medical examination by both narcology and psychiatry specialists. The objective is to explore the challenges related to the prevention, treatment, and rehabilitation of this comorbid condition.* ***Methods:*** *A comprehensive review of existing research and clinical practices was conducted, with an emphasis on the collaboration between narcologists and psychiatrists in managing patients with this dual diagnosis. Various case studies and treatment protocols were analyzed to understand the multidisciplinary approach required for effective care.* ***Results:*** *The study reveals significant complexities in treating individuals with both mental disorders and alcohol addiction. The findings suggest that integrated care from both narcology and psychiatry specialists leads to better patient outcomes. However, challenges remain in providing effective prevention and rehabilitation strategies due to the multifaceted nature of the disorder.* ***Novelty:*** *This research introduces a novel perspective on the importance of a dual-specialist approach to managing comorbid mental health and alcohol addiction issues. It emphasizes the need for a more unified and collaborative treatment framework that can address the intertwined nature of these conditions.*

INTRODUCTION

The high prevalence of alcohol dependence and the risk of serious medical and social consequences associated with alcohol abuse indicate a high and constant relevance to the study of this problem [1], [2], [3]. Thus, according to various authors, about one-fifth (25%) of patients with alcohol addiction and drug addiction detect procedural endogenous mental disorders, and 20-60% of patients with endogenous diseases abuse alcohol and drugs. Questioning the problem of "combining" drug disorders and other psychopathological disorders of the exogenous and endogenous spectrum, he studied the effects of "pathological soil" (the development of drug disorders is influenced not by difficulties in diagnosing and differential diagnosis of such patients, but by difficulties in their dispensary observation and, therefore, adequate therapeutic assistance [4], [5], [6], [7], [8].

Today, special dispensary accounts of patients in this group are not stored in either Narcological or psychoneurological dispensaries. With a sufficiently studied clinical part of the problem of mental pathology in combination with alcohol dependence, it should be noted that the clinical features of secondary alcohol dependence are not sufficiently illuminated, especially in patients with schizophrenia, affective psychosis, some organic

brain lesions, borderline neuropsychiatric disorders and post-traumatic stress disorders – the role of personality traits and personality disorders in real and symptomatic patients, as well as in patients with joint diseases that initiate alcohol and substance abuse [9], [10], [11], [12], [13].

The study of the onset and course of comorbid disorder in the studied context, its clinical features, aggressive and autoagressive behavior in patients with combined pathology, conditions for monitoring the dispensary is of great social importance for improving the quality of the organization of psychiatric and Drug care [14], [15], [16], [17], [18], [19].

In the available literature, we have not found studies of a comparative nature that shed light on differences in sociodemographic and psychopathological characteristics in the conditions of traditional dispensary observation and active dispensary observation – in patients with combined pathologies prone to socially dangerous behavior. Thus, all of the above has become a good basis for conducting this study [20], [21], [22], [23], [24].

Alcoholism and affective disorders belong to the group of socially significant diseases, which are characterized by high prevalence and unfavorable medical and social consequences. One of the features of alcohol dependence is the frequent comorbidity with affective disorders. According to the results of epidemiological and clinical studies, there is a high level of comorbidity of affective disorders with alcohol dependence, which is 25-40%. According to data collected from 8 specialized medical institutions in European countries, among patients with alcohol dependence aged 18-60 years, affective disorders were detected in 43% of cases. In addition, there are many cases where patients with affective disorders consume alcohol to alleviate symptoms of depression and anxiety [25], [26], [27], [28].

According to a number of researchers, when alcohol dependence and affective disorder are combined, the occurrence of each disease doubles the risk of developing the other. In turn, prolonged, repeated alcohol abuse contributes to the development of depressive episodes, severe anxiety, suicidal thoughts, and insomnia. The formation of comorbid pathology significantly worsens the clinical symptoms of the underlying disease, reduces the quality of life of patients, and complicates the therapeutic and diagnostic process. An additional difficulty is the choice of medications in the presence of comorbid pathology [29], [30], [31].

