ORIGINAL ARTICLE

CONTENTS

Prodromal period of psychosis: diagnostic criteria

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ABSTRACT

Aim: To study the psychopathological mechanisms of the development of the prodromal stage of psychosis in order to identify risk factors for the formation of psychosis.

Materials and Methods: In this research 137 patients with newly diagnosed psychosis were examined: 65 patients with a diagnosis of paranoid schizophrenia; 72 patients - with a diagnosis of acute polymorphic psychotic disorder.

Results: According to the analysis of symptoms using the PANSS, the absence of signs of an anxious state, conceptual disorganization of thinking, emotional withdrowal are reliable signs of PPP in PS, and unusual thought content, absence of signs of stereotyped thinking, tension, anxiety, and hallucinations are reliable signs of PPP in APPD. According to the analysis of symptoms using the SOPS, unusual thought content/delusional ideas, bizarre thinking, social anhedonia, suspiciousness/persecutory ideas, decrease in expressiveness of emotions are reliable signs of PPP in PS, and bizarre thinking, impaired tolerance to normal stress, sleep disturbance, perceptual abnormalities/hallucinations, trouble with focus and attention are reliable signs of PPP in APPD.

Conclusions: In the process of studying the clinical-psychopathological and pathopsychological aspects of the development of the PPP, a number of risk factors for the formation of psychosis were identified. We found that he most important diagnostic signs of PPP in PS patients are: stereotyped thinking, social isolation, disorganizational thinking disorders, passive-apathetic social detachment, suspiciousness. The most informative prodromal symptoms of HP in PS patients are: conceptual disorganization of thinking, bizzare thinking, social isolation, suspiciousness/persecutory ideas, reduced expression of emotions.

KEY WORDS: paranoid schizophrenia, PANSS, prodromal period of psychosis, acute polymorphic psychotic disorder, SOPS, premorbid psychosis

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INTRODUCTION

Modern trends in medicine include prevention and early detection of both acute and chronic diseases. This greatly helps in their treatment and allows us to prevent the consequences. In the structure of psychiatric diseases, psychotic disorders continue to be one of the most disabling - they are hard to endure by patients and their families, and have a significant impact on the quality of life and social functioning. The task of studying of prodromal signs of paranoid schizophrenia or acute polymorphic psychotic disorder is quite non-trivial and requires significant efforts of scientists and clinicians [1-10].

AIM

The aim of this research was to **:** study of clinical-psychopathological and pathopsychological regularities of the development of the prodromal period of psychosis to identify risk factors for the formation of psychosis in patients with paranoid schizophrenia and acute polymorphic psychotic disorder.

MATERIALS AND METHODS

In the process of performing our work 137 patients with newly diagnosed psychosis were examined. Examination was performed in compliance with the principles of biomedical ethics, based on informed consent. Research was provided on the basis of the Ternopil Regional Clinical Psychoneurological Hospital in the period 2016-2018. Patients were divided into two groups depending on their diagnosis (based on ICD-10). The first group consisted of 65 patients diagnosed with paranoid schizophrenia (F20.0), among whom there were 44 men and 21 women; the second group consisted of 72 patients diagnosed with acute polymorphic psychotic disorder (F23.0, F23.1), among whom there were 24 men and 44 women. Inclusion criteria were inpatient status, presence of psychotic symptoms at the time of inclusion, diagnosis of paranoid schizophrenia or acute polymorphic psychotic disorder, young age of 18-45 years. Exclusion criteria from the study: presence of other mental disorders, abuse of psychoactive substances, presence of language disorders or pronounced cognitive disorders, severe somatic

condition. When examining patients, we analyzed their current mental state and the development of mental disorders through anamnestic analysis. The following methods were used for the research:

I. Clinical-psychopathological method.
II. Psychometric methods: PANSS productive and negative syndrom scale; suicidal risk scale (Los Angeles Suicidality Center); SOPS scale of prodromal symptoms; scale for determining the clinical and dynamic variant of the course of the prodromal period; structured interview scale for assessment of premorbid status - PAS-SI.
III. Psychodiagnostic methods: the questionnaire of K. Leonhard – Shmishek for determining accentuations of character; method of diagnosing the level of social frustration L.I. Wasserman in the modification of V.V. Boyko;
IV. Methods of statistical processing of the obtained data with determination of average values, their errors, informativeness measure.

