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THE PATHOPLASTICITY OF THE COGNITIVE POOL WITH THE COMORBIDITY OF PARANOID SCHIZOPHRENIA AND HEMOCEREBRAL DISORDERS

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Resume

The problem of the pathoplastic effect on the manifestations of cognitive changes in paranoid schizophrenia, that is, its modification under the influence of hemodynamic disorders of the brain manifesting itself as an input factor, remains insufficiently studied until recently. Although there is an unconditional connection between pathoplasty and pathomorphism of both the disease as a whole and the pool of cognitive impairment, in the reviewed studies it is presented very vaguely and refers rather to some factors of a global scale than to the establishment of specific correlation interdependencies.

Key words: pathoplasty, pathomorphism, cognitive pool, paranoid schizophrenia hemocerebral disorders.

ПАТОПЛАСТИЧНОСТЬ КОГНИТИВНОГО ПУЛА У БОЛЬНЫХ ПАРАНОИДНОЙ ШИЗОФРЕНИИ КОМОРБИДНОЙ ЦЕРЕБРАЛЬНО-ГЕМОДИНАМИЧЕСКИМИ НАРУШЕНИЯМИ

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Резюме

Проблема недостаточного изучения патопластического влияния в манифестации когнитивных нарушений при параноидной шизофрении, то есть модификаци под влиянием церебрально-гемодинамических нарушений, проявляющихся как ведущий фактор, в настоящее время остается не до конца изученной. Связь между патопластичностью и патоморфозом имеет значение при когнитивных нарушениях.

Ключевые слова: *патопластичность, патоморфоз, когнитивные нарушения, параноидная шизофрения, церебрально-гемодинамические нарушения*

ПАРАНОИД ШИЗОФРЕНИЯДА КОГНИТИВ ПУЛ ВА ЦЕРЕБРАЛ- ГЕМОДИНАМИК БУЗИЛИШЛАР БИЛАН КОМОРБИТЛИГИ

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Резюме

Параноид шизофрениянинг манифентсация даврида когнитив бузилишлар ривожланиш даврида патопластик жараённи роли катта. Параноид шизофренияда церебрал- гемодинамик бузилишларида патоморфоз ўзгаришлар замонавий тиббиётда ҳали тўлиқ ўрганилмаган.

Калит сўзлар: *патопластик, патоморфоз, когнитив бузилишлари, параноид шизофрения, церебрал-гемодинамик бузилишлари*

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Introduction

The comorbid relationship between the two diseases always carries a series of completely new phenomena that any doctor has to deal with in his practice, but the same new ground appears for academic medicine, new horizons are opening up in the study of these phenomena and a deeper understanding of the laws of biology. This is especially important when it comes to the human brain, and two such pillars of brain pathology as paranoid schizophrenia and hemocerebral disorders [1,2]. It is indisputable that these two pathologies mutually influence each other, determining unique new pathological phenomena that are found in clinical practice.

Involvement of common anatomical structures realizing a whole range of disorders of the higher nervous activity of a person [2]. The active process and changes in the neurochemical pattern both at the level of functional disorders characteristic of paranoid schizophrenia, and at the structural level characteristic of hemocerebral pathology, leads to a distortion of neuroplasticity.

The growth of hemocerebral disease and their rejuvenation are urgent problems of particular importance for the course of a disease such as paranoid schizophrenia [3]. Over the past few decades, the problem of cognitive deficiency in paranoid schizophrenia has become an urgent problem for psychiatrists and neurobiologists, in this light it is quite logical that such comorbidity as paranoid schizophrenia and hemocerebral disorders came into the view of researchers [4,5].

