Research Article

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Clinical and Psychological Features of Patients With Poisoning By Antihypertensive and Antiarrhythmic Drugs as a Result of Suicidal Actions

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ABSTRACT The effective care for patients with self-poisoning with antihypertensive and antiarrhythmic drugs is associated with taking into account both clinical and adverse social, psychological and environmental stress factors. To identify their specifics, a retrospective analysis of 120 medical records and a clinical and psychological examination of 20 patients with antihypertensive and antiarrhythmic drugs self-poisoning and a comparison group of 34 patients with self-poisoning with psychotropic drugs were carried out. It has been shown that the risk group for re-suicide in self-poisoning with antihypertensive and antiarrhythmic drugs is about 30% of patients. Risk factors are depressive symptoms that persist before discharge from the hospital, as well as dysfunctional personality traits (perfectionism in the form of increased preoccupation with the assessments of other people and frequent unfavorable comparisons with them, experiencing loneliness and isolation, increased impulsivity and a feeling of hostility from others) and unproductive ways of coping with stress (ruminative thinking or repetitive unpleasant and unproductive thoughts about anergy, lack of strength and loneliness). The results of the study and the developed psychodiagnostic complex can be used to identify targets for urgent psychological assistance and screening for the risk of re-suicide.

Keywords: self-poisoning, antihypertensive and antiarrhythmic drugs, risk factors, depressive disorders, suicidal behavior, prevention
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INTRODUCTION

Clinical and psychological analysis of the data of patients with self-poisoning with antihypertensive and antiarrhythmic drugs is an urgent and difficult task due to their heterogeneity, high comorbidity of somatic and mental (mainly depressive) disorders, as well as a combination of a number of unfavorable social, demographic and environmental stress factors.

The problem of antihypertensive and antiarrhythmic drugs self-poisoning and their prevention is interdisciplinary and is associated both with aspects of medical, psychological and social support for patients with cardiovascular diseases, and with issues of general prevention of suicidal behavior in different age and clinical groups. It should be noted that a significant part of the antihypertensive and antiarrhythmic drugs is included in the List of Vital and Essential Drugs and is widely available to the population, and a large number of patients take the antihypertensive and antiarrhythmic drugs as prescribed, since arterial hypertension is one of the most common diseases of the cardiovascular system [1, 2].

The analysis of epidemiological data shows that, regardless of age, women predominate among patients with self-poisoning with antihypertensive drugs (from 65 to 78% in different studies). All studies draw attention to comorbid mental disorders (about 80%, mainly depression) and somatic diseases (about 60%), which are associated with the risk of depression and suicidal risk. A number of patients have a comorbid diagnosis of alcohol dependence [3–5].

The problems of studying antihypertensive and antiarrhythmic drugs self-poisoning include the possible risk of depressive disorders and increased suicidal risk when taking β-adrenergic blockers (one of the main groups of antihypertensive and antiarrhythmic drugs), especially in combination with drugs that lower blood cholesterol levels [6, 7].

It is important to emphasize the lack of integration of accumulated data on risk factors for depressive states and suicidal actions in patients taking antihypertensive and antiarrhythmic drugs according to indications, as well as data on the possibilities of prevention, support and routing of patients immediately after hospitalization to the toxicology department with an episode of self-poisoning. We can also note the practical absence in the literature of descriptions of the clinical, psychological and personal profile of this group of patients [8].

Taking into account the epidemiological data on the high comorbidity of somatic (60%) and mental (80%) disorders among patients with antihypertensive and antiarrhythmic drugs, it is possible to put forward a hypothesis about the combination in the anamnesis of these patients of a number of unfavorable social, demographic and environmental stress factors, such as pain syndrome, social isolation, hidden protracted family conflicts and an emotional response profile that manifests itself in symptoms of anxiety, depression, interpersonal sensitivity, loneliness and hopelessness, difficulties in cognitive processing of stress (rumination) and magical thinking [1, 3, 9, 10].

The aim of the study: to identify the clinical and psychological characteristics of patients with antihypertensive and antiarrhythmic drugs self-poisoning in comparison with patients with self-poisoning with psychotropic drugs.

The study was carried out in two stages.

