Toxicologie Analytique & Clinique (2017) 29, 34—40

Disponible en ligne sur
ScienceDirect
www.sciencedirect.com

Elsevier Masson France
EM|consulte
www.em-consulte.com

ORIGINAL ARTICLE

Poisoning by synthetic cathinones: Consumption behaviour and clinical description from 11 cases recorded by the Addictovigilance Centre of Bordeaux

Amélie Daveluy[a,*], Magali Labadie[b], Karine Titier[c], Arnaud Courtois[b], Françoise Penouil[b], Nadège Castaing[c], Françoise Haramburu[a], Isabelle Faure[d], Charles Cazanave[e], Jean-Michel Delile[f], Véronique Latour[g], Guillaume Valdenaire[d]

[a] *Inserm U1219, service de pharmacologie médicale, centre d'addictovigilance, CHU, 33000 Bordeaux, France*
[b] *Centre antipoison et de toxicovigilance, pôle urgences, CHU, 33000 Bordeaux, France*
[c] *Service de pharmacologie médicale, laboratoire de pharmacologie-toxicologie, CHU, 33000 Bordeaux, France*
[d] *Service des urgences adultes, pôle urgences, CHU, 33000 Bordeaux, France*
[e] *Service des maladies infectieuses et tropicales, CHU, 33000 Bordeaux, France*
[f] *Comité d'étude et d'information sur la drogue et les addictions (CEID), 33000 Bordeaux, France*
[g] *La CASE, centre d'accueil et d'accompagnement à la réduction des risques pour usagers de drogues, 33000 Bordeaux, France*

Received 14 October 2016; received in revised form 24 November 2016; accepted 25 November 2016
Available online 27 January 2017

KEYWORDS
Cathinone;
Poisoning;

Summary Synthetic cathinones represent a large class of new popular drugs of abuse in France and in Europe, commonly called new psychoactive substances (NPS). We describe 11 cases of

* Corresponding author at: service de pharmacologie médicale, centre d'addictovigilance, hôpital Pellegrin, CHU, 33076 Bordeaux cedex, France.
E-mail address: amelie.daveluy@u-bordeaux.fr (A. Daveluy).

http://dx.doi.org/10.1016/j.toxac.2016.11.005

Substance-related disorders;
Public health surveillance

synthetic cathinone abuse reported to the Bordeaux Addictovigilance Centre between January 2014 and December 2015. Cases were described according to the type of substance used, patient's age and gender, type of complications, context of use and year of the event, and, when a toxicological analyse was available, the analytical method of detection and the samples of analyse (blood, urine, powder). All patients were male, with a mean age of 35.9 years old. The synthetic cathinone most frequently reported by users was methylenedioxypyrovalerone ($n = 8$). There was analytical confirmation of synthetic cathinone use in 6 cases. Nine cases were serious, with neurologic and/or psychiatric complications in most cases. The outcome was favourable in 10 cases but one patient died. Questioning patients about use of NPS is essential, as well as NPS analytical identification when an intake is suspected.

Introduction

In recent decades, the psychoactive substances market has changed. Cannabis, opiates and cocaine are still the most commonly used psychoactive compounds in France (excluding tobacco and alcohol), but the use of MDMA (ecstasy) [1] and new substances are dramatically increasing, especially among young people in recreative places. These new substances, so-called new psychoactive substances (NPS) or research chemicals (RC), have appeared over the past 10 years, mainly because of reduced availability or quality of more ''classical'' substances such as heroin, cocaine or ecstasy, and the development of forums for users and shopping sites on the Internet. These NPS are chemical analogs or derivatives of substances already known, by adding a chemical radical to create several new derivatives with similar psychoactive properties. Because the chemical structure is different from the original substance, these new substances are not subjected to the regulations by law as it is the case for the original substance usually classified as narcotic. This feature is probably contributing to their availability on the market and increasing their consumption [2].

There are over a hundred NPS already known, consumed for their stimulant and entactogenic properties [2]. The prevalence of the use of these NPS is difficult to estimate. In the United Kingdom, a study among students highlighted that 20% of them had used at least once mephedrone [3]. A European study showed that 9% of emergency department income involving a psychoactive substance was related to the use of an NPS, and mainly cathinones [4]. In France, this was encountered for 7.4% of emergency department income involving psychoactive substance [5]. Synthetic cathinones, derived from khat [6], are the most frequently consumed NPS in France and Europe [4]. The increase in their use, especially among young people, led the French authorities to enroll some of these NPS on the list of narcotic substances in July 2012, as it was done before for cathinone and khat [6].

It is difficult to estimate the prevalence of cathinone complications mainly because patients at the emergency department are rarely questioned about the use of these drugs, and the NPS are not always detectable in biological samples by conventional toxicological screening usually used in laboratories [gas chromatography-mass spectrometry (GC-MS), liquid chromatography-diode-array detector (LC-DAD) and liquid chromatography-tandem mass spectrometry (LC-MS/MS)]. For these reasons, the consumption is rarely known, and the clinical signs are rarely described.

In the present study, we report a series of 11 cases of synthetic cathinone consumption initially recorded by the Bordeaux Addictovigilance Centre [7], between January 2014 and December 2015.

Method

The French Addictovigilance network (FAN), coordinated by the French Medicines Agency (ANSM), monitors addiction related to psychoactive drugs (tobacco and alcohol excluded). The surveillance system, in place since 1990, is based on spontaneous reporting (mandatory for health professionals) and on specific surveillance programs using several data sources to monitor abuse potential of psychoactive drugs [7]. This participates to the risk assessment of the use of psychoactive drugs, of drug abuse and of consumption patterns for general public health.

For this study, all cases of synthetic cathinones consumption recorded by the Bordeaux Addictovigilance Centre were analysed between January 2014 and December 2015. Cases were described according to the type of substance used, patient's age and gender, type of complications, context of use and year of the event, and, when a toxicological analyse was available, the analytical method of detection and the samples of analyse (blood, urine, powder).

Results

In this 24-month period, 11 cases of poisoning with a synthetic cathinone were reported: 4 in 2014 (that represented 3.2% of all cases recorded by the Addictovigilance