Along with many mental disorders, alcohol dependence and affective disorders are the result of the interaction of genetic and environmental factors, and are accompanied by morphofunctional brain disorders, including cognitive, emotional, and behavioral disorders. The disclosure of neurobiological aspects of the morbidity of alcohol dependence and affective disorders is very important, since knowledge of the relationships between the structural and functional parameters of the central nervous system (CNS) and clinical and dynamic features can help explain the pathogenesis of these disorders. This, in turn, may contribute to the identification of more effective methods for the diagnosis, treatment and prevention of comorbidity, alcohol dependence

and affective disorders. Technical limitations currently exclude direct in vivo analysis of cellular and molecular markers underlying the comorbidity of alcohol dependence and affective disorders in patients. However, other neurobiological aspects of the comorbidity of alcohol dependence and affective disorders, such as the electrical activity of the cortex, can be studied in the brain of a living person using non-invasive methods such as electroencephalography (EEG). The cerebral cortex plays a key role in behavior, as well as complex cognitive functions of the human brain, such as memory, attention, thinking, perception of the environment, etc. Many studies have investigated the relationship between resting EEG parameters and predisposition to psychopathology [32], [33], [34], [35]. Previous studies using EEG have also shown that alcohol dependence and affective disorders may be associated with dysfunction of the large-scale cortical system, which includes a number of functionally related areas. However, to date, there are not enough studies based on EEG in patients with comorbidity of alcohol dependence and affective disorders in the literature, and their results are contradictory. EEG studies offering neurophysiological models of affective disorders and alcohol dependence are of great scientific interest in the modern world [36], [37], [38].

It is assumed that the main contribution to the development of both alcohol dependence and affective disorders is made by disorders of neuronal plasticity associated with neurodegeneration. One of the biomarkers of neuron destruction (neurodegeneration) is phosphorylated neurofilaments (pNFS) released from damaged axons and can be found in peripheral blood. The determination of biomarkers of neurodegeneration in blood serum in psychiatric and behavioral disorders would allow us to reach a new level of research on this problem [39], [40], [41], [42], [43], [44]. Currently, the largest number of studies on the content of pNF in blood serum have been performed in groups of patients with neurodegenerative diseases such as Alzheimer's disease, Huntington's disease, Parkinson's disease, multiple sclerosis, etc., while an increased content of pNF in the blood serum of patients was clearly detected when compared with controls. These studies show a pronounced dynamics of pNF levels over time, as well as correlations with the severity of damage to the nervous system. Thus, today it is important to study the level of pNF as a marker of neurodegeneration in blood serum and in psychiatric disorders in order to clarify the pathogenetic features of diseases and the clinical prognosis [45], [46], [47], [48], [49].

At the same time, the interrelation of the parameters of the psychophysiological response with the clinical and dynamic features of comorbid pathology remains insufficiently studied. An integrative approach using various neurobiological technologies is important for further study of the involvement of various functional systems in the formation of comorbidity of alcohol dependence and affective disorder [50], [51], [52], [53], [54], [55], [56], [57], [58], [59].

The purpose of the study is **t**he direct effect of comorbid mental disorders on the clinical course of alcoholism is the study of clinical, psychopathological features.

RESEARCH METHOD

Research in 2023-2024, a clinical examination of 64 male patients was carried out at the Samarkand regional branch of the Republican specialized center for Scientific Applied Medicine of Narcology. Patients were on the account of the dispensary and were under the control of the regional branch of the Samarkand Regional Medical Center of Scientific Applied Medicine of the Republican specialized Narcology. Part of the patients (50%) were examined at the Samarkand Regional Psychiatric Hospital during inpatient treatment.

In accordance with the stated goal, we used clinical and psychopathological examination methods related to the psychiatric component of addiction and combined disorder. All patients under control underwent a standard comprehensive examination: EEG clinical-psychopathological, neurophysiological studies, premorbid assessment of personal qualities taking into account the age-related characteristics of the formation of psychopathies, depending on their genesis and the median age of the study group was 38,82±3,24 years.

For the study, patients were studied in two groups. 44 people (68,75%) with a core group of alcoholics and comorbid mental disorders and 20 (31,25%) with a control group were only studied with patients with alcohol addiction syndrome.

RESULTS AND DISCUSSION

in assessing the participation of Affective Disorders in the formation of the syndrome and their role in the development of combined pathology, it can be noted that in the clinical picture of the 22 (50%) joint disease studied, the predominance of Affective symptoms in the structure of complex mental disorders syndromes. Affective pathology, mainly depressive register, included more complex syndromes: astheno-depressive (4,0%), anxiety-depressive (8,0%), depressive-paranoid (6,0%), etc.

