Международный
научно-практический
журнал

ПСИХИАТРИЯ
ПСИХОТЕРАПИЯ
и клиническая психология

psihea.recipe.by
psihea.recipe.com.ua

2021, том 12, № 2

Основан в 2010 г.

Беларусь

Учредители:
ОО «Белорусская психиатрическая ассоциация»,
ОО «Белорусская ассоциация психотерапевтов»,
УП «Профессиональные издания»

Журнал зарегистрирован
Министерством информации Республики Беларусь.
Свидетельство № 610 от 19.10.2010

Адрес редакции:
220049, ул. Кнорина, 17,
г. Минск, Республика Беларусь.
Тел.: (017) 322-16-59, 322-16-76,
322-16-77, 322-16-78
e-mail: psihea@recipe.by

Директор Евтушенко Л.А.
Заместитель главного редактора Глушук В.А.
Руководитель службы рекламы и маркетинга Коваль М.А.
Технический редактор Каулькин С.В.

Украина

Учредители:
УП «Профессиональные издания»,
Национальный университет здравоохранения Украины имени П.Л. Шупика

Журнал зарегистрирован
Министерством юстиции Украины
Свидетельство о государственной регистрации КВ № 24796-14736ПР

Адрес редакции:
ООО «Профессиональные издания. Украина»
04116, г. Киев, ул. Старокиевская, 10-Г, сектор «В», офис 201.

Контакты:
Тел.: +38 (096) 851 40 34
e-mail: admindom@ukr.net

Отдел рекламы:
Тел.: +38 (067) 102 73 64
e-mail: pi_info@ukr.net

Россия

Учредители:
ООО «Вилин»
При содействии ФГБУ «Федеральный медицинский исследовательский центр психиатрии и наркологии» Министерства здравоохранения Российской Федерации

Журнал зарегистрирован
Федеральной службой по надзору в сфере связи, информационных технологий и массовых коммуникаций.
Свидетельство
ПИ №ФС77-64063 от 18.12.2015 г.

Офис в России:
ООО «Вилин»
214006, Смоленск, пст Пасово
Тел./факс: +7 920 301 00 19
e-mail: office@recipe.by

Подписка
в каталоге РУП «Белпочта» (Беларусь) индивидуальный индекс 01078; ведомственный индекс 010782.

01078 – единый индекс в электронных каталогах «Газеты и журналы» на сайтах агентств: ООО «Информнаука», ЗАО «МК-Периодика», ГП «Пресса» (Украина), ГП «Пошта Молдовей» (Молдова), АО «Летувос паштас» (Литва), ООО «Подписное агентство PKS» (Латвия), Фирма INDEX (Болгария), Kubon&Sagner (Германия)

Электронная версия журнала доступна на сайте psihea.recipe.by, в Научной электронной библиотеке elibrary.ru, в базе данных East View, в электронной библиотечной системе IPRbooks.

По вопросам приобретения журнала обращайтесь в редакции в Минске и Киеве.

Журнал выходит 1 раз в 3 месяца.
Цена свободная.

Подписано в печать: 24.05.2021.
Тираж 700 экз. (Беларусь).
Тираж 1 500 экз. (Украина).
Тираж 3 500 экз. (Россия).

Заказ №
Формат 70x100 1/16. Печать офсетная

Отпечатано в типографии

Рецензируемое издание
Журнал включен в международные базы Scopus, EBSCO, Ulrich's Periodicals Directory, РИНЦ.

Входит в Перечень научных изданий Республики Беларусь для опубликования результатов диссертационных исследований (решение коллегии ВАК от 12.06.2009, протокол № 11/6).

International Scientific Journal

PSYCHIATRY PSYCHOTHERAPY and Clinical Psychology

PSIHIATRIJA, PSIHOTERAPIJA I KLINICHESKAJA PSIHOLOGIJA

psihea.recipe.by
psihea.recipe.com.ua

2021 Volume 12 Number 2

Founded in 2010

Belarus

Founder:
UE "Professional Editions",
The Belarusian Psychiatric Association,
The Belarusian Association
of Psychotherapists

The journal is registered
in the Ministry of information
of the Republic of Belarus.
Registration certificate № 610 19.10.2010

Address of the editorial office:
220049, Minsk, Knorin str., 17,
Republic of Belarus.
Phone: (017) 322-16-59, 322-16-76,
322-16-77, 322-16-78,
e-mail: psihea@recipe.by

Director Evtushenko L.
Deputy editor-in-chief Glushuk V.
Head of advertising and marketing
Koval M.
Technical editor Kaulkin S.

