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STRUCTURAL AND DYNAMIC FEATURES OF ACUTE PSYCHOSIS DUE TO THE USE OF SYNTHETIC CANNABINOIDS

In the last 10 years, virtually all countries have faced a change in the structure of drug use due to a decrease in the number of opiate along with an increase in the number of users of the so-called “new” psychoactive substances. Upon data collection from 126 patients, a dynamic clinical study of 356 psychotic states due to the use of synthetic cannabinoids was undertaken. Consecutive stages of development of psychosis along with its delirious, oneiroic, and amphetamine-like clinical variants were identified. The likelihood of development of psychosis and its clinical variants is determined by a complex of clinical, biological, psychopathological, and socio-psychological factors.

A complex of clinical, biological and socio-psychological factors was shown to determine the pathokinetic patterns of development of psychosis due to the use of synthetic cannabinoids. It was established that as the clinical picture of psychosis worsens, the psychopathological symptoms of a deeper level develop (hallucinations - delusions - mental automatisms - motor disorders) with a simultaneous gradual depletion of a psychopathological picture of psychosis due to a narrowing range of existing productive symptoms.

Key words: psychosis, synthetic cannabinoids, symptoms.

Introduction

In the last 10 years, virtually all countries have faced a change in the structure of drug use due to a decrease in the number of opiate users who until recently constituted the main contingent of patients at drug treatment clinics, along with an increase in the number of users of the so-called “new” psychoactive substances [1].

New psychoactive substances (NPS) are substances synthesized by making minor structural changes to the chemical formula of controlled natural or synthetic analogs [2]. According to the European Monitoring Center for Drugs and Drug Addiction (EMCDDA, 2017) [3], a significant part of the seized uncontrolled NPS refers to synthetic cannabinoids (SC) that received slang term “spice” [3,4]. Since September 2014, there have been periodically recorded cases of mass poisoning of persons whose urine tests revealed MDMB (N)-Bz-F tridimethylbutanoic acid of JWH group [5,6] in the Russian Federation.

Self-reported surveys in adolescents conducted abroad indicated a high percentage of NPS use including SC [7] in this age group [8]. There is an increase in primary treatment among adolescents regarding the use of SC in the Russian Federation [8, 9] and in the Republic of Kazakhstan [10-13].

Mostly, the appeals for medical care in SC users are associated with the development of acute psychotic symptoms, albeit patients being mainly hospitalized in toxicology departments of general hospitals with a diagnosis of “Acute poisoning caused by unknown poison” without having a clinical diagnosis of addiction disorder established. In connection with this, in Russian and Kazakh studies, there are no systematic descriptions of clinical dynamics of psychoses due to SC use.

Aim of study: Study of structural and dynamic features of acute psychoses due to SC use.

Materials and Methods

In the period from 2014 to 2017, 126 patients with acute psychoses due to SC use were surveyed. 76 of them were in-patients of the National Scientific Center for Addiction - a branch of the FSBI “V.P. Serbskij National Medical Research Center of Psychiatry and Narcology» Ministry of Health of Russia; and 50 patients were treated at the Republican Scientific and Practical Center for Psychiatry, Psychotherapy and Narcology in Almaty.

Slavic ethnicity was represented by 89 (70.6%) patients and Kazakh by 37 (29.4%) persons.

All studied patients were divided into two groups according to clinical diagnosis: 1) patients

with harmful SC use (61; 48.4%); 2) patients with dependence from SC (65; 51.6%). Diagnostics of mental and behavioral disorders due to SC use was carried out in accordance with ICD-10 criteria. In toxicological examination of urine samples, SC (predominantly JWH, AB-PINACA and TMCP) were identified for all 126 patients.

Most of the subjects were male (114; 90.5%) of age 18-46 years old with a mean age of 26 ± 0.3 years. The subject of the study was 356 psychotic episodes observed in the patients during the current clinical study (126), either described in their medical records (55) or analyzed according to anamnesis (175). Psychoses developed more often during acute SC intoxication (76, 60.3%), less often - within SC withdrawal syndrome (35; 27.8%); delayed psychotic debut (from 18 to 36 days after the last use of the SC) was registered in 15 cases (11; 9%). Clinical-psychopathological, clinical-anamnestic, laboratory-instrumental and statistical methods were used.