There is no doubt that hemocerebral disorders have their own specific pool of cognitive impairment; numerous works by various authors [5] confirm that they prove this exhaustively. In general, cognitive disorders of varying severity are detected in 40-70% of stroke patients, on average, in about half of patients (Bowler J.V., Hachinski V., 2002). The presence of even mild cognitive impairment in patients with vascular pathology of the brain is considered by a number of authors (Frisoni G.B., Galluzzi S., Bresciani L. et al., 2002) to be prognostically unfavorable. In particular, mortality among this group of patients is 2.4 times higher than in people of the corresponding age group in the population. According to the results of the study (Usoltseva NI, Levin OS, 2007), the presence of cognitive impairment that does not even reach the degree of dementia is an unfavorable prognostic factor that portends a poorer restoration of neurological functions and functional status. At the same time, it is noted that cognitive impairment in this condition is defined as more gross carrying a heavy imprint of organic pathology. In their classic works N.C. Andreasen identifies a number of violations of character. for hemocerebral disorders, such as obduction of speech, its excessive brevity, monosyllabicity, semantic fuzziness, nebula, slowness and stereotypic thinking, impaired attention and memory. In general, analysis of literature data shows that the hemocerebral process is not reduced to individual biological or psychosocial manifestations. It is a complex integrative phenomenon, in the structure of which cognitive disunity occupies a special place [7,8].

Data on the degree, profile, causes, and correlates of cognitive impairment in schizophrenia are scattered and contradictory. To date, much evidence has been gathered that paranoid schizophrenia is associated with impaired many cognitive functions (Green M.F. et al., 2004). They are found in healthy relatives of the first degree of kinship, in patients already in childhood, in the premorbid disease, most clearly manifested in high-risk conditions - psychopathological diathesis (Sheinina N.S., Kotsyubinsky A.P., Skorik A.I., Chumachenko A.A., 2008; Sofronov A.G., Spikina A.A., Savelyev A.P., Pashkovsky V.E., 2011). In the prodromal period of schizophrenia, an increase in cognitive deficit associated with morphological and functional changes in the brain, which leads to the development of psychosis (Janushko M.G. et al., 2014; Welham J. et al., 2009), during which cognitive impairment persists (Lesh T.A. et al., 2011). Patients with endogenous psychoses already at the first hospitalization have impaired cognitive functioning, and in patients with schizophrenia they are most pronounced (Reichenberg A. et al., 2009) [3].

The problem of the pathoplastic effect on the manifestations of cognitive changes in paranoid schizophrenia, that is, its modification under the influence of hemodynamic disorders of the brain manifesting itself as an input factor, remains insufficiently studied until recently [2]. Although there is an unconditional connection between pathoplasty and pathomorphism of both the disease as a whole and the pool of cognitive impairment, in the reviewed studies it is presented very vaguely and refers rather to some factors of a global scale than to the establishment of specific correlation interdependencies. It should be emphasized that if the study of the pathoplastic characteristics of changes in cognitive functions involves primarily an analysis of constitutional, age, psychogenic, social and other, including unexpected and random factors, then in the analysis of pathomorphism, as

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a rule, some large-scale phenomena acting stably for decades, no doubt what are hemocerebral disorders. With all the abundance of information about the pathoplasticity of schizophrenia, the lion's share of it, as already noted, is in the study of pharmacotherapy, while in the literature we are reviewing about the phenomenon of cognitive pathoplasticity in case of comorbid states, there is not enough information [8].
The purpose of the study was to study the pathoplasticity of the cognitive pool with the comorbidity of paranoid schizophrenia and hemocerebral disorders.

Materials and methods

The design of the work is a study of the cognitive functioning of patients with paranoid schizophrenia and comorbid hemocerebral disorders with them, an analysis of their anamnestic, clinical and psychometric characteristics.

The study was conducted at the Tashkent City Clinical Psychiatric Hospital. 71 patients with a verified diagnosis in accordance with ICD-10 paranoid schizophrenia (F-20.0) were examined. The study group consisted of 48 patients from the study group were excluded respondents who had other chronic diseases, namely cardiovascular disease, diabetes, thyroid disease, addictive disorders associated with the use of psychoactive substances, etc. The comparison group included 23 patients with a diagnosis of paranoid schizophrenia without acute or chronic hemacerebral pathology. To achieve this goal, experimental psychological psychological and statistical research methods were used. Psychometric evaluation was performed using the Positiveand Negative SyndromeScale - PANSS scale. The modern version of the scale consists of 33 features, evaluated on the basis of a formal semi-structured or fully structured clinical interview and other sources of information. The severity of the symptom is evaluated by a 7-point system. For each symptom and gradation of its severity, a thorough operational definition and precise instructions for its identification are given.