Ukraine

Founder:
UE "Professional Editions",
Shupyk National Healthcare
University of Ukraine

The journal is registered
at the Ministry of Justice of Ukraine
State registration certificate
КВ № 24796-14736ПР

Adress of the Editorial office:
LLC "Professional Editions. Ukraine"
04116, Kyiv, Starokievskaya str., 10-g,
sector "B", office 201

Contacts:
Phone: +38 (096) 851 40 34
e-mail: admindom@ukr.net

Department of marketing:
phone: +38 044 33-88-704, +38 067 102-73-64
e-mail: pi_info@ukr.net

Russia

Founder:
LLC "Vilin"
With assistance of FSBI "Federal Medical
Research Centre of Psychiatry and Addiction"
Ministry of Health of the Russian Federation

The journal is registered
in the Federal Service for Supervision
of Communications, Information
Technology, and Mass Media.
Registration certificate
№ ФС77-64063 of 18.12.2015

Representative in Russia:
LLC «Vilin»
214006, Smolensk, Pasovo
Phone/fax: +7 920 301 00 19
e-mail: office@recipe.by

Subscription:
in the Republican unitary enterprise "Belposhta" individual index – 01078; departmental index – 010782.

Index **01078** in the electronic catalogs "Newspapers and Magazines" on web-sites of agencies: LLC "Interpochta-2003" (Russian Federation); LLC "Informnauka" (Russian Federation); JSC "MK-Periodika" (Russian Federation); SE "Press" (Ukraine); SE "Poshta Moldovey" (Moldova); JSC "Letuvos pashtas" (Lithuania); LLC "Subscription Agency PKS" (Latvia); INDEX Firm agency (Bulgaria); Kubon&Sagner (Germany)

The electronic version of the journal is available on psihea.recipe.by, on the Scientific electronic library elibrary.ru, in the East View database, in the electronic library system IPRbooks.

Concerning acquisition of the journal address to the editorial office in Minsk and Kyiv.

The frequency of journal is 1 time in 3 months.
The price is not fixed.

Sent for the press 24.05.2021.
Circulation is 700 copies (Belarusian).
Circulation is 1 500 copies (Ukraine).
Circulation is 3 500 copies (Russian).

Order №
Format 70x100 1/16. Litho

Printed in printing house

Peer-reviewed edition
The Magazine is Included in the International Databases of Scopus, Ebsco, Ulrich's Periodicals Directory, RSCI.

The Journal is Included into a List of Scientific Publications of the Republic of Belarus for the Publication of the Results of the Dissertation Research (HCC Board Decision of 12.06.2009, Protocol No. 11/6).

IN THE ISSUE

DOI 10.34883/PI.2021.12.2.004

Korovina L., Strelnikova I., Radchenko T.
Kharkiv National Medical University, Kharkiv, Ukraine

Коровина Л.Д., Стрельникова И.Н., Радченко Т.Н.
Харьковский национальный медицинский университет, Харьков, Украина

Features of Cognitive Functioning In Patients with Paranoid Schizophrenia and Concomitant Cerebrovascular Pathology

Особенности когнитивного функционирования пациентов с параноидной формой шизофрении, сочетанной с цереброваскулярной патологией

Abstract

Current international research is increasingly giving more and more attention to the coupled prevalence of paranoid schizophrenia and somatoneurological pathologies, including the presence of concomitant cerebrovascular disease (CVD). The features of clinical picture of cognitive functioning of patients with paranoid schizophrenia in combination with CVD determine the subject of this study. There were examined 59 female patients with paranoid schizophrenia with and without associated CVD. The study data demonstrate that the study group had a higher level of overall psychopathology, including anxiety, depression, disorders of attention, and decrease of cognitive function, if compared with the control group. The obtained data formed the base for the development of personalized approaches in the treatment of the examined patient population.
Keywords: paranoid schizophrenia, cerebrovascular pathology, cognitive functioning.

