

## ASSESSMENT OF THE EFFECT OF PSYCHOPATHIC DISORDERS ON THE DYNAMICS OF WITHDRAWAL SYNDROME IN SYNTHETIC CANNABINOID ADDICTION

<sup>1</sup>Pachulia Yelena Vladimirovna, <sup>2</sup>Turayev Bobir Temirpulotovich, <sup>3</sup>Sharapova Dilfuza Nematillayevna, <sup>4</sup>Shernazarov Farrux Farhod o'g'li

<sup>1</sup>Siberian State Medical University, Russian Federation city of Tomsk

<sup>2</sup>Assistant of the department of psychiatry, medical psychology and narcology, Samarkand State Medical University, Samarkand, Republic of Uzbekistan

<sup>3</sup>Samarkand State Medical University Clinical ordenator in the direction of psychiatry

<sup>4</sup>608 group students of Samarkand State Medical University Faculty of Medicine

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**Abstract.** *New psychoactive substances synthesized for scientific or medical research, as well as derivatives of these substances or previously identified drugs, mainly with a pronounced effect on the nervous system, up to a complete change in consciousness. They can be classified according to clinical effects (sedatives, stimulants and hallucinogens) or chemical structure.*

**Keywords:** *new psychoactive substances, psychopathic diseases, withdrawal symptoms, synthetic cannabinoids.*

**Introduction.** The chemical structure of a large number of substances for sale is still not known. Since only individual substances, not classes of substances, are prohibited and remain under the law, manufacturers are increasingly offering new derivatives to the consumer [1]. The situation could have improved as a result of amendments to legislation that allowed the ban on classes of substances, but in this case, many drugs could also be banned [2]. At the moment, consumers communicate on the internet networks of new psychoactive substances, discuss the emergence of new substances, their dosages, effects and side effects. New psychoactive substances can be ordered in the online store, and then delivered by mail. They are easily available and in great demand by consumers due to their legality, low cost and low health risks [3, 4]. New psychoactive substances are not identified by Standard immunological studies used for drug screening [5].

Synthetic cannabinoids are not detected by the standard THC test, nor are synthetic catinones detected by the amphetamine ELISA test. True, a small part is determined by Standard methamphetamine tests of new psychoactive substances. The piperazine ring, which is part of some substances, gives mixed results in a standard amphetamine Test [6]. For detection, novel psychoactive substances typically use other complex techniques, primarily gas chromatographic mass spectrometry (GC-MS) and liquid chromatographic mass spectrometry (LC-MS/MS). Thus, the necessary analysis can only be carried out in a toxicology laboratory or a forensic medical institution [7].

Most new psychoactive substances have not been clinically studied and there is not enough knowledge about them. Controlled clinical trials are often difficult due to methodological difficulties. Most of the available information was obtained by retro or prospective analysis of the medical history of patients being treated for poisoning new psychoactive substances, as well as from the data of the history of drug addicts [8-11]. As a result, the data obtained has limited scientific value. The description of the symptoms that occur during the consumption of a particular substance is difficult, since it is not always possible to identify this substance, or poisoning occurs against the background of the consumption of several substances [12-14].

New psychoactive substances are a heterogeneous group of psychoactive substances that have a psychotropic effect, with sufficiently wide points of toxicodynamic application, which explains the variety of clinical symptoms, even when taking them once [15-17]. Acute toxic effects are now described in literary sources. In the absolute majority of cases, they are a case or representative of a number of cases that are rarely analyzed in terms of studying the characteristics of the intoxication picture arising from a particular substance. Most of the publications provide information on the whole groups of new psychoactive substances or on the set of heterogeneous substances found in specific chemical-toxicological analyzes of the biological environments of those tested [18-21].

It should be taken into account that the large number of new psychoactive substances (more than 700) and chemical subgroups with different toxicodynamic profiles that have been identified to date present great difficulties for practitioners [22].

Clinicians should experience a variety of clinical symptoms that occur in patients over a short period of time, requiring rapid evaluation and orientation in underlying pathogenetic syndromes while stabilizing the patient. In addition, the use of the results of many publications for practical clinicians can lead to difficulties taking into account the variety of information presented in them, which has a more descriptive nature and requires critical evaluation and structure [23-27]. This literary review, according to our data, is the first Russian-language publication that jointly analyzes English and Russian data on the clinical aspects of acute intoxication of new psychoactive substances. Real analysis with elements a quantitative description was created, developed and successfully used using the method of empirical assessment of the risk of ingesting new psychoactive substances [28-31]. Based on the analysis of the data collected on certain toxic risks, recommendations for legal and preventive measures against new drug threats are being developed in the countries of the European Union, New Psychoactive Substances. Taking into account and analyzing the description of cases of intoxication in the post-Soviet space, new psychoactive substances are of mainly clinical importance for informing psychiatrists, toxicologists and emergency and emergency medical specialists [32-37].

The analysis shows that there is a great risk to human health when consuming new psychoactive substances. New psychoactive substances that represent a very diverse class of chemicals have many target organs, which is their effect on the neurotransmitter system, including the central nervous system [38]. For example, synthetic cannabinoids show activity in both synapses and endothelial cells [39]. This, in turn, leads to various clinical signs in the acute picture of intoxication by this group of new psychoactive substances [40-42].