Assessment of the intellectual-mnestic sphere was carried out using a number of psychometric scales: Schulte tables, “Memorizing 10 words”, “4th extra”.

Schulte tables are a set of numbers (from 1 to 25) arranged randomly in cells. The subject must show and name in a given sequence (usually increasing from one to twenty-five) all numbers. The test subject is offered five non-identical Schulte tables in a row, in which the numbers are arranged in different order. The time spent by the test subject on showing and naming the entire series of numbers in each table separately is recorded.

Test for memorizing 10 words. Two categories were used to evaluate semantic verbal fluency: “animals” and the composite category “fruits and berries”. The subject was given the following instructions: “At my command, start calling the animals. Call me until I stop you. Let's see how many animals you can remember in 1 minute. We started. " After the end of the first test, the experimenter asked the subject to name the fruits and berries. When calculating the result, words that were repeatedly named or did not belong to the indicated categories, as well as the names of animal sub-categories, such as “fish” or “birds,” were excluded. The WB indicator was the total number of correctly named words in the first and second samples. The test was presented as part of a wide experimental psychological examination. Patients were examined after clinical improvement, before discharge. Typically, healthy subjects reproduce 10 words after 3-4 repetitions (sometimes, with trained memory - after 2 repetitions). After 20-30 minutes, the subject is asked to repeat the words he remembered. In cases where memory impairment is determined clinically, this is done earlier, after 10-15 minutes. After another 30 minutes, the subject is again asked to repeat the words he remembered. In the protocol of experience, the words referred to the patient (correctly and erroneously) are noted. The results of the memory test are displayed graphically. "4th superfluous." The level of verbal-logical thinking, the ability to generalize and highlight the essential features in the subject necessary for generalization are evaluated. Four words are read, three of which are interconnected in meaning, and one word does not fit the rest. It is proposed to find a “superfluous” word and explain why it is “superfluous”.

The second task of evaluating problem-solving behavior was the Tower of London Test, developed by T. Shallice [Shallice, 1982], which is used in applied clinical neuropsychology to evaluate executive functioning specifically to identify planning deficits. Tests of the test material: consists of 10 tasks in a structured and unified form for all respondents. The subject is shown two sets of stimuli consisting of each of three colored chips. Chipsets are arranged in such a way that they can easily be represented as colored chips stacked in a column. The suggested algorithm of the respondent’s actions was that the subject should make sure that the set of chips in the lower part of the proposed table completely copied the arrangement of the chips in the upper part of the