RESULTS

A detailed analysis of positive and negative symptoms of PPP in patients with PS and APPD obtained using the PANSS scale showed that the most significant informative clinical signs of PPP in patients with PS are:

1. disorganized thinking of a severe and extreme degree
2. moderate emotional withdrawal.
3. moderate suspiciousness/persecution
4. moderate-severe stereotypic thinking
5. moderate-severe passive/apathetic social withdrawal.

The most informative clinical signs of PPP in patients with APPD are:

1. unusual thought content of moderate and moderate-severe severity
2. tension of moderate degree
3. anxiety of moderate-severe degree
4. hallucinations of moderate-severe degree
5. Poor attention of moderate-severe degree
6. moderate-severe excitement

According to the results of the analysis of the intensity and qualitative composition of prodromal symptoms of psychotic disorder of the SOPS scale of prodromal symptoms, the most informative prodromal symptoms of acute psychosis (AP) in patients with PS are:

1. moderately severe unusual thought content/delusional ideas (DC-(-4.06), KM-0.44, $p<0.002$);
2. questionable presence of bizarre thinking (DC-(-3.45), KM-0.29, $p<0.01$);
3. social anhedonia of an moderate degree of severity (DC-(-3.08), KM-0.26, $p<0.01$);
4. suspiciousness/persecutory ideas of a moderate degree of severity (DC-(-3.04), KM-0.24, $p<0.05$);
5. decrease in expressiveness of emotions (DC-(-8.49), KM-2.95, $p<0.05$).

According to the results of the statistical analysis, the most reliable prodromal symptoms of AP in patients with APPD are:

1. bizarre thinking of mild and moderate degree (DC-3.63, KM-0.33, $p<0.007$);impaired tolerance to normal stress of moderate and severe degree (DC-3.01, KM-0.32, $p<0.004$);
2. moderate sleep disturbance (DC-3.54, KM-0.27, $p<0.02$);
3. perceptual abnormalities/hallucinations of mild severity (DC-3.31, KM-0.23, $p<0.02$);
4. trouble with focus and attention of mild severity (DC-2.57, KM-0.17, $p<0.03$).

The degree of severity of groups of symptoms of patients with PS and APPD in the prodromal period is presented in Fig 1.

As evidenced by the data presented in fig 1, negative symptoms predominate in PPP patients - 3.3 ± 1.2 points ($p<0.05$), while in patients with APPD in the prodrome of psychosis, symptoms of disorganization (2.9 ± 0.7 points , at $p<0.05$) and general symptoms (2.7 ± 1.3 points, at $p<0.05$) are most pronounced.

Within the framework of the clinical-psychopathological method, we studied the structure of the dynamics of the flow of PPP. The study showed that the continuous version of the course (56.9%) is more common in PS, while the mixed (27.7%) and episodic (15.4%) variants were less common.

Table 1. The measure of the informativeness of selected positive and negative symptoms in patients with PS in PPP

Symptoms	DC*	KM**
stereotypic thinking	-17,04	4,58
disorganized thinking	-22,42	4,01
passive/apathetic social withdrawal	-16,21	3,86
suspiciousness/persecution	-18,78	3,18
emotional withdrawal	-14,55	2,79

* – diagnostic coefficient;
** - Kullback measure of informativeness.

Table 2. The measure of the informativeness of selected positive and negative symptoms in patients with APPD in PPP

Symptoms	DC*	KM**
unusual thought content	24,35	4,77
hallucinations	25,14	4,54
excitement	15,22	3,91
anxiety	21,11	3,63
tension	13,48	3,10
Poor attention	9,95	2,58

* - diagnostic coefficient;
** - Kullback measure of informativeness.

Table 3. The level of suicidal risk in patients with PS and APPD with different course of PPP

The course of PPP	Level of suicidal risk (M±σ)	
	PS patients	Patients with APPD
Continuous	88.7±25.6	96.1±33.3
Episodic	94.3±26.2	399.4±67.7*
Mixed	278.5±53.9*	101.3±20.9

(differences are statistically significant: * - $p<0.01$)

Table 4. Distribution of premorbid features of character among patients with PS and APPD

Premorbid character traits	Groups of examinees			
	PS patients (n=65)		APPD patients (n=72)	
	Abs .	%±m	Abs .	%±m
Hyperthymic	7	10.8±1.2	8	11.1±1.4
Emotive	9	13.8±1.6	18	25.0±2.9*
Anxious	6	9.2±1.1	19	26.4±3.0**
Demonstrative	3	4.6±0.7	4	5.6±0.8
Dysthymic	20	30.8±3.1*	12	16.7±2.0
Sticking	25	38.5±3.8**	11	15.3±1.8
Pedantic	17	21.2±2.7	14	19.4±2.2
Cyclothymic	2	3.1±0.6	2	2.8±0.5
Excitable	8	12.3±1.4	10	13.9±1.7
Ecstatic	3	4.6±0.7	10	13.9±1.7**

