M.D.M.A. ("Ecstasy"); a Case of Possible Drug-induced Psychosis

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Summary

3, 4, Methylenedioxymetamphetamine (M.D.M.A., Ecstasy) is a modified amphetamine with stimulant and hallucinogenic properties. Ecstasy has been increasingly abused in Dublin in recent years. It is commonly perceived by users as a safe drug. We report a case of prolonged psychosis following brief recreational use of Ecstasy.

Introduction

3, 4, Methylenedioxymetamphetamine (M.D.M.A., Ecstasy, X.T.C.) is a modified amphetamine reported to have both stimulant and hallucinogenic properties[1]. It is an illegal synthetically produced "designer drug" used as a recreational drug of abuse.

Anecdotal reports suggest that M.D.M.A. is becoming increasingly abused in certain areas of Dublin. Sources from the Garda Drug Squad (Personal Communications) confirm a steady increase in seizures of Ecstasy since early 1991. Prior to that date there were no reported seizures. The "street" price is currently between £20 - £30 per tablet.

Little is known of the drug's mechanism of action or possible neurotoxic and neurodegenerative effects in humans. In vivo brain studies in primates[2] suggest that M.D.M.A. acts primarily via the serotonergic system. It would appear to produce an acute depletion of 5-Hydroxytryptamine (5HT) followed by a more long lasting degeneration of nerve terminals. Interestingly this effect is reported to be blocked by the 5HT uptake inhibitor Fluoxetine suggesting an active uptake to M.D.M.A. by serotonergic neurons[3].

In humans, recreational use of Ecstasy is reported to induce a state of well being, a heightened state of consciousness, an intense sense of "closeness" to others and increased sexual arousal[4,5,6]. M.D.A. (Methylenedioxyamphetamine), an analog of M.D.M.A., indeed is known colloquially as the "love drug". Visual hallucinations were reported in one study in 20% of recreational users. Other reported effects include tachycardia, increased B.P., dilated pupils, dry mouth, bruxism and trismus . A "hang-over" effect commonly occurs the following day characterized by muscular pain, fatigue, depression, poor concentration and irritability.

There have been recent reports in the literature of chronic psychosis occurring after sustained heavy use of M.D.M.A.[7]. We report a single case of prolonged psychosis occurring after only brief recreational use.

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Case

An eighteen year unemployed male was transferred to our care from the forensic service. He had been arrested one week earlier following a minor infringement but was noted to be in a very disturbed and aggressive state at the time.

He had reportedly taken M.D.M.A. (1/2 tablet) on only four separate occasions at weekends, the last time being forty eight hours prior to his arrest. He had been smoking cannabis for approximately five months but had not experienced any adverse reactions. He denied any other substance abuse during this time. There is no past history of disturbed behaviour, nor any psychiatric or forensic history. He had sustained an undisplaced frontal skull fracture two months earlier. There was no loss of consciousness or amnesia, neurological observation was normal and the patient was discharged from hospital within twenty four hours. No abnormal sequelae were noted following discharge. His mother has a history of psychotic depression with paranoid delusions.

On admission the patient was perplexed and easily distractable. His behaviour was bizarre with prominent mannerisms such as boxing thin air and repeatedly beating his chest. Mood was labile with frequent aggressive outbursts. He admitted to hearing voices and appeared to be actively hallucinating on a number of occasions. He exhibited paranoid delusions regarding para military organisations in whose headquarters he presently believed he was. He was disorientated in both time and place.

Physical examination was normal except for some superficial bruising to the limbs. Routine haematologic investigations including serology for hepatitis were normal. A neurological review and C.T. scan revealed no abnormality. Urinalysis was positive for Cannabis and Benzodiazepines only. The specimen was taken more than one week after ingestion of M.D.M.A. and therefore it was likely that any amphetamine like compound would have been already eliminated. It was also taken after Diazepam had been administered to the patient, thus explaining the presence of Benzodiazepines.

The patient was initially commenced on increasing doses of Haloperidol (40mg daily) and Diazepam 30mg daily but with little improvement in his mental state over the next two weeks. Carbamazepine (200mg t.d.s.) was added as a possible adjunct to neuroleptics but again without significant effect. The patient was then commenced on Clopenthixol acetate 50-100mg, i.m., every 24-72 hours over the next two weeks (total dosage 600mg). His condition gradually improved with eventual resolution of his psychosis and disorientation.

He was discharged from hospital two months after his initial presentation. Regular follow-up at the out patient department has to date revealed no abnormality in mental state.

Discussion

Our patient developed a prolonged psychotic reaction following ingestion of the drug M.D.M.A. McGuire and Fahy[7] recently reported on two cases of chronic paranoid psychosis following misuse of M.D.M.A. In both these cases however the drug had been abused for much longer periods (18 months and 2 years respectively) and in much larger quantities. In contrast our patient had used only a half tablet on four separate occasions over a 1 month period. Other reported adverse psychological sequeli include recurrent psychosis and L.S.D. like flashbacks[8].

As with other reported cases a number of other factors may have contributed to our patient's reaction. He had a family history of a paranoid psychosis. In addition he had been using Cannabis for about 5 months. Although he had not experienced any adverse effects from Cannabis possible interaction between the two drugs cannot be outruled. Indeed poly-drug abuse is common among users of M.D.M.A.

Fatalities, although rare, have occurred in association with its use. Five deaths, commonly as a result of cardiac arrhythmias, have been reported from the U.S.A.,[9] while at least seven deaths in Britain have followed recreational use of M.D.M.A.[10]. The Republic of Ireland's first fatality occurred in October 1991 when a seventeen year old youth died of acute cardiac failure as a direct consequence of the use of Ecstasy (Dr. D. O'Donovan, Coroner, personal communication).

M.D.M.A. is commonly perceived as a safe recreational drug by many abusers. Based on the case presented and on other evidence from the literature we conclude it is a potentially hazardous drug and may (in some individuals) precipitate a prolonged psychosis. Further research will be needed to elucidate its exact mechanism of action and whether or not it causes neurodegenerative effects in humans.

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