At the first stage, in a pilot study, a retrospective analysis of the medical records of 120 patients with antihypertensive and antiarrhythmic drugs self-poisoning (age 15–87 years, 72% women) of the Toxicological Department of the N.V. Sklifosovsky Research Institute for Emergency Medicine in order to systematize socio-

demographic and clinical data and analyze the reasons for attempted self-poisoning in patients of an emergency hospital. Patients were selected by random selection from the EMIAS database for 2018–2020.

The retrospective analysis of psychiatric examination data showed that the clinical and psychopathological background of attempts at self-poisoning is predominantly anxiety-depressive, it is 66% stress-related (F43.20-43.25) and associated with affective spectrum disorders (F32-F34) in 24% of cases. Paranoid-delusional syndrome (4%), alcoholic psychosis (2%), addiction syndrome (2%) and schizophrenia (2%) were diagnosed in 10% of patients. Among the patients, personality disorders (F6) were also diagnosed: emotionally unstable (2%), histrionic (31%), antisocial (8%) and organic personality disorder (2%).

Many patients had concomitant severe somatic diseases: organic lesions of the nervous system (25%), cardiac diseases (19%) and other severe chronic disabling diseases (13%). 92% of patients made an initial suicide attempt.

β–blockers were used for self-poisoning in 56% of cases, calcium channel antagonists in 33.9%, and angiotensin-converting enzyme inhibitors in 9.7%. Thus, more than half of the patients self-poisoned with β - blockers, which, according to studies and reviews, increase the risk of depressive states and, accordingly, suicide. When comparing data in subgroups of patients using different antihypertensive and antiarrhythmic drugs in terms of sociodemographic and clinical characteristics and reasons for self-poisoning, no statistically significant differences were found.

The reasons for taking a high dose of antihypertensive and antiarrhythmic drugs were: quarrels and conflicts with family members in 48%, relationship difficulties (disappointment in relationships, quarrels or separation from a partner / partner) in 18%, low mood, unwillingness to live in 14%, employment problems / housing problems in 7%, personal problems in 5%, death of a loved one in 4%, situational motivations, for example, "drank pills on a dare after drinking alcohol", "did not want to go to work or school" in 4%. As can be seen from these statistics, 66% of all causes of antihypertensive and antiarrhythmic drugs self-poisoning are associated with interpersonal difficulties and conflicts.

In 16%, the suicide attempt was demonstrative. In 32%, the reason for self-poisoning was associated with alcohol consumption (taking drugs while taking a high dose of alcohol, family quarrels as a result of alcohol consumption). And 5% of patients report accidental drug use or dosage errors.

At the second stage, based on the results of the pilot study, hypotheses were formulated and a methodological complex was developed for the psychodiagnostic examination of patients with self-poisoning. Then, 60 patients were examined using the developed methodological complex. Some of them incompletely or incorrectly filled out the questionnaire forms. As a result, protocols of 20 patients aged 18–85 years with self-poisoning of antihypertensive and antiarrhythmic drugs and 34 patients with self-poisoning of psychotropic drugs were selected as a comparison group.

The patients were in the departments of toxicological resuscitation and treatment of acute poisoning for mental patients of N.V. Sklifosovsky Research Institute for Emergency Medicine in 2020–2021. A psychodiagnostic examination was carried out before discharge and consisted of patients completing self-reported psychodiagnostic tests. Each patient signed an informed consent to participate in the study in accordance with ethical standards. After the examination, the results were discussed and recommendations were made.

Based on a comparison of the data of the pilot stage of the study with the results of the literature analysis, a compact methodological complex was developed for diagnosing the severity of psychopathological symptoms and risk factors for repeated suicide attempts in the form of destructive personality traits and inadequate cognitive strategies for processing stress. Identification and diagnosis of these risk factors upon admission of patients to an emergency hospital make it possible at this stage to begin work on the prevention of repeated suicide attempts and give recommendations for further rehabilitation to both the patients themselves and their relatives.

The methodological complex included seven methods:

To assess the severity and pattern of symptoms of depression as the most important clinical factor for suicidal behavior according to the literature and psychiatric diagnosis: Beck's self-reported scale of depression (*Beck Depression Inventory*, adapted by N.V. Tarabrina, 2001). The scale was developed on the basis of clinical observations, standardized on the domestic population, is widely used in clinical and psychological research and clinical practice and allows you to identify the most relevant and significant symptoms of depression and the most frequently presented complaints.