(differences are statistically significant: * - $p<0.05$; ** - $p<0.01$)

Table 5. Average group level of expression of premorbid features of character in patients with PS and APPD

Premorbid character traits	The level of expression M±σ (points)	
	PS patients	Patients with APPD
Hyperthymic	6.5±2.4	6.1±2.1
Emotive	7.2±3.3	13.9±2.5*
Anxious	10.3±4.1	19.3±2.9*
Demonstrative	8.9±2.0	9.4±2.4
Dysthymic	19.6±1.9*	11.1±1.7
Sticking	20.2±3.0**	9.2±2.7
Pedantic	12.2±2.7	11.7±2.5
Cyclothymic	7.7±2.0	17.0±2.3**
Excitable	13.8±2.2*	7.3±1.8
Ecstatic	9.1±2.6	20.3±1.8**

(differences are statistically significant: * - $p<0.05$; ** - $p<0.01$)

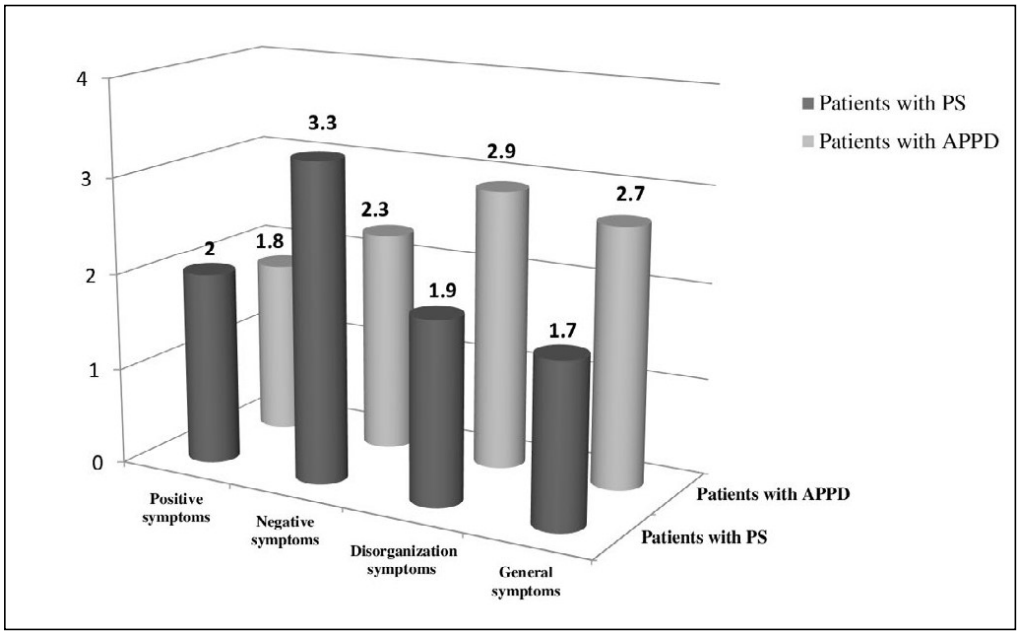

Fig. 1. The degree of severity of groups of symptoms of patients with PS and APPD in the prodromal period

