

Ketamine analogue Methoxetamine and related deaths in the UK during 2011-2012: descriptive and clinical characteristics of *national programme on Substance Abuse Deaths (np-SAD)* cases

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CONTEXT

Despite widespread internet availability and use, many new drugs of abuse remain unfamiliar to health care providers. Methoxetamine (MXE), formerly sold online as a legal alternative to ketamine, is a novel psychoactive substance (NPS) that, like other illegal drugs, could have significant or life-threatening adverse effects. The drug first appeared in 2010 and, despite now being a Class B drug, is still widely marketed via the internet as a research chemical.¹

The UK appears to be the primary target market.²

Considering methoxetamine's increasing popularity, this poster draws upon information found in the literature and provides an overview of methoxetamine-related fatalities reported in UK in 2011-2012.



INTRODUCTION

Methoxetamine³, as an analogue of ketamine (Figure 1., Figure 2.), acts similarly to a non-competitive antagonist at the N-methyl-aspartate receptor and a Dopamine reuptake inhibitor.

Its behavioural effects resemble those induced by dissociative anaesthetics⁴, including euphoria; empathy; dissociation from the physical body; and hallucinations. Adverse side effects include confusion; psychomotor agitation; and cognitive impairment. Although methoxetamine was the first drug ever to be given a Temporary Class Drug Order (TCDO) by the government (implemented April 2012)⁵, which was then converted to a class B drug classification (February 2013)⁶, its misuse⁷ appears to be increasing⁸. Several cases of acute toxicity reported hyper activation symptoms^{9 10}.

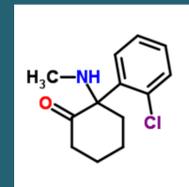


Figure 1. Ketamine structure

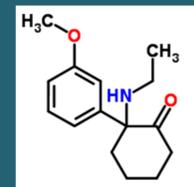


Figure 2. Methoxetamine structure

METHODS

A literature search on "Methoxetamine", "Methoxetamine effects", "Methoxetamine toxicity", "recreational use of dissociative anaesthetics", "legal high", "novel psychoactive substances", using PubMed and Medline databases was conducted.

Analyses were performed using data extracted from the database of the *national programme on Substance Abuse Deaths (np-SAD)*¹¹. The Programme has been collecting and analysing drug-related deaths in the UK since 1997, and maintains a database of more than 28,000 cases, with Coroners and relevant regional authorities voluntarily submitting information on drug-related deaths on a daily basis. A search was performed of the entire *np-SAD* database for deaths involving methoxetamine.

RESULTS

Between 2011-2012 methoxetamine was reported as involved in the deaths of six individuals: five males and one female, with a median age of 32 years. Methoxetamine was the sole drug implicated in two cases, whilst in three it was found in combination with other drugs. In one case it was found at post mortem but was not implicated in the death.

UK MXE cases (2011-2012)

	Sex	Age	Cause of Death	Manner of Death	Post Mortem Drugs	Implicated Drugs
1	M	17	Drowning	Accidental	MXE, alcohol	MXE
2	M	25	Drowning	Accidental	MXE, alcohol, dihydrocodeine	MXE
3	F	27	6-APB and MXE ingestion	Undetermined	6-APB, MXE	6-APB, MXE
4	M	30	Drug overdose	Accidental	MXE, methadone, mirtazapine	MXE, methadone, mirtazapine
6	M	42	Ischaemic Heart Disease	Accidental	MXE, alcohol, MPA, MDA	
5	M	44	MXE and MPA toxicity	Accidental	MXE, MPA	MXE

CONCLUSIONS

This poster represents the largest known case series of methoxetamine-related fatalities in the UK. Among all novel psychoactive substances, methoxetamine appears to be a protagonist of the recreational drug scene in the UK.⁵ Considering its increasing abuse⁵ and limited scientific studies on it, the next step should be to investigate its toxicity; abuse liability; and long term risks.

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