Results and Discussion

In clinical dynamics of the developing psychosis following the SC use, several consecutive stages were identified: in the "prodromal period", a variety of insomnia symptoms developed in conditions of anxiety and asthenia with frequent waking up to nightmarish and / or frightening dreams; for sporadic cases, large convulsive (3) or abortive (4) epileptiform seizures were registered; at the "affective stage", emotional lability of affect from states of emotional depression to euphoria or a hypomaniac state with heightened talkativeness, causeless fun, excessive distractibility and instability of attention, motor agitation, accelerated and inconsistent speech, uncontrollability of associations, and mental hyperesthesia were observed; at the subsequent "illusory-hallucinatory stage", against the background of an extremely labile affect, colorful and rapidly changing multiple pareidolias developed, which were transformed into dynamic and vibrant visual hallucinations with coherent individual deception of perception, sensual delusion of persecution, mobile and changing facial expression, reflecting the content of psychopathological experiences; at the final "stage of deep disorganization of mental activity", detachment from the surrounding world, gross disintegration of thinking, fragmentary hallucinatory-delusional symptoms, fragmentary and not connected with external factors verbal activity, as well depletion of the motor sphere were identified.

According to the clinical and dynamic analysis of psychotic states and considering the depth of obscure consciousness and its psychopathological structure, three clinical variants of psychosis were identified:

- 1) delirious (68; 54,0%);
- 2) oneiric (34; 27,0%);
- 3) amentative-like (24; 19,0%).

Delirious variant of psychosis (68; 54.0%) manifested by a false orientation in the surrounding, multiple, colorful and dynamic pareidolias, stage-like visual hallucinations, single tactile and auditory deception of perception. Patients watched imaginary events but were not involved in them. Fragmentary delusional ideas of an imaginative character were noted accompanied by a changeable affect with a predominance of anxiety and fear against the background of speech-motor agitation.

The clinical picture of the oneiric variant of psychosis (34; 27.0%) was characterized by a dreamlike obscure consciousness with an influx of dreamlike fantastic hallucinatory-delusional experiences, disorientation in place and time, a double self-orientation, and disturbed perception of time. Self-consciousness was changing and deeply disturbed. The patients perceived themselves to be participants in fantastic events, played out in their imagination, and completely immersed in the experienced images. The sense of reality was completely lost the surroundings and did not attract their attention. On their faces, there was an expression of surprise or horror, anxiety, fear related to the content of psychopathological experiences. Catatonic symptoms were observed in the form of a substupor, catalepsy, and individual short-term episodes of arousal in bed. The patients looked distracted, inhibited, sometimes wandered thoughtfully with an "enchanted smile", periodically stopped. Movements were scanty and slowed down, facial expressions were frozen/ Sometimes the patients performed "smoothly flying" movements with their hands.

The amentative-like type of psychosis (24; 19.0%) manifested with a deep degree of obscure consciousness with the depletion of all types of mental activity. Patients were deeply disoriented in place, time and self. They were confused, did not comprehend the events, did not understand the events, perceived the environment fragmentary, did not know their name, did not recognize themselves in a mirror. Individual incoherent and deprived of a certain subject visual and auditory hallucinations and elements of incoherent and fragmentary imaginative delusional ideas were observed. There was a marked

disintegration of all components of thinking and the disintegration of self-consciousness. Accelerated speech consisted of separate and disjointed words. Thinking and speaking were incoherent. Emotions inadequate, inconsistent and often changing their polarity. Their mood was unstable; the state of enthusiasm was replaced by tearfulness and / or emotional depression. Monotonous stereotypical jerking, winching and motor excitation limited to the bed. Movements were unfocused, inconsistent, and often sweeping[10]. No lucid episodes were observed; in the evening-night time, short-term episodes of delirious structure were often noted.