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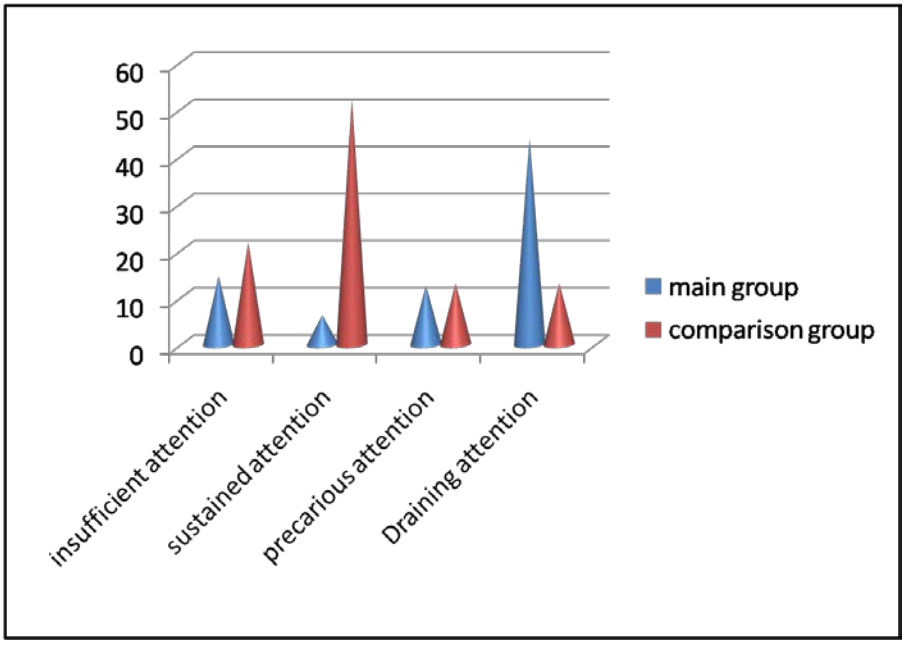
proposed table. The chips need to be moved one at a time, simply by clicking on the selected chip first, and then on the position where the subject suggests putting it. The time spent by the subject in changing the position of the balls and the number of moves he makes for this is a characteristic of the subject's ability to plan. The time taken to determine the tactics for completing the task, the time spent directly on solving the task, the number of moves, the number of errors was taken into account, the ability of respondents was evaluated taking into account the experience of the mistakes made to apply this information for a more rational solution of the problem.

Result and discussion

The total number of examined patients is 71 people. Of these, 39 were men, 32 - women. The age of patients ranged from 18 to 60 years. Investigation of the influence of the characteristics of the psychopathological profile on cognitive impairment, we made psychometric measurements using the PANSS scale, the study design corresponded to the classical form of this test described above. In the study group, the indicators of the composite PANSS score averaged μ -3.25 ± 3.26, which corresponds to the prevalence of negative symptoms. Emotional fencing is manifested by a lack of interest in life phenomena, participation in them and a feeling of emotional involvement in them. The severity is assessed by information received from medical personnel and relatives, as well as by the results of monitoring the patient's behavior during a conversation. Passive apathetic social fencing is manifested by a decrease in interest and initiative in social relations due to passivity, apathy, loss of energy and strong-willed motives, which leads to a decrease in sociability and neglect of everyday activities. The severity is assessed according to the information on the social behavior of the patient received from medical personnel and relatives. Violations of abstract thinking are determined by a disorder of abstract-symbolic thinking, manifested in the difficulty of classification and generalization, as well as inability to escape from specific or egocentric methods of solving problems. The severity is evaluated by answering questions about the semantic commonality of objects or concepts, the interpretation of proverbs and the prevalence of specific thinking over abstract in the process of conversation.

Assessment of the intellectual-mnestic sphere. Attention disorder is a disorder of focused attention, manifested in a lack of concentration, increased distractivity, difficulty concentrating, maintaining, switching attention to new objects. The severity is evaluated based on observation of the patient during the conversation. When studying attention using Schulte tables, the following was revealed: in the study group, 7 (14.5%) showed a sufficient concentration of attention, and 11 (22.9%) showed insufficient concentration on the object. Sustained attention had 3 (6.25%) and unstable 6 (12.5%) patients. Also present were patients in whom attention was characterized as exhausted - 21 (43.7%).



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In the comparison group, 5 (21.7%) patients had insufficient attention, 12 (52.1%) and unstable 3 (13%) subjects had stable attention. Exhaustible attention was found in 3 (13%) patients from the comparison group.

Memory is the mental process of capturing (remembering), preserving and reproducing past experiences. Memory disorders in mental and somatic diseases are manifested by a violation of the ability to memorize, hold and reproduce acquired material. It is possible to reduce the ability to memorize against the background of impaired attention during the development of overwork conditions, as well as during convalescence after somatic diseases. Data on the mnestic sphere are presented in table 2

INDICATORS OF THE MNESTIC SPHERE

Cognitive indicator	Main group n = 48		Comparison group n = 23	
	Verbal memory	Control functions	Verbal memory	Control functions
Working memory	6,12	3,12	7,1	
Semantic verbal fluency	4,51	3,02	4,31	
Short-term verbal memory	7,2	4,2	7,41	
Verbal Learning	6,1	----------	7,2	----------