To assess personality factors that reflect destructive personality traits and underlie the risk of depression and suicidal behavior:

— Questionnaire for dysfunctional beliefs in borderline personality disorder (*PBQ-BPD*) (adapted by M.A. Konina, A.B. Kholmogorova, 2016). Based on the *PBQ Dysfunctional Beliefs Scale* (*Beck,* 1990) by highlighting those items that characterize borderline personality disorder (*BPD*) beliefs. The questionnaire tests the severity of symptoms of emotional dysregulation. It consists of 14 items.

— Scale of perfectionism (N.G. Garanyan, A.B. Kholmogorova, T.Yu. Yudeyeva, 2018). It is aimed at assessing various aspects of perfectionist attitudes: 1) preoccupation with assessments from other people with unfavorable comparisons of oneself with them; 2) high standards and requirements for oneself; 3) negative selection and fixation on one's own imperfection. Consists of 18 items.

— The Loneliness Scale (*Revised UCLA)* (*Lineliness Scale, D. Russell, LA Peplau, ML Ferguson,* 1978) is designed to measure the severity of feelings of loneliness and social isolation. Consists of 20 items. A high degree of loneliness is indicated by a score 40-60, the average level of loneliness is from 20 to 40 and low degree of loneliness is from 0 to 20.

— The Hypersensitive Narcissism Scale (*HSNS) is* designed to assess the latent, sensitive form of narcissism, "narcissistic vulnerability", which does not manifest itself in the conceited, arrogant and despotic behavior and attitude usually characteristic of narcissism ("narcissistic grandiosity"). Consists of 10 items.

To assess cognitive factors that reflect ineffective coping strategies and underlie the risk of depression and suicidal behavior:

— Rumination scale (*Ruminative Responses Scale RRS)* (*W. Treynor, R. Gonzalez, S. Nolen-Hoeksema,* 2003; adaptation by O.D. Pugovkina, A.B. Kholmogorova, A.D. Syrokvashina, M.A. Istomin, 2020). It is aimed at assessing the tendency to "mental chewing gum" - getting stuck on repetitive unpleasant thoughts and memories. It consists of 22 items, from which the total score and the sum of points are calculated on subscales : rumination on the topic of anergy and fatigue; rumination aimed at finding global explanations for failures; rumination with an attempt at distancing; rumination on the theme of loneliness.

— Toronto Alexithymia Scale *(*TAS*),* (1990; adaptation by E.G. Starostina, G.D. Taylor, L.K. Quilty et al., 2012). Designed to assess the decline in the ability to recognize, differentiate and express emotional experiences and bodily sensations. Consists of 20 items organized into three subscales: Difficulty identifying feelings, Difficulty describing feelings to other people, Externally oriented thinking. The scale has been adapted and standardized in the Russian-speaking population.

Surveyed sample. Using the methodological complex, 20 patients with antihypertensive and antiarrhythmic drugs self-poisoning were examined (mean age 43.8 (21.1) (*M* (*SD)*) years, 4 men, 16 women). As a comparison group, 34 patients with psychotropic drugs self-poisoning (mean age 31.9 (12.8) (*M* (*SD)*) years, 11 men, 23 women) were examined. Psychiatric diagnoses of the examined patients are presented in Table. 1.

Table 1

Psychiatric diagnoses of examined patients in groups with antihypertensive, antiarrhythmic and psychotropic drugs self - poisoning

Diagnosis	Group with antihypertensive and antiarrhythmic drugs self-poisoning (*n* =20)	Group with psychotropic drugs self-poisoning (*n* =34)
F 43.2X Short-term depressive reaction	58%	44%
F 41.1 Generalized anxiety disorder	—	3%
F 32.0 Mild depressive episode	28%	6%
F 32.1 Depressive episode of moderate degree	14%	—
F 32.2 Major depressive episode	—	20%
F 33.x Recurrent depressive disorder	—	24%
F 10.x Personality and behavioral disorder associated with alcohol use	7%	6%
F 25.x Schizoaffective disorder	—	6%
Repeated suicide attempt	0	6%

Notes: antihypertensive and antiarrhythmic drugs — antihypertensive and antiarrhythmic drugs; psychotropic drugs - psychotropic drugs

As can be seen in Table 1, the antihypertensive and antiarrhythmic drugs group differs from the psychotropic drugs group with milder disorder in the form of a situational reaction, as the vast majority (86%) of this group had a psychiatric diagnosis of "Short-term depressive reaction" (58%) and "Mild depressive episode" (28%). In general, the prevalence of affective disorders in this group is fully consistent with the statistical data obtained at the first stage of the study in the analysis of medical records.

