



## Case Report

# Attempted suicide with intravenous methamphetamine and chemsex<sup>☆</sup>



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### ABSTRACT

**Background:** Undiagnosed attention deficit and hyperactivity disorder (ADHD) is frequent in the substance abuse disorder population, and has an intense repercussion in the daily life of the patients. That condition increases the risk of substance abuse disorders and risk conducts derived from impulsivity. There are not yet studies linking ADHD and the new emergent phenomenon of chemsex, that is, the action of use the intravenous injection of substances in sex parties, with the objective of maximising the practising time and sexual experience. In these sessions, different types of drug are used, for example, synthetic cathinone or mephedrone, and may lead to diverse medical and psychiatric complications like psychosis, aggressiveness and suicide ideation.

**Case:** We report the case of a 44-year-old man admitted into a psychiatric unit, presenting with 2<sup>nd</sup> time suicidal high risk attempt using intravenous methamphetamine and a dis-solvent acid in the context of a depressive episode, after practising chemsex sessions almost every weekend with psychoactive substances taken orally, intravenously and intrarectally. The patient also presented psychotic symptoms from the use of these drugs. When we interviewed the patient during his hospital stay, we observed that there were symptoms of a possible attention and hyperactivity deficit, which was confirmed by study with ASRS-V1.1 and WURS scales. After three weeks, the patient improved substantially as his depressive symptoms and autolytic ideation disappeared.

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*Discussion:* Look for “hidden” symptoms in substance abuse disorder patients. It is important not to delay important diagnostic tests and to prevent complications. Psychiatric and medical conditions related to chemsex have been reported in several European cities, and recently in Spain where it is an emergent phenomenon and a problem concerning medical and political institutions. The suicide attempt with metamphetamine and acid taken intravenously in the case we report, depressive and psychotic symptoms, addiction, suicide attempts and medical complications are described.

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## Intento de suicidio con metanfetamina endovenosa y chemsex

### R E S U M E N

*Palabras clave:*  
Chemsex  
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Intento autolítico  
TDAH  
Metanfetamina

*Introducción:* El trastorno de déficit de atención e hiperactividad no diagnosticado es una condición comórbida frecuente en los trastornos por abuso de sustancias, y tiene un importante impacto en la vida de los pacientes, pues incrementa el riesgo de abuso de sustancias y el riesgo derivado de conductas impulsivas. En el momento actual no existen trabajos que estudien la relación entre el TDAH y el fenómeno emergente del *chemsex*, es decir, el uso de sustancias psicoactivas en el contexto de fiestas sexuales para maximizar el tiempo de práctica sexual y de las experiencias subjetivas. En estas sesiones se usan diferentes sustancias como, por ejemplo, las catinonas sintéticas como la mefedrona, que podría inducir complicaciones médicas y psiquiátricas como psicosis, agresividad e ideación suicida.

*Caso:* Un varón de 44 años ingresó en la unidad de agudos de psiquiatría tras un segundo intento de suicidio de elevada letalidad con el uso de metanfetamina endovenosa mezclada con un ácido queratolítico, en el contexto de un episodio depresivo y práctica activa de sesiones de *chemsex* con una frecuencia semanal, en las que tomaba mefedrona vía transrectal, que provoca episodios puntuales de psicosis tóxica autolimitada. Se objetivó clínica compatible con TDAH no diagnosticado, y se aplicaron ASRS-V1.1 y WURS, que indicaron TDAH. Se ajustó el tratamiento antidepressivo y remitieron los síntomas depresivos y la ideación autolítica.

*Discusión:* La búsqueda de síntomas de TDAH «ocultos» en el contexto del abuso de sustancias es importante para no retrasar diagnósticos con importancia esencial y prevenir complicaciones. Complicaciones médicas y psiquiátricas relacionadas con la práctica del *chemsex* se han comunicado en Europa y recientemente en España, donde es un fenómeno emergente que preocupa. Se describen el intento de suicidio con metanfetamina, síntomas depresivos y psicóticos, abuso de sustancias y complicaciones médicas.

