Eur Child Adolesc Psychiatry (2012) 21:527–528
DOI 10.1007/s00787-012-0282-9

LETTER TO THE EDITOR

Drug-induced acute psychosis in an adolescent first-time user of 4-HO-MET

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Received: 14 November 2011 / Accepted: 23 April 2012 / Published online: 12 May 2012

Dear Sirs,

4-HO-MET (4-hydroxy-*N*-methyl-ethyltryptamine), also known as metocin, is a synthetic hallucinogenic psychedelic drug. It resembles psilocin, the hallucinogenic component found in "magic mushrooms" [1]. In many countries including Sweden [2], 4-HO-MET has not yet been classified as an illicit substance, and can be ordered on the internet as a so-called "legal high". We describe a case where an adolescent presenting with apathy and mutism was later diagnosed with a drug-induced acute psychosis after inhalation of 4-HO-MET.

"B", a 17-year-old boy living with his parents, was admitted to the acute medical department after being found by police, wandering along a motorway in his underwear. He expressed to the policemen that "I will not talk to anyone" and then remained mute and apathetic.

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"B" had been well psychiatrically and somatically until this acute presentation. He had been abusing cannabis for 5 months, contributing to unpermitted time off school, but did not fulfil criteria for a dependence syndrome and maintained acceptable school grades and good social functioning. He used alcohol infrequently, and reported using cocaine once only, 2 days before admission. Cocaine and cannabis are well-established psychosis precipitants, but while prior drug use may have increased the patient's vulnerability to psychosis, there was no suggestion that "B" had not been himself 1 day prior to admission, suggesting a very sudden onset of severe psychiatric illness. Apart from a grandfather with depression during middle age, there was no family history of psychiatric or neurological disease. "B" had no previous contact with psychiatric services.

On admission, blood tests and a CT head scan were conducted, showing no significant abnormalities. A bedside urinary toxicology screen was positive for THC and cocaine, but no further analysis was done. "B" received supportive care. On the evening of admission, after being apathetic all day, he suddenly took his own discharge. He was soon found outside the hospital, having jumped 3–4 m from a roof. A full-body trauma CT showed a fractured right radius and a small right-sided pneumothorax, but no intracranial pathology. A neurological examination, including an EEG, showed no abnormalities. "B" was detained under the Swedish mental health act due to severe agitation and presumed acute suicidality and was moved to the psychiatric intensive care unit. He soon again became apathetic. Due to ongoing need for medical supportive treatment, "B" was discharged back to an acute medical care unit.

After 2 days with supportive care, his medical condition stabilised. At this stage a further psychiatric assessment was made. The patient was mute and withdrawn during the

interview. Therefore, the background history was taken from the father. Due to concern for acute severe psychiatric illness, the boy was admitted to the Child and Adolescent Psychiatry Emergency Unit. A differential diagnosis included drug-induced or affective psychosis, depressive stupor, and trauma with dissociation. Antipsychotics were withheld due to diagnostic uncertainty and the patient's now subdued status. Further, Swedish clinical guidelines recommend conservative use of antipsychotics during the first week of illness, thus aiding the diagnostic process and clarifying the natural illness course [3]. "B" improved gradually over the next week. He became more adequate in social interaction, but initially claimed having retrograde amnesia.

On the day of discharge, 11 days after hospital admission, a mental state examination indicated no ongoing psychiatric illness, and "B" disclosed the entirety of his story. He had received 4-HO-MET powder from a friend who had ordered the drug over the internet. "B" inhaled approximately 100 mg of 4-HO-MET on the evening before admission. He soon started seeing doors in the bookcase in front of him. In panic he left the apartment. He walked the streets that he experienced as under a metre of water and filled with snakes. He felt distressed, lonely and persecuted. He sensed insects under his skin and his heart jumping out of the chest. "B" remembered being admitted to hospital and inside his head he heard his father's voice repeating "you have never dared to dive". He therefore escaped from the ward, climbed onto a roof and "dived" to prove his father wrong.

Acute symptoms of psychosis gradually settled, but he disclosed having felt paranoid about food and drink on the ward for several days thereafter. "B" was discharged with outpatient follow-up with a counsellor at the unit for young drug users. He remained drug free, and after assessment by a senior psychiatrist 2 months later, revealing no evidence of residual psychopathology; "B" was discharged from outpatient services.

4-HO-MET and other "legal highs" are widely available on the internet [4]. Packages contain limited information about ingredients, dosage, effects and side-effects [4]. Thus the risk of ill effects and overdosing is considerable. Data on effects and toxicity of 4-HO-MET are scarce, meaning that clinical diagnosis and management is challenging. A phenomenological study [2] describes largely similar experiences after 4-HO-MET use to psilocybin effects, with changes in perception and synaesthesia, euphoria, anxiety and paranoia. A literature search identified a single report including nine cases of pure 4-HO-MET toxicity, suggesting symptoms similar to psilocybin toxicity such as mydriasis, nausea, tachycardia, breathlessness, agitation and hallucinations [1].

The self-reported intake of 4-HO-MET was not confirmed by laboratory analysis in this patient. However, detection of "legal highs" is problematic, as routine toxicology screening will not necessarily show the presence of new or uncommon substances. 4-HO-MET is detectable in urine, but only through analysis at specialist centres [1]. False-positive urine toxicology tests are well described in the literature [5] and cases where 4-HO-MET yielded false-positive results for amphetamine and cocaine in urinary analyses have been reported [1].

This case shows that the "legal high" 4-HO-MET can induce an acute psychotic illness in a first-time adolescent user, and stresses that psychiatric patients should be assessed thoroughly for drug use, including use of newer substances. This is of particular relevance where there is an acute and atypical presentation and course. Further, the case emphasises the importance for clinicians to consider conducting more thorough toxicology analyses when routine screening does not provide sufficient explanatory evidence for clinical symptoms encountered.

Conflict of interest The authors declare that they have no conflict of interest.

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