Резюме

В современных международных исследованиях все больше внимания уделяется распространенности параноидной шизофрении, сочетанной с соматоневрологической патологией, включая наличие сопутствующих цереброваскулярных заболеваний (ЦВЗ). Особенности клинической картины когнитивного функционирования пациентов с параноидной шизофренией в сочетании с цереброваскулярными заболеваниями определяют предмет настоящего исследования. Обследовано 59 пациенток с параноидной шизофренией с ЦВЗ и без них. Данные исследования демонстрируют, что исследуемая группа пациенток имеет более высокий уровень общей психопатологии, включая тревогу, депрессию и расстройства внимания, а также снижение когнитивной функции, по сравнению с контрольной группой. Полученные данные легли в основу разработки персонифицированных методов лечения исследуемой популяции пациенток.
Ключевые слова: параноидная шизофрения, цереброваскулярная патология, когнитивное функционирование.

НА ПЕРВУЮ | НА СЛЕДУЮЩУЮ | НА ПРЕДЫДУЩУЮ | К СОДЕРЖАНИЮ

■ INTRODUCTION

The separation of schizophrenia into forms was initially supported by the idea of determining the prognosis and adaptation possibilities. At the present stage of the development of the research of schizophrenia, many researchers are moving away from this classical division. Firstly, the modern arsenal of drugs and non-drug methods of treatment helps to achieve high-quality remission. Secondly, pathomorphosis, including drug, erases clear frameworks and criteria. More and more scientific studies are aimed at studying the residual (deficient) symptoms of the disease, cognitive decline, and the possibility of active functioning, despite the presence of the pathological process [1, 2].

Under the influence of various factors (medicinal and non-medicinal), the classical picture of paranoid schizophrenia is obliterated. Drug therapy has always introduced certain components in the pathomorphism of the disease. With the introduction of atypical antipsychotics into clinical practice, many scientific works devoted to the study of somatic disorders in this category of patients began to appear. Various studies confirm the negative impact of modern antipsychotic drugs on glucose tolerance, weight gain, and the development of dyslipidemia. Prevailing disorders lead to the development of acute and chronic vascular disorders, including cerebrovascular pathology (CVP), which are manifested not only by cerebral but also by focal symptoms. In many cases, according to modern literature, CVP manifests itself slowly, combined with mild cognitive deficit [3–5].

Despite the long-term study of mental activity, cognitive function, due to its versatility, remains poorly understood. In the structure of cognition, perceptual function, memory, thinking, learning ability, and, according to some researchers, attention are distinguished.

Changes that occur in the mental areas responsible for the cognitive component of the personality lead to violation of the adaptation processes associated with self-realization, initiative, dynamism, and creativity [6, 7].

The ability to apprehend, study and memorize information, in addition to the experience gained with time, that is, possessing a certain mental development coefficient (IQ), is inherent in human beings and confirms the continuity of their mental activity. This ability changes while aging, as well as under the influence of various pathological processes. Traditionally, schizophrenia and schizophrenic spectrum disorders have been separated from organically caused (atherosclerosis, brain damage, atrophy) mental disorders. The thesis that patients with schizophrenia formally preserve memory, intelligence, and attention is undergoing considerable changes [8–11].

Memory, as a process of cognition, employing encoding, storage, and retrieval of information has several functions. On the one hand, it is the availability of factual information about the world (declarative memory). On the other hand, it is information that allows people to perform sequential operations (procedural/random access memory). Its belonging to knowledge is generally accepted and non-discriminatory.

Such mental function as attention raises many questions. Attention can be perceived as an independent mental process and as an auxiliary one, as it participates in the functioning of other mental processes. Some researchers consider a separate mental process and associate it to cognition, while other scientists consider attention within the structure of the effector-volitional

sphere. Attention is the ability to concentrate and switch focus, the orientation, selectivity as well as safety of the mental activity. It is carried out through the dominance and irradiation of nervous processes in the reticular formation. At the same time, attention is impossible without cortical influence, which ensures focus and orientation. The zone of attention coincides with the so-called zone of clear consciousness [6, 7].

In modern scientific literature, conflicting data are presented, testifying both in favor of reducing memory and attention in patients with schizophrenia, and data that cast doubt on it. Given the foregoing, this study is devoted to the study of cognitive functioning, in particular memory and attention in patients with schizophrenia, given that these mental functions also suffer from other acute and chronic vascular, atrophic and neurodegenerative brain changes [3, 4].

■ PURPOSE OF THE STUDY

Assess qualitatively and quantitatively the changes in cognitive functions, in particular memory and attention, as well as confirm the assumption of pathomorphism of paranoid schizophrenia in women with concomitant cerebrovascular pathology.

