Tidsskriftet Tidsskrift for Den norske legeforening

How dangerous is MDMA?

EDITORIAL

JOACHIM FROST

joachim.frost@stolav.no
Joachim Frost PhD, specialist in clinical pharmacology, senior consultant in the Department of Clinical Pharmacology, St Olav's Hospital, Trondheim University Hospital, and the Department of Laboratory Medicine, Vestre Viken Hospital Trust, and associate professor at the Department of Clinical and Molecular Medicine, Norwegian University of Science and Technology.
The author has completed the ICMJE form and declares no conflicts of interest.

Use of MDMA seems to be increasing in Norway. But how dangerous is the drug really?

The Journal of the Norwegian Medical Association is now publishing a study by Jamt et al. in which an increase has been observed in the number of cases with findings of 3,4-methylenedioxymethamphetamine (MDMA) in blood in post-mortems on fatalities and in arrested drug drivers, at the same time as seizures of MDMA by the police and customs have also increased (1). The article thus draws attention to an increasing incidence of MDMA in criminal cases in parallel with an apparent increasing exposure to MDMA in society. These findings are interesting, both in terms of health and politics, and should receive attention and follow-up.

The findings are of interest for several reasons. Firstly, they document what has been an impression among forensic scientists in Norway: that the incidence of MDMA findings in post-mortems and traffic cases has increased in recent years, and that the concentrations measured in post-mortems are higher than before. Secondly, the authors note 'an increase in the number of MDMA-associated deaths, where the substance may have contributed to or caused the death, at the same time as blood concentrations of MDMA have been increasing' (1). It is worth reflecting a little on this conclusion.

The acute toxicity of MDMA is considered to be low and is dependent on other concomitant risk factors, for example physical illness, use of other recreational drugs and behaviour while under the influence. This affects the evidence base for the direct significance of MDMA exposure in cases of acute poisoning, both qualitatively and quantitatively, and limits the opportunities for gaining knowledge about the connection between dose/concentration and toxicity. The sub-acute and long-term neuropsychiatric effects of MDMA use are presumably at least as important in assessing how dangerous the drug is (2).

> ***«The sub-acute and long-term neuropsychiatric effects of MDMA use are presumably at least as important in assessing how dangerous the drug is»***

If we are now facing a significant and increasing number of fatal MDMA poisonings in Norway, there is cause for concern. This observation is remarkable based on what we previously knew about the drug's toxicity as well as results of other epidemiological studies.

An Australian study found only 392 MDMA-related deaths in the period 2000–2018, 14 % of which were attributed to MDMA alone (3). This is equivalent to an average of around three deaths a year due to MDMA alone in a country with about 25 million inhabitants.

In a relatively new publication with data from emergency departments – including contributions from Norway – intoxications with MDMA alone were also in the significant minority compared to combined drug intoxications and were described as generally mild. The authors write: 'The majority of MDMA presentations were associated with minor adverse effects that were self-limiting and resolved within hours. Moreover, using symptomatic and supportive treatments, MDMA intoxications are generally managed within the ED. By contrast, severe, life threatening effects such as hyperthermia, cardiac arrest and seizures, were less common and there were only six (0.3 %) fatalities in our series, similar to that in previous case series'(4).

In another study that looked at the number of deaths per overdose (case fatality), MDMA was found to be the least dangerous of the drugs studied (5).

By contrast, it has been demonstrated that the severity and characteristics of MDMA-related poisonings change considerably when MDMA is taken together with other recreational drugs (4, 6).

Jamt et al. describe in their material that MDMA was usually detected in combination with other recreational drugs, and the number of cases in which four or more additional substances were detected increased in the latter part of the study. This combined use may partly explain the increase in the number of deaths. As Jamt et al. write, polydrug use can make it difficult to determine which recreational drug caused the death, and it is probably the combination of several substances that is key.

There is good reason to draw attention to and warn of increased access to and use of an illegal recreational drug in the population. Jamt et al. are performing an important social function in now documenting the increased incidence of

MDMA in traffic cases and sudden unexpected deaths in Norway. However, it is important to remember the difference between correlation and causality. The fact that more MDMA is found in post-mortems and traffic cases in parallel with increased availability of the substance in society is to be expected, but does not necessarily mean that more people have now died from poisoning with the drug.

REFERENCES

1. Jamt REG, Edvardsen HME, Middelkoop G et al. Dødsfall assosiert med MDMA i perioden 2000-19. Tidsskr Nor Legeforen 2022; 142. doi: 10.4045/tidsskr.21.0547. [CrossRef]

2. Karlsen SN, Spigset O, Slørdal L. The dark side of ecstasy: neuropsychiatric symptoms after exposure to 3,4-methylenedioxymethamphetamine. Basic Clin Pharmacol Toxicol 2008; 102: 15–24. [PubMed][CrossRef]

3. Roxburgh A, Lappin J. MDMA-related deaths in Australia 2000 to 2018. Int J Drug Policy 2020; 76: 102630. [PubMed][CrossRef]

4. Noseda R, Schmid Y, Scholz I et al. MDMA-related presentations to the emergency departments of the European Drug Emergencies Network plus (Euro-DEN Plus) over the four-year period 2014-2017. Clin Toxicol (Phila) 2021; 59: 131–7. [PubMed][CrossRef]

5. Brett J, Wylie CE, Raubenheimer J et al. The relative lethal toxicity of pharmaceutical and illicit substances: A 16-year study of the Greater Newcastle Hunter Area, Australia. Br J Clin Pharmacol 2019; 85: 2098–107. [PubMed][CrossRef]

6. Liechti ME, Kunz I, Kupferschmidt H. Acute medical problems due to Ecstasy use. Case-series of emergency department visits. Swiss Med Wkly 2005; 135: 652–7. [PubMed]

Publisert: 25 May 2022. Tidsskr Nor Legeforen. DOI: 10.4045/tidsskr.22.0309