In all patients, withdrawal from psychosis was lytic after prolonged medical deep sleep lasting up to several hours (7 ± 0.2 hours). After waking, the symptoms of psychosis usually completely stopped. In rare cases (9; 7.1%), after the relief of acute psychotic symptoms for 7 ± 1.6 days, post-psychotic asthenia was observed in the form of drowsiness, lethargy, absent-mindedness, and cognitive decline. At the end of psychosis of the oneiric type, residual delusion was observed in some cases (8; 23.5%) for several days. Post-psychotic amnesia after the relief of psychotic symptoms of delirious and oneiric structures was not registered. After the release of the psychosis, patients reproduced the content of psychotic experiences in sufficient detail, but did not remember the real situation. After psychosis of the amentive-like structure, only isolated and fragmentary memories of psychopathological experiences were observed.

The mortality among 126 given patients was not observed.

The duration of psychosis was different: within SC intoxication, it accounted for 12-24 hours as part of a withdrawal syndrome that lasted up to 36 hours; with a delayed debut – up to 72 hours. The mean duration of psychosis was 1 ± 0.42 day.

Patients of Slavic ethnical group (89; 70.6%) more often developed psychoses of the delirious (48; 54.0%) and oneiric (31; 46.1) structures; psychoses of amentive-like type developed significantly less frequently (10; 11.2%). Patients of Kazakh ethnical group (37; 29.4%) more often developed psychoses of the oneiric (18; 48.6%) and amentive-like (12; 32.4%) structures; while delirious psychoses (7; 18.9%) were observed significantly less frequently. The prevalence of psychoses of a deeper mental disturbance (psychosis of the oneiric and amentive-like structure) among people of Kazakh versus Slavic ethnicity may indicate that the native population of the Republic of Kazakhstan has weak enzymatic mechanisms of neurobiological protection.

For a comparative clinical analysis of each of the selected clinical variants of psychoses, the parameters characterizing the specific psychotic development were extracted from all the studied data (socio-psychological, clinical-biological, clinical-psychopathological).

The delirious variant of psychosis often developed in SC intoxication ($r = 0.67$) and SC withdrawal ($r = 0.61$), in combination with other psychoactive substances ($r = 0.67$) with a high level of basic tolerance ($r = 0.58$) and relatively high actual single dose of SC ($r = 0.69$). Additionally, in presence of combined personal and endogenous pathology ($r = 0.79$), without organic mental disorder in the morbid period ($r = 0.58$), with organic damage to the central nervous system ($r = 0.57$) and somatic burdens ($r = 0.78$).

The oneiric variant of psychosis correlated with delayed debut ($r = 0.67$), the presence of combined personal and endogenous pathology ($r = 0.68$), without drug abuse history or only a single and non-systemic SC and other drugs' use in the past ($r = 0.73$). As well as that, with a low level of basic tolerance to SC ($r = 0.63$) and in the absence of a combined clinically significant somatic and neurological pathology ($r = 0.78$).

Amentive-like variant of psychosis developed more frequently during the withdrawal period ($r = 0.57$), correlated with SC dependence ($r = 0.78$), combined somatic ($r = 0.69$) and neurological pathology ($r = 0.72$), organic mental disorder ($r = 0.68$), and low level of basic tolerance ($r = 0.73$).

Conclusion

Psychoses due to the use of SC develop either in the framework of SC dependence or after single episodes of SC abuse. They manifest in all phases of SC use: intoxication, withdrawal syndrome or period of up to 20 days after the last SC intake with delayed debut.

The likelihood of development of psychosis and its clinical variants is determined by a complex of clinical, biological, psychopathological, and socio-psychological factors.

A comparative analysis of the psychopathological structure of the identified SC psychotic variants came to the following conclusions. As the clinical picture of psychosis worsened and the state of confusion intensified, psychopathological disturbance of an ever deeper level developed (affective symptoms - illusions and pareidolias - hallucinations – delusions - mental automatisms - motor disturbances) with a simultaneous gradual depletion of a psychopathological picture of psychosis in the context of a narrowed range of existing symptoms.

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