Test completion The Power of London Test passed across all respondents through a standard time interval. At this stage of the experiment, 48 patients from the main group (patients with aggressive behavior revealed as a result of the previous test) and 23 patients from the comparison group refused to go through it further. Thus, 48 and 23 patients, respectively, proceeded to the second stage of testing in the main group and the comparison group. When explaining the conditions for the second stage of testing, a significant part of the respondents of both the main group and the comparison group experienced some problems with understanding the new task conditions, 48 (51.5%) patients of the main group and 23(47.3%) patients of the comparative group From the first try to accept new information, 23 (27.5%) of the main group and 48 (26.3%) comparison groups formally agreed with the new conditions for completing the task, but when the test was carried out directly, it was carried out as prescribed by the first test. The results obtained do not contradict the literature data and are to some extent explained by a violation of the “flexibility of thinking” in patients with paranoid schizophrenia with cerebral and vascular pathology. When performing the task, the patients of the main group took an average of 25.4 ± 9.1 minutes to complete all the tasks presented, the comparison group to achieve the final result took an average of 21.2 ± 8.2 minutes. The decrease in the level of attention was clearly visible in both groups, since the first half of the tasks in the study group on average for solving five tasks took an average of 7.2 ± 4.1 minutes; in the comparison group this indicator was close and amounted to 6.3 ± 4.0 minutes. Groups solved the second half of the task with a significant increase in the time spent, the indicators were, in the study group, the average indicator was 18.2 minutes, and similar indicators in the comparison group 14.9 minutes. The quality of solving problems, characterized by the number of repeated errors, fell significantly in both groups. The average number of unjustified errors in the study group was 101 ± 10, and in the comparison group78 ± 7. The positive aspect was that patients who started the second stage of the psychological experiment in both groups completed it without side effects. The differences embedded in the different stages of the study with apparent identity allowed us to establish that patients with paranoid schizophrenia with cerebral and vascular pathology have significant impairments in the field of flexibility of thinking, and in both cases it was difficult for patients of both groups to switch from one task condition to another, thus the indicators of our experiment do not contradict the data of other researchers. During the experiment, we were able to find out that in patients with paranoid schizophrenia with cerebral and vascular, cognitive impairment is significantly more pronounced. To a greater extent, this group of patients shows a decrease in indicators of problem-solving behavior,

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which in turn is one of the reasons for more difficult social adaptation of this group of patients. In the group of patients with paranoid schizophrenia with cerebral and hemodynamic disorders, there is a clear violation of the sequence of decision-making, which leads to disorganization of the adopted strategic line for solving the problem.

Conclusions

During the examination it was determined that the intellectual-mnestic abilities of patients with paranoid schizophrenia with concomitant viral hepatitis are characterized by inertia with signs of exhaustion, a weakening of voluntary attention, a decrease in the level of generalization and distraction, abstract thinking. It was found that in most patient's neurocognitive impairment was present before the development of productive symptoms of schizophrenia and persisted during periods of remission of positive symptoms. Significant ($p < 0.01$) differences between the 1st and 2nd group of patients; the indicators of attention, spatial orientation, motor coordination, long-term memory, verbal associative productivity, logical thinking, and violations in the lexical system also differed significantly ($p < 0.05$).

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BRAIN STROKES IN ECOLOGICALLY UNFAVORABLE AREAS OF THE ARAL SEA REGION

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Resume

Brain strokes in the Aral Sea region are characterized by a predominance of patients of working age (average age 57 years) and the main cause of all forms of cerebral strokes is hypertension (58%).Relatively high proportion of hemorrhagic strokes (4: 1). The most unfavorable months in Urgench for patients with cerebrovascular diseases are: January, February, March, May and December, and the critical days are days with III-IY types of weather with spastic and hypoxic effects of the atmosphere.

Key words: *cerebral strokes, ischemic and hemorrhagic strokes, risk factors, hypertension, atherosclerosis, weather and climatic factors.*

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