In the group of patients with psychotropic drugs, patients with a more severe disorder and a chronic nature of the disease prevailed - more than half (56%) had the following diagnoses: "Severe depressive episode" (20%), "Recurrent depressive disorder" (24%), "Personality disorder and behavior associated with alcohol" (6%), "Schizoaffective disorder" (6%).

In the majority of patients (70%) from the antihypertensive and antiarrhythmic drugs group, the reason for self-poisoning was interpersonal conflicts, which in general also corresponds to the statistical data obtained at the first stage of the study when analyzing medical records of 120 patients with self-poisoning with antihypertensive drugs hospitalized in 2018–2021.

The above ratio of diagnoses, as well as the predominance of interpersonal conflicts as reasons for self-poisoning, allows us to consider the examined group of antihypertensive and antiarrhythmic drugs to be quite representative.

RESEARCH RESULTS

All patients were examined immediately before discharge after undergoing detoxification and prescribing psychotropic drugs according to indications. We present the results of the survey.

1) The severity of symptoms of depression:

The mean score on the A. Beck Depression Scale in the subgroup of patients with antihypertensive and antiarrhythmic drugs self-poisoning is 11.1(9.9) (*M* (*SD)*), which corresponds to the lower limit of the subdepression level. An analysis of the distribution of scores within the surveyed subgroup shows that about half of the subjects do not report symptoms of depression at all in their self-report. In the psychotropic drugs self-poisoning group, the mean score was higher, 18.3(13.5) (*M* (*SD)*) (Table 2).

Table 2

The level of severity of symptoms of depression in groups of patients with antihypertensive, antiarrhythmic and psychotropic drugs self-poisoning (BDI depression scale)

Symptom severity	% of patients in the antihypertensive and antiarrhythmic drugs self-poisoning group	% of patients in the psychotropic drugs self-poisoning group
No symptoms (0–13 points)	42	43
Mild severity (14–19 points)	thirty	22
Medium severity (20–28 points)	28	3
High severity (29–63 points)	—	32

Notes: antihypertensive and antiarrhythmic drugs — antihypertensive and antiarrhythmic drugs; psychotropic drugs - psychotropic drugs

As can be seen in Table 2, the results on the self-reported scale of symptoms of depression correlate generally with the clinical characteristics of patients obtained from psychiatric examination. The antihypertensive and antiarrhythmic drugs group is dominated by patients without symptoms of depression or with mild symptoms (42% and 30%, respectively). There are no patients with a high degree of symptoms of depression in the antihypertensive and antiarrhythmic drugs group. In contrast, 32% of patients in the PN group had high severity of depressive symptoms.

2) Personal factors reflecting destructive personality traits.

The Table 3 presents the results of comparing the two groups in terms of the parameters of the scales of personality questionnaires. Statistically significant differences were recorded in the severity of socially prescribed perfectionism (preoccupation with the assessments of others) and loneliness. The severity of perfectionism (preoccupation with the assessments of others), although it distinguishes the surveyed groups, does not go beyond

the population standards. The loneliness index in the antihypertensive and antiarrhythmic drugs group is 40.7(10.7) (*M* (*SD)*), which corresponds to the border between "medium" and "high" levels of social isolation. In the psychotropic drugs self-poisoning group, this indicator is 52.2(9.1) (*M* (*SD)*), which refers to the "high level" of experiencing loneliness.