Electroencephalography (EEG). Randomly selected 30-second non-cartefact background segments and load samples were used in electroencephalograms to create maps, without explicit explosions and paroxysms, whose map was executed separately if possible. In addition to power Spectra, mapping was influenced by activity bursts, ratios of different frequency bands, amplitude values of flashes and paroxysms.

The background EEG is recorded in a relaxed wakefulness state. The test was conducted for 3 minutes of hyperventilation, eye opening, photostimulation, registration of EEG per minute of hyperventilation, followed by removal of the background EEG immediately after the hyperventilation test. The quality parameters of the activation reaction were evaluated-the degree of desynchronization and loss of basic activity, the severity of the EEG reaction to hyperventilation, as well as changes in EEG quality characteristics during and after hyperventilation.

The studied contingent of patients with combined pathology is a real "cross section" of individuals who are under the control of a dispensary and are observed during intensive alcohol consumption. From a nosological point of view, schizophrenia group

disorders and organic disorders are combined with alcohol addiction, to a lesser extent with patients with affective mood disorders and" pure " personality disorders.

It can be assumed that these combinations have not been noted (unnoticed) by employees due to low activity (openness), the privacy of depressed patients, and the focus on accounting If personality disorders and alcohol-dependent patients are traditionally taken into account.

In accordance with the goals and objectives of the study in the structure of comorbid pathology, we considered true alcohol dependence and symptomatic alcohol dependence as a component of a single comorbid disorder. True alcohol dependence (secondary true alcohol dependence) was diagnosed by us from 47 people (Group 1), symptomatic-from 14 people (Group 2). As for the psychiatric component of the combined disorder, Group 1 had more patients with organic brain damage (34,0%) and oligophobia (14,0%) than Group 2 ($p<0,05$), and Group 2 had a significant predominance of patients with schizophrenia (92,0%). they were more numerous than group 1 ($p<0,05$).

True alcohol addicts are more likely to have alcohol-dependent relatives ($p<0,05$), and the debut of mental illness has been found to be associated with prior intensive alcoholism ($p<0,05$). When describing real and symptomatic alcohol addiction, we did not take into account their dynamic relationship with one or another mental illness. Therefore, we proceeded to study the peculiarities of real and symptomatic dependence in patients with schizophrenia and organic brain damage – dominant nosologies in our contingent. Symptomatic dependence develops mainly against the background of the schizophrenia process, the dynamics of which correspond to the dynamics of endogenous disease, and the effect on the process of comorbid disorder is more ambiguous.

In half of patients who negatively affect the endogenous component of the concomitant disorder, the consumption of alcohol "for therapeutic reasons" is noted to relieve discomfort, mood swings, socialization, which in some cases helps to slow down the increase in defects and form a specific adaptation. In addition, relatively high rates of hereditary violence of alcohol dependence combined with schizophrenia for patients with alcohol dependence (25%) found no difference between the groups.

Just as alcohol withdrawal syndrome is not determined by the age of development – an indicator of physical dependence on alcohol, this can be explained by sufficiently high rates of symptomatic alcohol dependence in the group and a statistically significant increase in patients in the group who occasionally consume alcohol ($p<0,05$). In symptomatic alcoholism, alcohol withdrawal syndrome may not develop in 50% of people, as well as in patients who occasionally consume alcohol. However, these considerations describing the characteristics of a small part of the group contingent do not refute the conclusion that "alcoholism" in the group is younger and more dangerous.

CONCLUSION

Fundamental Finding : Alcohol addiction frequently co-occurs with paroxysmal-progressive schizophrenia and exogenous-organic diseases. In cases of premorbid exogenous-organic diseases, secondary true alcohol dependence worsens the primary illness, triggering exacerbations and reducing remission. In contrast, alcohol addiction in schizophrenia can have a beneficial effect by improving mood, alleviating discomfort, and helping individuals maintain social functioning, delaying the onset of a defective condition. **Implication :** These findings highlight the complex relationship between alcohol addiction and comorbid mental and physical health conditions. In clinical practice, addressing alcohol dependence in individuals with schizophrenia and exogenous-organic diseases could be crucial for enhancing both mental and physical well-being, offering new pathways for treatment. **Limitation :** This study's limitation lies in its observational nature, which cannot establish causality between alcohol addiction and comorbid conditions. Further research is needed to fully understand the mechanisms behind this interplay and the long-term effects of alcohol dependence on both schizophrenia and exogenous-organic diseases. **Future Research :** Future studies should explore the underlying biological and psychological mechanisms linking alcohol addiction with schizophrenia and exogenous-organic diseases. Longitudinal research could help identify the long-term impact of alcohol use on the progression of these conditions, as well as effective interventions for managing comorbid alcohol dependence.