■ CONTINGENT AND RESEARCH METHODS

The selection of the contingent for the study was carried out in two stages, in compliance with the rules of ethics and bioethics, the law "On Psychiatric Care", and obtaining voluntarily informed consent to participate in the study. At the initial stage, 59 female patients suffering from paranoid schizophrenia and being treated in 1 psychiatric ward of the KNP KHP OKPB No. 3 were selected during 2018–2019.

The inclusion criteria were: female gender, the presence of an established diagnosis of paranoid schizophrenia for at least 5 years, treatment with atypical antipsychotics for at least 2 years, participants aged 30–45 years.

The exclusion criteria were: a history of electroconvulsive therapy, a history of insulin-coma therapy, the presence of premorbid and uncompensated combined somatic and endocrine pathology, the presence in the history of acute cerebrovascular accident or myocardial infarction, premenopause and menopause, and long-term therapy with clozapine.

In the second stage of the study, 2 groups were selected from this cohort: the study group and the control group. The study group consisted of 29 female patients with a diagnosis of paranoid schizophrenia and with concomitant chronic cerebrovascular pathology (CVP). The control group consisted of 30 patients with paranoid schizophrenia who did not have concomitant cerebrovascular pathology.

The present study used clinical-psychopathological, clinical-anamnestic, psychodiagnostic, and statistical methods. When using the clinical-psychopathological method, clinically directed questioning and observation are involved, leading psychopathological phenomena in the examined contingent are evaluated.

The clinical-anamnestic method included collecting a subjective and an objective medical history and working with archival documents (medical history, epicrises from the psychoneurological dispensary (KNP KHOR "GPND No. 3")).

The psycho-diagnostic method included the use of the PANSS method, the Proof Test, and the 10-word memory test with an analysis of the results.

The 10-word memorization test proposed by A.R. Luria made it possible to assess the state of memory (auditory, mechanical memorization, and reproduction) and attention (fatigue, exhaustion, voluntary attention). This technique is applicable for the diagnosis of impaired cognitive mental functions, both in organic diseases of the brain and in other mental pathologies, both in adults and children over 5 years old.

For the sake of research, subjects were offered monotonous, simple words, with the same number of syllables, not connected in meaning by associations. The material was provided to the subject until complete memorization or 5–6 times. Every extra word that was mentioned by the patients was recorded separately.

The "Proof test" is used to examine the concentration and stability of the attention of schoolchildren and adults.

The test takes 5 minutes. We used special forms with rows of randomly arranged letters in which patients marked a specific letter ("e"). Every 60 s, a vertical line was displayed showing the number of characters viewed. Using the Proof test, we evaluated such characteristics of attention as concentration and stability.

■ RESULTS AND DISCUSSION

Among the studied contingent of patients, there were no differences in the course of paranoid schizophrenia. All patients exhibited a continuous course of the disease (100%). The following differences were revealed in the development of the defective state. The results are presented in Table 1.

While the paranoid type of defective state prevailed in both groups, certain differences were recorded within the groups. In the study group, after the paranoid defect (48.3%) was the psychopathic defect (31.0%) was more often presented, while in the control group, after paranoid (50.0%), the incidence of the apato-abulic defect (40.0%) was higher than in the study group (20.7%).

In the study group, the initial episode of psychosis (debut) began at an earlier age (24.2±0.7) than in the control group (26.7±0.4; p≤0.01). There were also significant differences in the number of hospitalizations per year (3.10±0.3 and 1.9±0.4; p≤0.05, respectively). This indicator in the study group exceeded that in the control group.

It is known from archival documents and complaints from patients of the study group that over the past (3.7±1.8) years, they have recorded an

Table 1
General characteristics of the research contingent

	Debut age (y.o)	Number of hospitalizations per year	Defect type		
			Paranoidism (abs., %)	Psychopatho similar (abs., %)	Apato-abulic (abs., %)
Study group (n=29)	24.2±0.7**	3.1±0.3*	14/48.3	9/31	6/20.7
Control group (n=30)	26.7±0.4**	1.9±0.4*	15/50	3/10	12/40

Notes: * p≤0.05; ** p≤0.01; *** p≤0.001.

