

ECSTASY

BACKGROUND

MDMA (3,4 - methylenedioxyamphetamine), known as "ecstasy", is an amphetamine derivative first developed in 1914 as an appetite suppressant, but never legally marketed. In the 1980's abuse became widespread in the U.S. and it was subsequently banned in 1985. In Ireland it has been included in Schedule 1 of the Misuse of Drugs Act since 1987, indicating that it has no accepted medical uses and has high abuse potential. Ecstasy is just one of a number of hallucinogenic drugs particularly associated with rave parties and has been given various slang terms as well as ecstasy including "XTC", "Adam", "E", "Essence", "Energy", "M and Ms", "Dennis the Menace", "Rhubarb and Custards" and so on. Supplies in Ireland come mainly from illicit factories in the U.K. and Continent. Tablets are often marked sometimes in quite sophisticated ways even with the dose, but in general they are poorly made which tends to be one of the hallmarks of street drugs.

ABUSE IN IRELAND

Ecstasy arrived on the drug scene in Ireland in the early 1990's. Two thousand tablets were seized in 1993, twenty two thousand tablets in 1994 and approximately two hundred thousand tablets were seized in 1995. This figure continues to rise. The number of cases of MDMA ingestions reported to the National Poisons Centre has steadily risen between 1992 - 1995 in Ireland (from 44 reports in 1992 to 186 in 1995). Deaths have been reported after taking as little as one tablet since the drug first reached Ireland in 1991. The latter unpredictable nature of its toxicity and its widespread use amongst all socio-economic groups are some of the reasons for the widespread public concern.

PHARMACOLOGY

MDMA is typically taken orally as a tablet or capsule in the setting of a "rave" party where dancing is fast and prolonged and it is likely that the pharmacological effects of the drug are compounded by physical exertion and marked dehydration. The usual dosage is 50-150mg with most street products containing approximately 100mg. However, "quality control" is poor and is complicated by variable potency and contaminants. The effects start after 30 minutes, reach a peak over the next 4 hours and subside over 24 - 48 hours. Both pleasant and unpleasant effects have been reported by users. MDMA is popular because it produces positive changes in state of mind, which have been variously described as elevated mood, increased self-esteem and increased sense of intimacy with others. Some of the undesirable physical symptoms experienced with the drug include loss of appetite, nausea, muscle aches or stiffness, ataxia, insomnia and fatigue. Users ingest the drug mainly to obtain the stamina to dance for hours on end.

CLINICAL FEATURES

The mode of presentation following ecstasy ingestion can be variable but most cases of mild abuse are characterised by agitation, tachycardia, hypertension, dilated pupils, jaw clenching, teeth grinding and sweating. However, severe overdose appears to follow a clear pattern of toxicity characterised by hyperthermia, disseminated intravascular coagulation, rhabdomyolysis, arrhythmias, seizures and acute renal failure. It may cause acute psychiatric disturbances, including panic attacks, flashbacks of frightening visual illusions and paranoid thinking. An increasing number of users are using heroin or methadone to "come down" after being high on ecstasy.

TOLERANCE AND ADDICTION

Information obtained from recreational users suggest that more frequent use is accompanied by a reduction in the pleasant effects and an increase in the unpleasant effects. There also appears to be a rapid onset of tolerance given the pattern of use of MDMA. The intensification of the unpleasant effects indicates that there is a disincentive to frequent use which makes it most unlikely that a physical dependence or "addiction" occurs with MDMA.

MORBIDITY AND MORTALITY

Deaths have been reported world-wide among MDMA users. Two patterns of toxicity appear to have emerged from abuse of the drug here in Ireland. The main cause of acute toxicity and death in those who develop the early pattern of toxicity is cardiac arrhythmias, which appears to be a physiological response to the drug. The second pattern of toxicity is characterised by severe hyperthermia attributable to a combination of direct effects of the drug and the circumstances associated with ingestion. Since ecstasy is commonly taken at crowded parties or clubs as a "dance drug", conditions such as a high ambient temperature and humidity, sustained physical activity and inadequate fluid replacement can all reduce heat loss and lead to fulminant hyperthermia. Whether this pattern of toxicity is an idiosyncratic reaction, due to impurities in the tablets taken or a genetic predisposition in susceptible individuals, is not known. The advocating of "half a tablet" will not prevent the idiosyncratic reaction.

WHEN TO SUSPECT

GP's and Casualty Officers need to have a high index of suspicion and to include ecstasy abuse as a differential diagnosis in all adolescents who present with any of the warning signs of ecstasy use such as:-

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| ◆ Profuse sweating | ◆ Loss of appetite |
| ◆ High temperature | ◆ Jaw/limb stiffness |
| ◆ Palpitations | ◆ Panic attacks |
| ◆ Dry mouth | ◆ Delusions |

Some of the tell-tale signs for parents to look out for particularly following discos/parties are saturated clothes and great thirst, mood changes with a "high" following disco, and "hangover" type behaviour next morning. Other signs may be petty theft to support purchase of tablets.

TREATMENT AND LONG TERM EFFECTS

Any GP who suspects that a patient may have ingested ecstasy should send the patient immediately to the nearest hospital casualty department. If the patient presents within 2 hours of ingestion it is worthwhile emptying the stomach by giving Ipecac. Anxiety or agitation can be treated with diazepam. Severe cases with hyperthermia will require external cooling, as well as cold intravenous fluids, supportive therapy and dantrolene.

Despite a growing number of reports of ecstasy and a lot of data about its effects in animals, little yet is known of its short- and long-term effects in humans. Abuse may produce a paranoid psychosis clinically indistinguishable from schizophrenia. Clinicians need to enquire carefully about drug use in patients presenting with paranoid psychosis, affective disorders or anxiety. In the animal model MDMA has been shown to produce neurologic damage, selectively destroying cerebral nerve cell endings that release serotonin. Unequivocal data demonstrating that similar changes occur in human brain do not exist, but limited and indirect clinical evidence gives grounds for concern. There is a need for follow-up studies of users in a bid to assess the long term implications of ecstasy.

The assistance of the National Poisons Centre and the Drugs Advisory & Treatment Centre is gratefully acknowledged.

SOURCES OF FURTHER INFORMATION

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