REFERENCES

[1] S. Antsiborov et al., "Association of dopaminergic receptors of peripheral blood lymphocytes with the risk of developing antipsychotic extrapyramidal diseases," *Science and Innovation*, vol. 2, no. D11, pp. 29–35, 2023.

[2] S. Akramov, J. Buronov, and B. Turayev, "Clinical forms, course, and treatment methods of maniacal-depressive psychosis disease," *Modern Science and Research*, vol. 4, no. 1, pp. 176–185, 2025.

[3] A. D. Buriboyevna et al., "Hemorrhagic stroke—symptoms and treatment," *Western European Journal of Medicine and Medical Science*, vol. 2, no. 7, pp. 35–38, 2024.

[4] A. T. Djurabekova et al., "Perinatal damage of the central nervous system and its specific clinical manifestation in children born with vision analyzer disorders," *Uzbek Journal of Case Reports*, vol. 3, no. 3, pp. 77–79, 2023.

[5] X. D. Hamidullayevna and T. B. Temirpulotovich, "Features of psycho-emotional changes in women during pregnancy," *Journal of Science in Medicine and Life*, vol. 2, no. 3, pp. 71–77, 2024.

[6] X. D. Hamidullayevna and T. B. Temirpulotovich, "Features of psycho-emotional changes in women during pregnancy," *Journal of Science in Medicine and Life*, vol. 2, no. 3, pp. 71–77, 2024.

[7] X. D. Hamidullayevna and T. B. Temirpulotovich, "Personality and interpersonal relationships of primary school students with hyperactivity disorder of minimal brain dysfunction and attention deficit," *International Journal of Cognitive Neuroscience and Psychology*, vol. 2, no. 3, pp. 22–27, 2024.

[8] I. M. Holdorovna and T. B. Temirpulotovich, "Analysis of the psychopathological and neurophysiological profile of children left without parental care," *Journal of Science in Medicine and Life*, vol. 2, no. 3, pp. 63–70, 2024.

[9] I. M. Holdorovna and T. B. Temirpulotovich, "Analysis of the psychopathological and neurophysiological profile of children left without parental care," *Journal of Science in Medicine and Life*, vol. 2, no. 3, pp. 63–70, 2024.

[10] I. M. Holdorovna and T. B. Temirpulotovich, "Psychopathological features of long-term endogenous depression," *International Journal of Cognitive Neuroscience and Psychology*, vol. 2, no. 3, pp. 15–21, 2024.

[11] U. A. Ivanovich et al., "Efficacy and tolerance of pharmacotherapy with antidepressants in non-psychotic depression combined with chronic brain ischemia," *Science and Innovation*, vol. 2, no. 12, pp. 409–414, 2023.

[12] S. H. Jalilova, K. Kibriyev, and B. Turayev, "Contemporary accounts of schizophrenia," *Modern Science and Research*, vol. 4, no. 1, 2025.

[13] A. A. Kasimov et al., "Dimensional rhythmological model of depression," *Central Asian Journal of Medical and Natural Science*, vol. 4, no. 3, pp. 1133–1136, 2023.

[14] A. A. Kasimov et al., "Methods of diagnosing the early stages of Parkinson's disease," *World Bulletin of Public Health*, vol. 23, pp. 203–208, 2023.

[15] A. A. Kasimov et al., "Therapeutic potential and prospects for the use of Sermione (nicergoline) in neurological practice," *World Bulletin of Public Health*, vol. 23, pp. 198–202, 2023.

[16] M. N. Khudoynazarovich et al., "The basic principle of epilepsy treatment," *Western European Journal of Medicine and Medical Science*, vol. 2, no. 7, pp. 61–66, 2024.

[17] O. Konstantinova et al., "Clinical and psychological characteristics of patients with alcoholism and suicidal behavior," *Science and Innovation*, vol. 2, no. D11, pp. 399–404, 2023.

[18] O. Konstantinova et al., "Experience in the use of thiamine (vitamin B1) megadose in the treatment of Korsakov-type alcoholic encephalopathy," *Science and Innovation*, vol. 2, no. D12, pp. 564–570, 2023.