Table 2
Features of the distribution

	HTN, stage 1, without cerebral symptoms (abs., %)	HTN, stage 1, with cerebral symptoms (abs., %)	HTN, stage 2 (abs., %)
Number of patients (absolute number/ percentage)	2/6.9	10/34.5	17/58.6
Subjective complaints concerning concentration disorder	2/6.9	9/31.0	16/55.2
Subjective complaints concerning memory disorder	1/3.4	7/24.1	14/48.3

increase in blood pressure to hypertonic numbers, clinical manifestations of cerebral and diffuse focal neurological symptoms have been recorded (27, 93.1%). Patients noted a periodic diffuse headache (n=27, 93.10%) and an increase in blood pressure to the level of mild hypertension (n=12, 43.38%), moderate (n=17, 24.14%) more often weather-dependent.

The table shows that most patients noted the presence of cerebral symptoms, such as headache (n=,%), dizziness (n=,%), periodic shakiness when walking (n=,%). Patients of this group showed a steady rise in blood pressure, not exceeding the first degree of severity (n=2, 6.9%). Only in these patients, arterial hypertension was not accompanied by subjective sensations. 17 patients (58.6%) had a persistent rise in blood pressure, which reached level II severity. This part of the contingent is at risk for complications of arterial hypertension, such as myocardial infarction and stroke.

Symptoms of cognitive decline have dominated complaints from patients in the study group over the past 2–3 years. These disorders were represented by a decrease in the concentration of active attention (n=27, 93.1%) and a subjectively conscious decrease in memory both recent and distant, including significant events (n=22, 75.9%).

The entire contingent of the study revealed pronounced affective disorders. Rough flattening (absence) of higher emotions was observed in 100% of patients. The general mood background remained flattened most of the time (indifferent, emotional dullness) (%); indifferent attitude to most events during the day. At the same time, the study group had affective outbursts (n=28, 96.55%), lacrimal reactions (n=26, 89.65%) to subjectively insignificant events. Patients noted the relationship of such affective discharge with the change in weather and periods of unstable blood pressure (n=24, 82.8%).

The leading contingent of the study had a hallucinatory-paranoid syndrome. The symptoms of the underlying disease in the study population are presented in table 3.

The contingent differed in the total value of the PANSS scale. At the same time, the study group (49.2±1.0) was dominated by general symptoms compared with their value in the control group (42.2±1.1, $p \leq 0.001$). This indicator varied significantly due to the levels of depression, anxiety, and attention disorders. The level of depression in the study group was 4.1±0.2, while in the control group it was 2.3±0.3 ($p \leq 0.001$). The anxiety level in the study group was 3.9±0.2, in the control group 2.1±0.2 ($p \leq 0.001$),

Table 3
Assessment of the mental state of the contingent according to the PANSS method

Symptoms	Study group	Control group
Positive symptoms	24.7±0.7	23.7±0.6
Negative symptoms	29.8±0.9	28.8±0.8
General symptoms	49.2±1.0***	42.2±1.1***
Total value	103.7±1.1***	94.7±0.9***

Notes: * p≤0.05; ** p≤0.01; *** p≤0.001.

respectively. The level of attention disorders in the study group remained at the level of 3.7±0.1 and in the control 2.8±0.2 (p≤0.001). For other indicators, significant differences in the contingent were not detected (p≥0.05). The subscales of positive and negative symptoms did not have significant differences (p≥0.05).

Cognitive decline was represented not only by the decline of mental processes but also by a decrease in the ability to plan one's activities, which is typical for this nosology. All subjects of the main group recorded a significant impairment of cognitive functioning, namely, decreased memory and attention.

The clinical and psychopathological methods showed the presence of increased distraction levels and low durability of attention in patients (n=26, 89.7%), exhaustion (n=24, 82.8%) during the study and a decrease in the reproductive process of memory (n=23, 79.3%).

The entire study population showed impaired active attention, while in the study group, these indicators were more pronounced. So, the concentration of attention was 51.9±0.8%, compared with the control group 56.4±0.4%, (p≤0.001). The attention span in the study population corresponded to the average level (54.2±0.6%). At the same time, the study group showed a value of 5.3±0.2 (points), and the control group 6.4±0.2 (points), respectively (p≤0.001).

Thus, the study of such an integrative indicator as attention made it possible to identify a significant decrease in its stability and ability to concentrate.

In the study of mechanical memorization, the following pattern attracts attention. The result is presented in table 4.