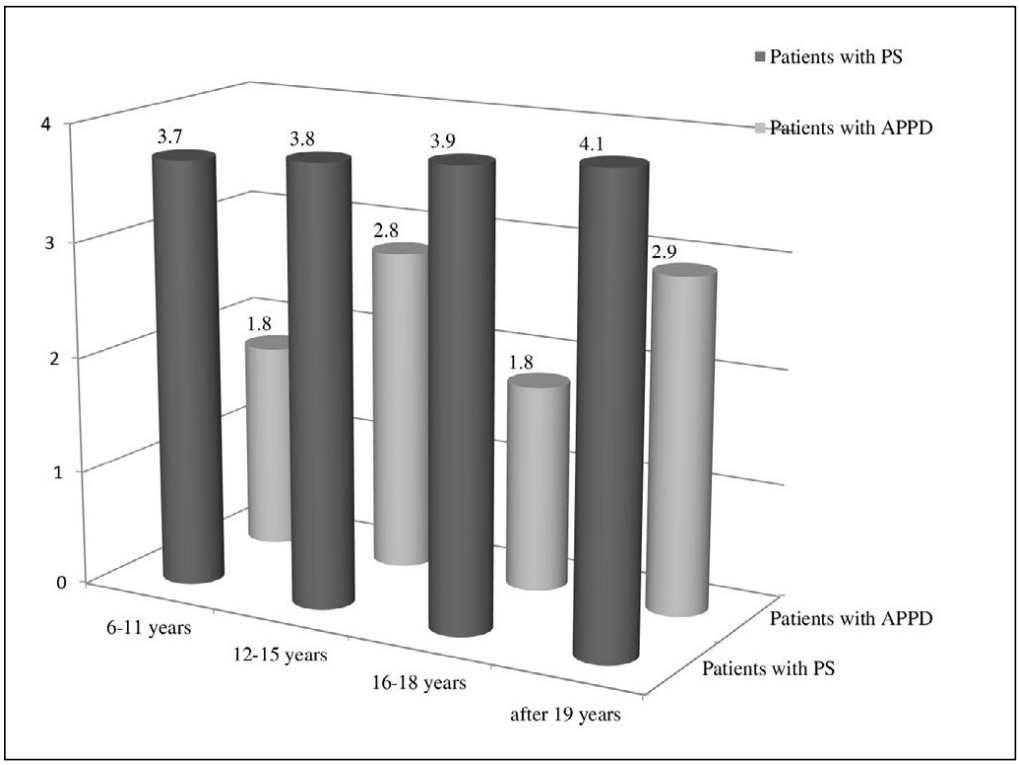

Fig. 2. Dynamics of the level of general social functioning of patients with PS and APPD in PPP at different stages of the patient's life.

In patients with APPD, the predominant variant of the course was mixed (59.7%), continuous (22.2%) and episodic (18.1%) variants were less common. In the process of performing the research, we noticed the relationship between the variant of course of the pathological process and the level of risk of suicidal behavior, which we studied using the scale of the Los Angeles Suicidality Center

The results of this study are presented in Table 3.

It was found that the highest (medium and high) indicators of suicidal risk were observed in patients with APPD with an episodic variant of the course (399.4 points), which occurred in a small number of examined subjects of this group (18.1%).

Among patients with PS, the highest indicators of suicidal risk (278.5 points - the average level) were registered in patients with a mixed version of the course, whose number was 27.7%.

The study of premorbid personality traits of patients with PS and APPD in PPP was carried out with the help of the questionnaire of K. Leongard – Shmishek. Table 4 presents an analysis of the distribution of premorbid character traits among patients with PS and APPD.

Table 5 presents the results of the study of the average group level of the severity of premorbid features of the character of patients with PS and APPD.