Table 3

The comparative assessment of the severity of dysfunctional personality traits in subgroups of patients with self-poisoning of antihypertensive and antiarrhythmic drugs

Dysfunctional personality traits	Patients with antihypertensive and antiarrhythmic drugs self-poisoning *Mdn* (*Q* 1–3)	Patients with self- poisoning psychotropic drugs *Mdn* (*Q* 1–3)	*P* Mann–Whitney test
Perfectionism (total score)	16 (4.75–37)	39 (26.5–47.5)	0.15
Perfectionism (preoccupation with the evaluations of others)	**5 (1.25–9.5)**	**12.5 (8.25–19)**	**0.05**
Perfectionism (high standards)	8 (1.75–16.5)	13 (9–15)	0.35
Perfectionism (negative selection)	3.5 (0.75–11.5)	12 (7.25–16.75)	0.11
Loneliness	**41 (34–52)**	**53 (47–57)**	**0.011**
hypersensitive narcissism	33 (23.25–37)	30 (25–35.5)	0.98
Borderline personality traits	9.5 (3.75–9.5)	7 (5.5–9.5)	0.66

The comparison shows that in the group of self-poisoning psychotropic drugs, the severity of dysfunctional personality traits is higher. However, in the group of antihypertensive and antiarrhythmic drugs, it is possible to additionally single out a risk group for repeated suicide attempts and chronification of a depressive state. The Table 4 shows the distribution of patients according to the level of perfectionism, loneliness, narcissism, and borderline emotionally unstable personality disorder. As can be seen from Table 4, 20–35% of patients had high rates for the listed parameters. These patients can be identified as a risk group in need of psychological assistance, since, according to the literature and previous studies [11], it is this complex of traits that predicts repeated suicides.

Table 4

The percentage of patients with varying degrees of dysfunctional personality traits in the subgroup with antihypertensive and antiarrhythmic drugs self-poisoning

Dysfunctional personality traits	Mild severity, %	Average level of expression, %	High level of expression, %
Perfectionism (total score)	28	58	14
Perfectionism (preoccupation with the evaluations of others)	28	44	**28**
Perfectionism (high standards)	72	14	14
Perfectionism (negative selection)	51	28	21
Loneliness	35	30	**35**
hypersensitive narcissism	58	21	**21**
Borderline personality traits	58	7	**35**

3) Cognitive factors reflecting ineffective ways of coping with stress.

The Table 5 presents the results of a comparison of two groups in terms of a number of parameters reflecting inefficient cognitive processes of coping with stress. In the group of patients with self-poisoning of psychotropic

drugs, the indicators of ruminations on the topic of loneliness and anergy, as well as one of the parameters of alexithymia — difficulties in describing one's feelings to other people, are statistically significantly higher.

Table 5

The comparative assessment of dysfunctional cognitive factors in subgroups of patients with antihypertensive, antiarrhythmic and psychotropic drugs self-poisoning

Dysfunctional cognitive factors	Patients with antihypertensive and antiarrhythmic drugs self-poisoning *Mdn* (*Q* 1–3)	Patients with psychotropic drugs self-poisoning *Mdn* (*Q* 1–3)	*p* Mann–Whitney test
Ruminations on the theme of anergy	**10 (8–15)**	**16 (13–19)**	**0.026**
Ruminations on the theme of loneliness	**4 (4–5)**	**7 (4.5–9)**	**0.011**
Ruminations with an attempt at analysis and distancing	5 (4–6)	6 (5–7.5)	0.19
Ruminations for the search for global explanations	8 (6–9)	11 (7–14)	0.26
Ruminations (total score)	32 (25–35)	43 (31.5–49)	0.16
Alexithymia - Difficulty describing feelings to others	**8 (5–9)**	**14 (9–18)**	**0.06**
Alexithymia - difficulty identifying feelings	8 (7–19)	19.5 (11–26.75)	0.11
Alexithymia - Outward-Oriented Thinking	21 (8–23)	18 (15–21.75)	0.64
Alexithymia (total score)	**37 (34–38)**	**51 (42–63)**	**0.25**

Comparison of the data in Table 5 shows that in the psychotropic drugs self-poisoning group, the severity of cognitive dysfunctional patterns is higher. The severity of alexithymia in the antihypertensive and antiarrhythmic drugs group does not go beyond the population quartile values. A group with high rates of alexithymia, that is, a low ability for emotional self-regulation, patients with psychotropic drugs self-poisoning. As for ruminative thinking or a tendency to non-constructive multiple mental return to unpleasant experiences and states, then, as can be seen in Table 5, in the antihypertensive and antiarrhythmic drugs group this indicator is increased in 28% of patients.