The exponential growth of the new names of "synthetic drugs" requires constant study of their toxicological spectrum. However, this often leads to a number of difficulties: for example, obtaining prototypes of these substances in research laboratories and the legal status of such studies. An additional important point is the difficulty of extrapolating the results obtained in animal experiments and their application in clinical medicine [43-45]. All this determines the importance of "field" observations in practice with the accumulation of a base of intoxication States, new psychoactive substances with the most detailed description of the observed symptoms [46]. The possibility of studying the effects of basic structures in these formulas, which cause a certain toxic and psychotropic effect, and not individual formulas, remains important in relation to poisoning. As an example, it is worth mentioning the modern separation of new psychoactive substances depending on the direction of psychotropic action of groups within the class: cannabinoid receptor agonists (synthetic cannabinoids), stimulants of the central nervous system (synthetic cationones, phenethylamines), psychodispleptics (tryptamines, aminoindanes), suppressors of the central nervous system (synthetic opioids) [47].

The purpose of the study: to assess the effect of psychopathic diseases on withdrawal symptoms in synthetic cannabinoid addiction.

**Materials and methods.** The object of the study is 63 Narcological inpatient patients suffering from dependence on synthetic cannabinoids (JWH-18). The diagnosis is confirmed by the method of expert assessment in accordance with the criteria for the International Classification of diseases 10 revision (ICD-10) - heading F12. Criteria for joining the research group: adult age, consent to the study, withdrawal syndrome in mental and behavioral disorders caused by the use of synthetic cannabinoids. Exclusion criteria: the presence of co-chemical dependencies (including "conventional" drugs), endogenous diseases, dementia and other severe organic diseases. The subject of the study is psychopathic and abstinent syndrome in patients addicted to synthetic cannabinoids. Research methods: clinical-psychopathological, psychometric (Kardashian R. A. scale for determining the severity of psychopathological disorders of, 2007), statistic (Kaplan - Mayer survival analysis, Cox regression).

**Research results and their discussion.** The research group is divided into two subgroups according to the presence/absence of symptoms of history of psychopathic disorders (ICD-10 – heading "F60"): Group 1 – there are signs of psychopathy (n=17), group 2 – there are no signs of psychopathy (n=46).

Neither subgroup found significant differences in major socio-demographic factors. The average age in Group 1 is  $21,5 \pm 2,04$  years, in Group 2 The Age is  $21,2 \pm 3,29$  years. Both groups had a male majority: group 1 had 15 people (88,2%), Group 2 had 42 people (91,3%). The average experience of consuming synthetic cannabinoids has also been compared in small groups: Group 1 –  $2,35 \pm 0,99$  years, group 2 –  $2 \pm 0,9$  years. The tolerance of the substance also did not differ: Group 1 –  $2,12 \pm 0,99$  grams per day, group 2 –  $2,00 \pm 0,76$  grams per day. In small groups, the frequency of consumption of "spices" was equal: Group 1 -  $3 \pm 1,23$  times a day, group 2 –  $3,37 \pm 1,42$  times a day.

All patients addicted to synthetic cannabinoids entered the study at the initial stage of removal (1-2 days). During the withdrawal period, they underwent non-specific detoxification infusion therapy. The dynamics of cutting marks are R, which is replenished every day. A. Observed using the Kardashian scale.

In the early days of removal, the severity of the removal syndrome in small groups was comparable. Thus, the study was dominated by the average level of withdrawal symptoms: in subgroup 1 - 11 patients (64,7%), in subgroup 2 – 37 patients (80,4%). When conducting a comparative analysis using Kaplan-Mayer survival curves (observation period 20 days), the following characteristics were identified. In subgroup 1, the average duration of the removal period is greater than in subgroup 2 (14,89 days, 95% CI 13,37-16,39) ( $10,74$  days, 95% CI 10,07-11,39). The long-level test confirmed the statistical significance of the detected differences (chi-squared 21,5,  $p < 0,001$ ). Evaluation of the predictive model conducted using Cox analysis confirmed the effect of the psychopathic factor on the duration of the withdrawal symptoms. The ratio of coefficients is 4,34, 95% CI 2,10-8,98,  $p < 0,001$ .

**Conclusion.** Psychopathic diseases are one of the main comorbid factors affecting the removal period in chemical dependence. A study conducted proved this fact in relation to the dependence on synthetic cannabinoids. The study of other comorbid conditions associated with new types of addiction remains very important. The results of such studies are especially important in the construction of diagnostic and therapeutic approaches in the control of new types of Narcological nosologies.

Thus, analyzing the clinical aspects of the acute toxic effect of new psychoactive substances present in the scientific literature, it is necessary to highlight the very partial nature of the information presented.

Most of the research on this topic is at the level of individual clinical cases/description of a number of cases. At the same time, a structured review of literary sources allows us to talk about the variety of toxic effects of a particular class of psychoactive substances, a wide range of presented symptoms: from moderate pain syndrome and autonomic dysfunction to death. Knowledge of toxic profile data and constant monitoring of new psychoactive substances are an indispensable necessity in the practice of narcologists, psychiatrists, toxicologists who have faced modern drug threats.

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