[19] V. Kosolapov et al., "Modern strategies to help children and adolescents with anorexia nervosa syndrome," *Science and Innovation*, vol. 2, no. D12, pp. 571–575, 2023.

[20] S. Lomakin et al., "Biopsychosocial model of internet-dependent behavior: Risk factors for the formation of internet addiction," *Science and Innovation*, vol. 2, no. D12, pp. 205–211, 2023.

[21] A. Lukasheva et al., "Psychosomatic relationships in different age groups of patients with facial dermatosis," *Science and Innovation*, vol. 2, no. D11, pp. 289–294, 2023.

[22] A. Malakhov et al., "Modern views on the treatment and rehabilitation of patients with dementia," *Science and Innovation*, vol. 2, no. D12, pp. 322–329, 2023.

[23] M. M. Mamurova, E. I. Kelesh, and V. Abrorova, "Current views on discirculatory encephalopathy in the background of hypothyroidism," *Vestnik Magistraturi*, no. 5-1 (128), pp. 12–14, 2022.

[24] M. M. Mamurova and R. S. Zhobborova, "Peculiarities in the development of chronic cerebrovascular pathology with arterial hypotension in young patients," *World Bulletin of Public Health*, vol. 9, pp. 168–170, 2022.

[25] M. Mavluda et al., "Incidence levels of ischemic heart disease in liver cirrhosis," *Research Journal of Trauma and Disability Studies*, vol. 3, no. 4, pp. 239–240, 2024.

[26] S. D. Nematillayevna et al., "Psychological factors for the formation of aggressive behavior in the youth environment," *Science and Innovation*, vol. 2, no. 12, pp. 404–408, 2023.
[27] R. A. Nikolaevich et al., "Comparative effectiveness of treatment of somatoform diseases in psychotherapeutic practice," *Science and Innovation*, vol. 2, no. 12, pp. 898–903, 2023.
[28] A. Novikov et al., "Alcohol dependence and manifestation of autoaggressive behavior in patients of different types," *Science and Innovation*, vol. 2, no. D11, pp. 413–419, 2023.
[29] A. Z. Nurmamatovna et al., "Psychoemotional status in patients with atopic dermatitis," *Western European Journal of Medicine and Medical Science*, vol. 2, no. 7, pp. 46–49, 2024.
[30] U. Ochilov et al., "Factors of alcoholic delirium pathomorphosis," *Science and Innovation*, vol. 2, no. D12, pp. 223–229, 2023.
[31] M. G. Olmosovna et al., "Ischemic stroke symptoms and treatment," *Western European Journal of Medicine and Medical Science*, vol. 2, no. 7, pp. 67–72, 2024.
[32] Y. Pachulia et al., "Assessment of the effect of psychopathic disorders on the dynamics of withdrawal syndrome in synthetic cannabinoid addiction," *Science and Innovation*, vol. 2, no. D12, pp. 240-244, 2023.
[33] S. Pogosov et al., "Psychogenetic properties of drug patients as risk factors for the formation of addiction," *Science and Innovation*, vol. 2, no. D12, pp. 186-191, 2023.
[34] N. Prostyakova et al., "Changes in the postpsychotic period after acute polymorphic disorder," *Science and Innovation*, vol. 2, no. D12, pp. 356-360, 2023.
[35] A. Rotanov et al., "Comparative effectiveness of treatment of somatoform diseases in psychotherapeutic practice," *Science and Innovation*, vol. 2, no. D12, pp. 267-272, 2023.
[36] R. Sadullayeva, M. Sharafova, and B. Turayev, "The development of psychoses in infectious diseases and their clinical features," *Modern Science and Research*, vol. 4, no. 1, pp. 124-129, 2025.
[37] V. Sedenkov et al., "Clinical and socio-demographic characteristics of elderly patients with suicide attempts," *Science and Innovation*, vol. 2, no. D12, pp. 273-277, 2023.
[38] M. Sedenkova et al., "The possibility of predicting the time of formation and development of alcohol dependence: the role of genetic risk, family weight and its level," *Science and Innovation*, vol. 2, no. D12, pp. 173-178, 2023.
[39] V. Shamilov et al., "Disorders of decision-making in the case of depression: clinical evaluation and correlation with EEG indicators," *Science and Innovation*, vol. 2, no. D12, pp. 198-204, 2023.
[40] D. Sharapova et al., "Clinical and socio-economic effectiveness of injectable long-term forms of atypical antipsychotics in schizophrenia," *Science and Innovation*, vol. 2, no. D12, pp. 290-295, 2023.
[41] Y. Solovyova et al., "The relevance of psychotic disorders in the acute period of a stroke," *Science and Innovation*, vol. 2, no. D12, pp. 212-217, 2023.
[42] M. Spirkina et al., "Integrated approach to correcting neurocognitive defects in schizophrenia," *Science and Innovation*, vol. 2, no. D11, pp. 76-81, 2023.
[43] S. Sultanov et al., "Assessment of dental status in patients with schizophrenia," *Modern Science and Research*, vol. 4, no. 1, pp. 271-278, 2025.
[44] S. Sultanov et al., "Methods for assessing the psycho-emotional state of patients on an outpatient basis," *Modern Science and Research*, vol. 4, no. 1, pp. 262-270, 2025.