THE DISCUSSION OF THE RESULTS

Thus, the developed diagnostic complex makes it possible to identify a group of increased risk of repeated suicide attempts among patients with self-poisoning. If in the antihypertensive and antiarrhythmic drugs group the risk group with a high severity of dysfunctional personality traits and ways of coping with stress is approximately 30–35%, then in the psychotropic drugs group there are more than 50% of such patients, and a high level of alexithymia is added to dysfunctional personality traits and ruminative thinking, features of the organization of the affective-cognitive sphere, which sharply reduces the ability to emotional self-regulation and the utilization of psychological assistance. At the same time, in the antihypertensive and antiarrhythmic drugs group, the level of alexithymia is within the normative parameters. The data obtained suggest that the antihypertensive and antiarrhythmic drugs group may be more receptive to psychological and psychotherapeutic assistance and have a better prognosis in terms of effectiveness in providing this assistance.

It is important for high-risk patients to provide psychological assistance already at the stage of their stay in the acute poisoning department. Difficulties in interpersonal relationships are specific for the antihypertensive and antiarrhythmic drugs group - family and other interpersonal conflicts most often serve as a reason for self-poisoning. Therefore, it is recommended to pay special attention to the development of communication skills.

Psychological assistance can be in the form of psychoeducation, motivation to seek help, conducting a series of group and individual sessions based on cognitive behavioral therapy, including dialectical behavioral therapy, a

method developed specifically for working with suicidal risk [12]. It is also important for high-risk patients to be referred to specialized facilities where this care can be obtained.

Given the high percentage of family conflicts (indicated as a reason for self-poisoning), an urgent task is to include patients' relatives in the work. It is also important to convey the results obtained about the existence of a group of increased suicidal risk to cardiologists working in the primary medical network with patients who are recommended for course antihypertensive therapy. It is important to inform doctors about the possible consequences of using these drugs in the form of depressive symptoms, about the importance of psychoeducational work and strengthening compliance with patients, taking into account the identified dysfunctional personality traits in some of this contingent (socially prescribed perfectionism, emotional instability) and destructive coping strategies with stress (ruminative thinking).).

To identify a high-risk group in the conditions of both an emergency hospital and outpatient management of patients in the primary medical network, you can use the methods from the developed methodological complex, which made it possible to identify a risk group in the antihypertensive and antiarrhythmic drugs group, namely, A. Beck's self-reported depression scale (Beck Depression Inventory) ., adapted by N.V. Tarabrina, 2001), a questionnaire of dysfunctional beliefs in borderline personality disorder *(PBQ-BPD)* (adapted by M.A. Konina, A.B. Kholmogorova, 2016), as well as a scale of perfectionism (N G. Garanyan, A. B. Kholmogorova, T. Yu. Yudeeva, 2018), loneliness (*Revised UCLA)* (*Lineliness Scale, D. Russell, LA Peplau, ML Ferguson,* 1978) and ruminations (*Ruminative Responses Scale RRS)* (*W. Treynor, R. Gonzalez, S. Nolen-Hoeksema,* 2003; adaptation by O. D. Pugovkina, A. B. Kholmogorova, A. D. Syrokvashina, M. A. Istomin, 2020). Completing these questionnaires takes no more than 20-30 minutes.

CONCLUSIONS

1. Among patients with self-poisoning with antihypertensive and antiarrhythmic drugs, the group of increased risk of repeated suicide with a high severity of dysfunctional personality traits and ways of coping with stress is about 30%. Among patients with self-poisoning with psychotropic drugs, this group is more numerous (1.7-fold) and amounts to about 50%.

2. Patients self-poisoned with antihypertensive and antiarrhythmic drugs with a risk of re-suicide are characterized by depressive symptoms that persist before being discharged from the toxicology department of an emergency hospital, as well as dysfunctional personality traits and unproductive ways of coping with stress (perfectionism in the form of increased concern with other people's assessments and frequent unfavorable comparisons themselves with them, a tendency to experience loneliness, increased impulsivity and feelings of hostility from others, characteristic of borderline personality disorder, as well as ruminative thinking or repetitive unpleasant and unproductive thoughts about anergy, lack of strength and loneliness). For patients at risk with self-poisoning with psychotropic drugs, a high level of alexithymia is added, a low ability to understand their own and others' emotional states, which further complicates emotional self-regulation.

3. The developed methodological complex makes it possible to identify a risk group for re-suicide among patients with self-poisoning with antihypertensive and antiarrhythmic drugs and to identify targets for psychological assistance in each specific case.

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