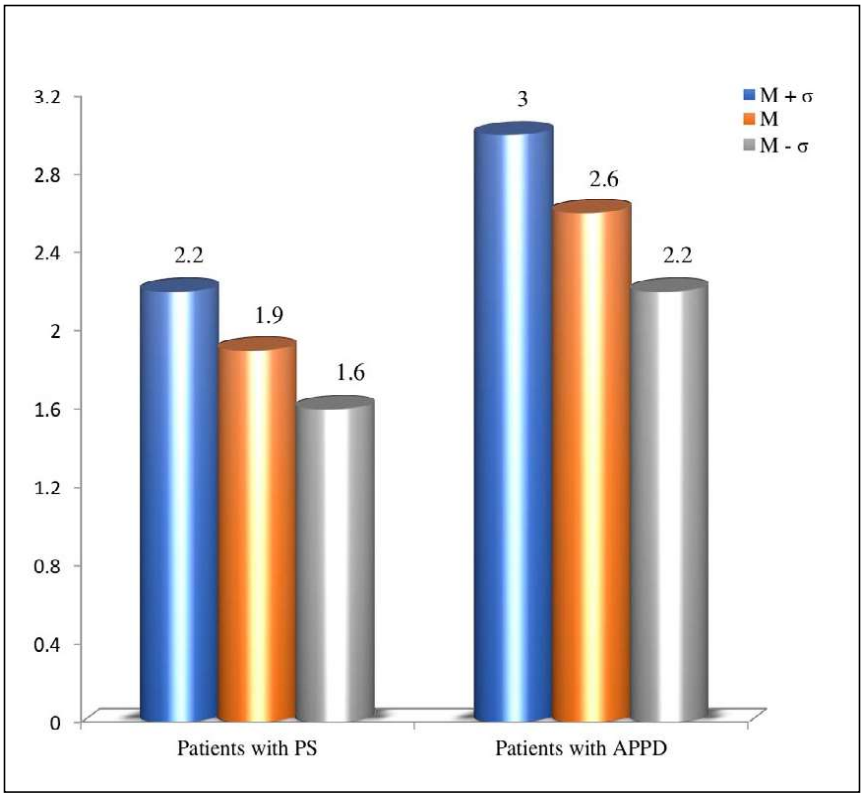

Fig. 3. Correlation of general levels of social frustration in patients with PS and APPD in the prodrome of psychosis

According to the results presented in Table 2, it should be noted that in the group of patients with PS in the PPP, premorbid personality traits predominate in terms of frequency and intensity:

1) accentuated (20.2±3.0 points , at p<0.01) sticking (in 38.5% of cases, p<0.01) personal traits;
2) accentuated (19.6±1.9 points , at p<0.05) dysthymic (in 30.8% of cases, p<0.05) personal traits.

In the group of patients with APPD in the PPP, the predominant (in terms of frequency and intensity) personal traits were:

1) accentuated (19.3±2.9 points, at p<0.05) anxious (in 26.4% of cases, p<0.01) personal traits;
2) emotive (in 25.0% of cases, at p<0.05) personal traits with tendency to accentuation (13.9±2.5 points, p<0.05).
3) ecstatic (in 13.9% of cases, at p<0.01) personal traits with a tendency to accentuation (20.3±1.8 points, p<0.01).

The study of the level of social functioning in PPP in patients with PS and APPD, at different age periods of their life, was conducted with the help of a structured PAS-SI interview, compared with the medical history data.

The dynamics of the level of general social functioning of patients with PS and APPD in PPP, at different stages of the patients' lives, is presented in fig. 2

According to the results presented in fig 3, in all age periods, the average-low level of general social functioning was observed in patients with PS in PPP. Also we notice a gradual slight decrease in this level in the year before the manifestation of psychosis:

1) 6-11 years old - 3.7±0.7 points (p<0.01);
2) 12-15 years old - 3.8±0.5 points (p<0.05);
3) 16-18 years old - 3.9±0.5 points (p<0.01);
4) from 19 years old - 4.1±0.5 points (p<0.05).

Whereas in patients with APPD, wave-like fluctuations in the level of general social functioning were found, from high to medium and from medium to high, with an medium level of general social functioning a year before the manifestation of psychosis:

1) 6-11 years old - 1.8±0.3 points (at p<0.01);
2) 12-15 years old - 2.8±0.3 points (at p<0.05);
3) 16-18 years old - 1.8±0.3 points (at p<0.01);
4) from 19 years old - 2.9±0.4 points (at p<0.05).

Using the method of L.I. Wasserman (modified by V.V. Boyko), the general level of social frustration and the level of frustration according to individual social factors of the life of patients with PS and APPD in the prodrome of psychosis were studied.

A reduced general level of social frustration (1.9±0.3 points, p<0.05) was found in PPS patients.

A moderate general level of social frustration (2.6 ± 0.4 points, p < 0.05) was found in patients with APPD in the prodrome of psychosis

The general level of social frustration in patients with PS in the PPP was lower (1.9±0.3 points, p<0.05) than in patients with APPD (2.6±0.4 points, p<0, 05).

This fact, perhaps, indicates a significant flexibility of adaptation mechanisms in patients with APPD, or the lack of such flexibility in patients with PS.

DISCUSSION

Since the 2000s and up to our time, a lot of scientific research has been conducted with the aim of identifying reliable prodromal symptoms and finding risk factors for the transition of PPP to psychosis. Thus, in the Alison R Yung, Lisa J Phillips research Psychosis prediction: 12-month follow up of a high-risk ("prodromal") group, it was possible to identify such prodromal factors as poor functioning before psychosis, mild psychotic symptoms, depression, and disorganization. Michael T. Compton, MD, MPH; Sandra M. Goulding, MPH; and Elaine F. Walker, PhD report that the most common prodromal symptoms were impaired role function (65.8%), suspiciousness (63.2%), social withdrawal (60.5%), and thinking problems (57.9 %) [11].