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## Introduction

The association between substance use and attention deficit/hyperactivity disorder (ADHD) has been extensively documented.<sup>1,2</sup> ADHD is associated with a higher risk of depressive disorders and suicidal behaviour,<sup>3-5</sup> and its diagnosis in adulthood is delayed by the presence of comorbidities.<sup>6,7</sup>

Recent years have seen a proliferation of substance-use practices involving *chemsex*:<sup>8-10</sup> long sessions (lasting up to days) of group sex in a context of chemical substance use to facilitate or enhance sexual activity. It may be called “Russian roulette” if one participant is secretly infected with human immunodeficiency virus (HIV) and the rest of the participants assume the risk of becoming HIV-positive.<sup>11,12</sup> Several studies have examined the psychological impact of this practice on

its practitioners.<sup>13-16</sup> The use of new technologies has facilitated the proliferation of smartphone apps through which such contact is arranged.<sup>17-19</sup>

We report a case that encompasses polysubstance abuse, chemsex, psychotic symptoms, undiagnosed ADHD and, finally, depressive disorder with a suicide attempt by substance injection. According to our review of the literature, this would be the second case of psychotic symptoms in the context of psychostimulant use and *chemsex*.

## Case report

A 44-year-old man was admitted to the psychiatric intensive care unit due to a suicide attempt by intravenous injection of

acid and methamphetamine (*crystal meth*) into his left forearm.

The patient's family psychiatric history included a first-degree paternal relative with alcohol use disorder, a first-degree maternal relative with depressive disorder being followed up by psychiatry and a second-degree relative who had died by suicide (hanging) with prior signs and symptoms of depression.

His personal somatic history included penicillin allergy, HIV infection being treated with Eviplera<sup>®</sup>, without hepatitis C coinfection, and syphilis treated in 2006.

As regards toxic habits, the patient reported that he had started smoking at age 16 (5-10 units per day); had started drinking alcohol at age 18 (at present, occasional drinking, without signs of abstinence); had started using cannabis at age 18 (daily use in the form of inhaled/smoked marijuana, 3-4 units per day); had used cocaine from age 18 to age 35 (on weekends by nasal inhalation of 1-2 g per week, with abstinence since then); had used ketamine recreationally for one year with abstinence at present; had used amphetamine from age 18 to age 35, daily, in an unspecified dose (with no current use); had been using methamphetamine starting at age 43 (snorted and intravenous 3-4 days per week during *chemsex*); and had been using mephedrone starting at age 43 (snorted and transanal 3-4 days per week during *chemsex*).

When he arrived in the accident and emergency department, he reported that he was gradually ceasing to engage in substance use, other than cannabis use since age 35 and psychostimulant use during *chemsex* since the previous year. In the year prior to the current episode, he had presented signs and symptoms of depression in a context of environmental (occupational and financial) stressors, along with psychotic symptoms in a context of substance use, in the form of delusional ideation of harm and self-referential behaviour, which were self-limiting following use.

A few months earlier, he had attempted suicide with intravenous methamphetamine and therefore was admitted to the psychiatric intensive care unit in his residential area. Upon discharge, he was followed up on an outpatient basis and went to a therapeutic community to treat his substance abuse. He continued to engage in substance use and experienced persistent symptoms of depression with suicidal ideation. He then rented an apartment intending to carry out another suicide attempt by intravenous injection of a mixture of acid solvent and methamphetamine; his partner found him and brought him to the accident and emergency department for assessment.

He needed surgery due to necrosis of his forearm. Once hospitalised, his history was reviewed and an extensive psychopathology interview was conducted, revealing that the patient used psychostimulants to help him in his day-to-day work. As undiagnosed ADHD was clinically suspected, the Adult ADHD Self-Report Scale (ASRS-v1.1) and the Wender Utah Rating Scale (WURS) for ADHD screening were administered. These found him to be on the ADHD spectrum; therefore, his psychiatric drug treatment was adjusted with methylphenidate 54 mg/day, venlafaxine 150 mg/day and mirtazapine 15 mg/night. The patient showed gradual affective improvement; his suicidal ideation ceased and he

showed no symptoms of withdrawal. Hence, he was discharged with follow-up in the drug dependence centre in his area.

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## Discussion

In the case reported, the patient had two concomitant psychiatric diseases (ADHD and depressive disorder), motivating him to use psychoactive substances and practice *chemsex* and requiring a dual approach to address his psychiatric conditions as well as his substance use.

Regarding the psychiatric clinical picture reported, signs and symptoms of a depressive disorder leading to a highly lethal suicide attempt were observed. Today it is known<sup>2</sup> that there is a link between ADHD and substance abuse, with possible underlying genetic causes, which justifies preventive activities in high-risk populations, especially adolescents with ADHD. Similarly, professionals who care for such patients should take both diseases into consideration to examine them jointly when one of them is seen in day-to-day clinical practice.