[45] S. Sultanov et al., "Psychotherapeutic preparation for orthopedic treatment of dental patients and adaptation to prosthetics," *Modern Science and Research*, vol. 4, no. 1, pp. 290-296, 2025.

[46] S. Sultanov et al., "Psychotherapeutic problems in the process of treatment in various areas of medicine," *Modern Science and Research*, vol. 4, no. 1, pp. 279-289, 2025.

[47] T. B. Temirpulotovich, "Clinical course of alcoholic polyneuropathy and alcoholic myopathy observed in alcoholism," *Journal of Medical Genetics and Clinical Biology*, vol. 2, no. 3, pp. 34-41, 2025.

[48] T. B. Temirpulotovich, "Clinical pictures of cognitive dysfunctions observed in alcoholism," *Journal of Medical Genetics and Clinical Biology*, vol. 2, no. 3, pp. 42-50, 2025.

[49] T. B. Temirpulotovich et al., "Ways to develop speech and overcome them in children with cerebral palsy," *European Journal of Modern Medicine and Practice*, vol. 4, no. 2, pp. 355-368, 2024.

[50] M. Tursunboyev, M. Yaxyayev, and B. Turayev, "Clinical psychopathological features of sleep disorders," *Modern Science and Research*, vol. 4, no. 1, pp. 130-139, 2025.

[51] H. E. D. Ugli et al., "Modern views on cerebrasthenic syndrome in children," *Western European Journal of Medicine and Medical Science*, vol. 2, no. 7, pp. 77-80, 2024.

[52] A. Uskov et al., "Atypical anorexia nervosa: features of preposition and premorbid," *Science and Innovation*, vol. 2, no. D12, pp. 310-315, 2023.

[53] O. U. Usmanovich, T. B. Temirpulotovich, "Morphofunctional foundations of the development of vascular cognitive and emotional disorders," *International Journal of Cognitive Neuroscience and Psychology*, vol. 2, no. 2, pp. 15-21, 2024.

[54] N. Viktorova et al., "Opportunities for comprehensive psychometric assessment of anxiety states in late-age dementia," *Science and Innovation*, vol. 2, no. D11, pp. 90-96, 2023.

[55] Z. Absalamova et al., "The effect of melatonin in Alzheimer's disease (literature review)," *Eurasian Journal of Academic Research*, vol. 3, no. 6, part 3, pp. 178-188, 2023.

[56] U. Anvarov et al., "Neuroimaging and neuropsychological studies in the clinic of mild and moderate traumatic brain injury," *Central Asian Journal of Education and Innovations*, vol. 2, no. 6, part 6, pp. 190-205, 2023.

[57] J. Jurakulov et al., "Results of intravenous ozonotherapy in patients with chronic brain ischemia," *Journal of Problems in Biology and Medicine*, no. 2 (94), pp. 35-39, 2017.

[58] J. Zaripov and M. Mamurova, "Early diagnosis of Parkinson's disease and prediction of the transformation of essential tremor," *Current Approaches and New Research in Modern Sciences*, vol. 3, no. 5, pp. 56-59, 2024.

[59] S. Zaripov et al., "Mitochondrial dysfunction in neurodegenerative diseases (literature review)," *Eurasian Journal of Academic Research*, vol. 3, no. 6, part 3, pp. 169-177, 2023.

***Gaybiyev Akmal Axmadjonovich (Corresponding Author)**
Samarkand State Medical University, Uzbekistan

Mamurova Mavludaxon Mirxamzayevna
Samarkand State Medical University, Uzbekistan

Turayev Bobir Temirpulotovich
Samarkand State Medical University, Uzbekistan