Alison R. Yung and Patrick D. McGorry in the article The Initial Prodrome in Psychosis: Descriptive and Qualitative Aspects report on the following predictors of psychosis: Sleep disturbance, Anxiety, Angedirritability, Depressed mood, Deterioration in role functioning, Social withdrawal, Poor concentration, Suspiciousness, Loss of drivel motivation, Perplexity, Low energy/ fatigue, Motor changes, Change in sense of self/ otherdthe world, Perceptual changes [12].

Our work quite accurately repeats and confirms the previous data, since according to our results, the most reliable signs of probable development of psychosis are disorganized thinking, emotional alienation/decreased expression of emotions, suspiciousness, fear of persecution, stereotyped thinking, passive-apathetic social detachment/isolation. However, in our work, we also took into account the heterogeneity of psychoses, and demonstrated the polymorphism of the prodromal picture in different variants of psychosis. We separately distinguished prodromal symptoms of paranoid schizophrenia and non-schizophrenic psychoses (APPD group). In the group of patients with APPD, the most reliable signs of the probable development of psychosis were unusual content of thoughts, tension, anxiety, hallucinatory behavior, impaired attention, agitation, bizarre thinking, reduced tolerance to stress, and sleep disorders [13].

Another important aspect of our research was studying the level of suicidality. According to the results of Ioannis Andriopoulos, 25.5 patients suffering from schizophrenia demonstrate suicidal behavior in the premorbid period. We obtained data that signs of suicidality occurred in 27.7% of schizophrenic patients (with a mixed variant of the course), but for non-schizophrenic psychoses this level was lower (18.1%). We tried to explain these data with a higher level of tolerance to stress, but we got the result that patients from the group of APPD showed a lower tolerance to stress, so this explanation of the lower level of suicidality in this group became impossible. Presumably, the higher level of suicidality in the prodrome of schizophrenia is related specifically to the disorders of thinking and emotions what are typical of this disease or is determined by the lower level of psychological flexibility associated with high indicators of social frustration (according to our results of the analysis of the methodology of L.I. Wasserman (as modified by V.V. Boyko) [14].

It is also important to note the obtained data on the dynamics of changes in the level of social functioning. They were different in the group of patients with schizophrenic and non-schizophrenic psychoses. We found that the level of social functioning was medium-low in patients in the prodrome of paranoid schizophrenia, that is, at the time when the symptoms of mental disorder were only slightly expressed, which calls into question the generally accepted idea that it is the symptoms of schizophrenia that worsen the level of social functioning.

The search for prodromal symptoms is not only a theoretical, but also quite an practical scientific task, as we seek to identify them for the purpose of early intervention or prevention of the development of psychosis. Often, scientific research raises more questions than gives an answers. The results obtained by us and other researchers also present us with a difficult ethical dilemma and raise questions of legality and responsibility. Does the presence of prodromal symptoms make a person sick and, if not, who will be responsible for the prescribed treatment and its possible side effects?

CONCLUSIONS

In this study, we managed to identify the main diagnostically significant prodromal signs of psychosis. Our work demonstrated the difference between the prodromal features of paranoid schizophrenia and other psychotic disorders, indicating that the prodrome of schizophrenia is clinically different from the prodrome of APPD.

We found that the diagnostically valuable signs of the prodrome of paranoid schizophrenia are disorganized thinking of a severe and extreme degree of severity, emotional withdrawal/decreased expression of emotions of moderate severity, suspiciousness, fear of persecution of moderate severity, moderate-severe stereotypic thinking, moderate-severe severity of passive-apathetic social detachment/isolation of medium severity. Diagnostically valuable signs of ADHD were unusual thoughts content of moderate and moderate-severe severity, tension of moderate severity, anxiety of moderate-severe severity, hallucinatory behavior of moderate-severe severity, impaired attention of moderate-severe severity, excitement of

moderate-severe severity, bizarre thinking of moderate severity, reduced tolerance to stress of moderate and severe severity, and sleep disorders of medium severity.

We determined that the level of social functioning in various variants of psychosis decreases even before the appearance of clear psychopathological symptoms, but the depth of decrease in paranoid schizophrenia is more noticeable in comparison with acute polymorphic psychotic disorder.

FUTURE PROSPECTS

The obtained results do not make it possible to accurately predict the development of psychosis, therefore, this issue requires a more in-depth study of the formation factors and risk factors. We see the continuation of our work in a detailed study of correlations between the decrease in social functioning and the symptoms of paranoid schizophrenia and acute polymorphic psychotic disorder.

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CONFLICT OF INTEREST

The Authors declare no conflict of interest

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