The entire study population revealed a decrease in mechanical memory. According to the test of memorizing 10 words, the average result was 6.1±0.2 and 5.9±1.1 at 1 minute for the study group and the control group respectively. This indicates an insufficient level of mechanical auditory memory in the subjects, without significantly notable differences between the groups (p≤0.001). Subsequently, in the course of the study, significant

Table 4
Assessment of the contingent memory in the test of memorization of 10 words

	1 minute	5 minutes	10 minutes	postponed
Study group (n=29)	6.1±0.2	5.4±0.6	5.2±0.9	4.1±0.6*
Control group (n=30)	5.9±1.1	6.2±1.2	6.0±1.1	5.9±0.5*

Notes: * p≤0.05; ** p≤0.01; *** p≤0.001.

differences were identified during the delayed reproduction of information. Thus, the study group revealed a tendency to depletion and a decrease in mechanical memory (4.1±0.6) compared with the control group (5.9±0.5, p≤0.05) with delayed reproduction of the material.

The data obtained as a result of the work carried out confirm the heterogeneity of the examined contingent of patients with paranoid schizophrenia with a continuous type of course as the main diagnosis. The group of patients with paranoid schizophrenia and concomitant CVP had statistically significant indicators of the presence of general psychopathological symptoms, including indicators of anxiety, depression, attention deficit, exceeding those in the comparison group.

The study showed a decrease in cognitive functioning in patients of both groups, while the results are significantly higher in the study group.

Thus, the presence of CVP in patients with paranoid schizophrenia has an impact on the clinical picture of the underlying disease, which must be taken into account when selecting personified therapy for this patient population.

Authors declare no conflicts of interests.

REFERENCES/ЛИТЕРАТУРА

1. (1994) International Classification of Diseases: (10th revision). Classification of Mental and Behavioral Disorders: Clinical descriptions and guidelines for diagnosis. SPb.: ADIS, 302 p.
2. Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM5): American Psychiatric Publishing. 947
3. Bushe CJ, Taylor M., Haukka J. (2010) Review: Mortality in schizophrenia: a measurable clinical endpoint. *Journal of Psychopharmacology,* vol. 24, Issue 4, pp. 17–25. DOI: 10.1177 / 1359786810382468
4. Smashna AE (2011) Influence of concomitant somatic pathology on the quality of life assessment of patients suffering from a paranoid form of schizophrenia. *Ukrainian Bulletin of Psychoneurology*, vol. 19, no 3 (68), pp. 70–73.
5. Nasrallah HA, Meyer JM, Goff DC, McEvoy JP, Davis SM, Stroup TS, Lieberman JA (2006) Low rates of treatment for hypertension, dyslipidemia, and diabetes in schizophrenia: Data from the CATIE schizophrenia trial sample at baseline. *Schizophrenia Research*, vol. 86, Issue 1–3, pp. 15–22. DOI:10.1016 / j.schres.2006.06.026
6. Smith EE, Jonides J (1999) Storage and executive processes in the frontal lobes. *Science,* no 283, pp. 1657–1661.
7. Miyake A, Friedman NP, Emerson MJ, Witzki AH, Howerter A, et al. (2000) The unity and diversity of executive functions and their contributions to complex «Frontal Lobe» tasks: a latent variable analysis. *Cogn Psychol.,* vol. 41, pp. 49–100.
8. Weickert TW, Goldberg TE, Gold JM, Bigelow LB, Egan MF, et al. (2000) Cognitive impairments in patients with schizophrenia displaying preserved and compromised intellect. *Arch Gen Psychiatry, vol.* 57, pp. 907–913.
9. Rund BR (1998) A review of longitudinal studies of cognitive functions in schizophrenia patients. *Schizophr Bull.,* vol. 24, pp. 425–435.
10. Lee J, Park S (2005) Working memory impairments in schizophrenia: a meta-analysis. *J Abnorm Psychol.,* vol. 114, pp. 599–611.
11. Goldberg TE, Patterson KJ, Taqqu Y, Wilder K (1998) Capacity limitations in short-term memory in schizophrenia: tests of competing hypotheses. *Psychol Med.,* vol. 28, pp. 665–673.
12. Herold R (2012). The long-term treatment of schizophrenia. *Orvosi Hetilap.*, vol. 153, Issue 26, pp. 1007–1012. DOI: 10.1556 / oh.2012.29416
13. Baddeley AD (2004) Your memory: A user's guide (new illustrated ed.) Buffalo NY: Firefly Books.

Submitted/Поступила: 14.08.2020
Accepted/Принята: 18.02.2021
Contacts/Контакты: tatyana1radchenko@gmail.com