It is reasonable to wonder whether it is possible to diagnose ADHD in a state of uncontrolled substance use. It is now known<sup>1</sup> that there are no obstacles to investigating and potentially diagnosing this disorder, or to starting the corresponding treatment, if required, so as not to delay any intervention needed to ensure that the patient follows a favourable course. Regarding depressive episodes in the context of ADHD in adults, at present, the general recommendation is to administer bupropion, as indicated by a randomised meta-analysis featuring a control group with placebo.<sup>20</sup> This treatment had already been tried in our patient, to limited effect in the past. There are no clinical trials at present comparing the efficacy of treatments in depressive episodes in the context of ADHD in adults<sup>21</sup>; hence, the choice of drug must be based on the clinician's experience and the patient's symptoms.

Regarding substance use, mephedrone and methamphetamine merit special mention. Mephedrone, a nascent public health problem,<sup>22</sup> is used in the form of powder, tablets, crystals and capsules. It can be administered by virtually any route of administration,<sup>23</sup> but the most common is intranasal. The transrectal route is commonly used, as in our patient. Mephedrone is capable of increasing brain levels of dopamine, as well as noradrenaline and serotonin.<sup>24</sup> Doses range from 100 to 200 mg/h, with higher doses by the oral route and lower doses by the intranasal route.<sup>25</sup> The effects of the substance also depend on the route of administration: by the oral route, they start within 30 min and persist for 2-5 h; by the intranasal route, they develop within 10 min and last for 1-2 h; and by the intravenous route, they start after 10 min and remain for around 30 min.<sup>25</sup> The physical effects of the substance vary widely and include tachycardia, hypertension, insomnia and, in the psychiatric sphere, agitation, confusion and suicidal ideation.<sup>26</sup> Deaths following recreational use in individuals 16-24 years of age have been associated with being male and using other substances, and have occurred following self-administration of an overdose with suicidal intent or secondary to cardiovascular effects or failure of other organs.

Methamphetamine, similar to mephedrone, is also capable of increasing brain levels of dopamine, noradrenaline and serotonin by blocking monoamine reuptake receptors.<sup>28</sup> It is most commonly administered by smoking, by snorting or, to a lesser extent, via the intravenous or oral route.<sup>28</sup> The clinical signs of methamphetamine use include a feeling of increased energy, alertness, euphoria, sympathetic nervous system activation, chronic affective and cognitive changes, irritability, suspicion, paranoia and hallucinations. In a disease context of an underlying psychiatric disorder, it may exacerbate the patient's usual symptoms.<sup>29</sup> Abuse of amphetamines, including methamphetamine, is among the types of drug abuse that have spiked most in recent times.<sup>30</sup> According to the World Drug Report 2018 from the United Nations Office on Drugs and Crime (UNODC), amphetamines and amphetamine derivatives collectively represented the third most commonly used type of substance in the prior year, having been used by 34 million people (these figures were similar for those for opioids and behind those for cannabis, having been used by 192 million people).<sup>31</sup> Hence, they are also considered a public health problem. A study conducted in Denver (United States) in 592 patients who regularly engaged in intravenous drug use reported that the most commonly intravenously injected drug was methamphetamine, jumping from 2.1% in 2005 to 29.6% in 2015.<sup>32</sup> These rates can be extrapolated to other Western countries according to the subsequent UNODC report mentioned above.<sup>31</sup> Worthy of mention is the high rate of comorbidity with psychiatric conditions, particularly primary psychotic disorder (28.6%), primary affective disorder (32.3%) and ADHD (40%),<sup>28-33</sup> as in our patient. In addition, rates of suicide attempts are higher in patients with an amphetamine use disorder than in people without a substance use disorder.<sup>34,42</sup> Another prospective cohort study found that suicide attempts in people who used intravenous methamphetamine had an 80% increase in their risk of suicide (adjusted hazard ratio = 1.8;  $p = 0.02$ ); therefore, it recommended strategies for preventing self-injurious behaviours in these patients, in the form of suicide prevention strategies with harm reduction and substance use disorder treatment programmes.<sup>34</sup>

As can be seen, the risks for somatic health, psychiatric health and substance use involved in intravenous psychostimulant use and chemsex, not very commonly identified in Spain, represent a real public health problem. This is corroborated by reports from the United Kingdom and Spain, where this has also been postulated to be a significant problem according to preliminary studies in the Madrid area that can be extrapolated to the rest of Spain.<sup>10</sup>

Therefore, it represents a diagnostic challenge given the implications for active treatment and preventive measures that it entails. It is necessary to better train healthcare personnel in this regard, introduce the approach in the clinical interview on these aspects of ADHD comorbidities with substance abuse and symptoms of depression, as well as chemsex practices and high-risk self-injurious behaviours. It is also necessary to expand the outpatient approach to provide patients with information on available treatments and resources, carry out preventive efforts and propose outpatient support enabling suitable follow-up of these patients.

[35,36,37,38,39].

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