

weighted for the time of both the patient and doctor. The problem of the increasing use of the emergency room will not be solved by administrative decisions but rather will melt away when appropriate facilities for this type of care are developed.

Regardless of possible future solutions to this problem, the old concept of the emergency room as only a source of exceptional diagnostic and therapeutic facilities for the treatment of major life-threatening illnesses is no longer true in practice. While the emergency department does offer this service, it also offers another — 24 hours a day, seven days a week, 365 days a year — a treatment facility that is available without prior appointment. It is the demand for this service which appears to be responsible for the great increase in the use of the emergency room by patients and doctors.

This also suggests an explanation of why the "urban ghetto" system of medical care delivery should be reproduced in a society where there is no significant financial barrier to medical services. The emergency room in both cases is used to treat the same type of illness, the acute and unexpected.

Incidental observations made in the course of these studies would indicate: (1) that the health care delivery system is not in a static state but does change logically (even in the absence of central planning) to meet the needs of patients; (2) that a high proportion of the general public in Saskatoon has an established liaison with a family

physician; (3) that the problem of the physician is S available

the great majority of instances, (4) that imposition of utilization fees, even when they favour the office visit over the home and emergency department visit, have not altered trends to seek treatment for acute illness at the latter site; (5) that Saskatoon hospitals treat 2½ times as many patients in their emergency rooms as they do in their entire in-patient services.

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Experience with MDA

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During the past two years considerable attention has been devoted by the media to MDA and related substances, and there has been much discussion of its use by young people. Scientific reports on these agents have been infrequent. We present a brief review of MDA and give an

account of our experience with its use by youthful drug takers.

MDA (3,4-methylenedioxyamphetamine), which is generally classified as a hallucinogenic or psychedelic agent, is a synthetic, substituted phenethylamine and, as such, its chemical structure is closely related to that of both naturally occurring and synthetic substances such as norepinephrine, mescaline and the amphetamines (Fig. 1).¹

Much of the confusion surrounding MDA and related substances is due to the complexity of chemical nomenclature. For example, MDA may be

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Tenuate Dospan

(diethylpropion hydrochloride N.F., continuous release)

Anorexic

COMPOSITION

Tenuate Tablets: Each light blue tablet contains diethylpropion hydrochloride N.F., a sympathomimetic amine.
Tenuate Dospan: Each capsule-shaped white tablet contains 75 mg. of diethylpropion hydrochloride N.F., a continuous release agent combined with a special hydrophilic matrix.

ACTION

The sole clinical use of diethylpropion hydrochloride is as an anorexic agent. Its anorexic action has been demonstrated in laboratory animals and in numerous clinical studies.

INDICATION AND CLINICAL USE

Overweight. Diethylpropion hydrochloride is used to control overweight, particularly where it complicates treatment or prognosis of cardiovascular disease, pregnancy. (See Warning.)

CONTRAINDICATIONS

Diethylpropion hydrochloride should not be given to patients with monoamine oxidase inhibitors, nor should it be given to patients hypersensitive to diethylpropion hydrochloride, or to emotionally unstable individuals who are known to be susceptible to drug abuse.

WARNING

Although diethylpropion hydrochloride is generally considered to be a mild stimulant, it should be used with great caution in patients with severe hypertension and severe cardiovascular disease. Although rat and human reproductive studies have shown no adverse effects, this drug, like all medications, should be used during the first trimester of pregnancy with the opinion of the prescribing physician, the patient should weigh the potential risks.

ADVERSE REACTIONS

Rarely severe enough to require discontinuation. Unpleasant symptoms with diethylpropion hydrochloride have been reported to occur in relatively low doses.

As is characteristic of sympathomimetic amines, it occasionally causes CNS effects such as nervousness, dizziness, anxiety, and jitteriness. In a few cases, convulsions have been reported. In a few epileptics, convulsive episodes have been reported.

Sympathomimetic cardiovascular effects have been reported such as tachycardia, precordial pain, arrhythmias, and increased blood pressure. One published report has shown T-wave changes in the ECG of a healthy young man after ingestion of diethylpropion hydrochloride; this experience, which has not been reported by others, has been reported by others.
Allergic phenomena reported include such as urticaria, ecchymosis, and erythema.

Gastrointestinal effects such as diarrhea, constipation, vomiting, and abdominal discomfort have been reported.

Specific reports on the hematopoietic system include reports of bone marrow depression, agranulocytosis, and aplastic anemia.

A variety of miscellaneous adverse reactions have been reported by physicians. These include complete hair loss, mouth, headache, dyspnea, menstrual upset, toothache, pain, decreased libido, dysuria, and polyuria.

DOSAGE AND ADMINISTRATION

Tenuate (diethylpropion hydrochloride):
One 25 mg. tablet three times daily, one hour before meals and in mid-evening if desired to overcome night hunger.
Tenuate Dospan (diethylpropion hydrochloride, continuous release):

One 75 mg. tablet daily, swallowed whole, in the morning.
Experience with diethylpropion hydrochloride in children 12 years of age has not been sufficient to recommend its use in this age group.

DOSAGE FORMS

Tablets 25 mg.: bottles of 100 and 1000
Dospan Tablets 75 mg.: bottles of 30 and 250

Registered Trademarks: Tenuate, Dospan
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Weston, Ontario

expressed in many ways, of which the following are only a few:

- methylenedioxyamphetamine
- methylenedioxyphenylisopropylamine
- 3,4-methylenedioxyphenylisopropylamine
- 3,4-methylenedioxyamphetamine

Other phenethylamine derivatives may also be described under a variety of names. For this reason readers other than chemists are often confused by articles about these drugs.

Phenethylamine, the basic unit of MDA, is the parent compound of the sympathomimetic amines (Fig. 2).¹

This structure permits a great number of substitutions and about 2000 derivatives have been synthesized and characterized. About 30 of these have been evaluated in clinical trials.² Some, such as MDA, MDMA, TMA and DOM (STP) (Fig. 3) are found in the vocabulary of illicit drug users.³⁻⁵

MDA was first studied in the 1930's by Dr. Gordon Alles who observed the effects of low oral doses (10 to 120 mg.) on himself. He found that he experienced a pleasant increase in his sensations with less distortion of perceptions than was associated with other hallucinogenic drugs such as mescaline. The higher doses did, however, produce perceptual changes.¹ Naranjo and Shulgin used MDA (40 to 150 mg. orally) in psychotherapy and found it helped communication and expression of feelings. They found that such doses did not bring about the marked perceptual phenomena and disturbances of thought which often characterize other psychedelic drugs. The effects of MDA were noted by all subjects between 40 and 60 minutes after ingestion, the peak subjective effect occurring about 30 minutes later. Symptoms lasted for about eight hours. There was little evidence of peripheral sympathomimetic activity and the only conspicuous physical change was moderate mydriasis.⁶

Because of these initial reports, MDA became known on the street as a drug which gave a particularly tranquil psychedelic experience. This was popularly called a "love trip" and MDA became known as the "love drug." However, subsequent inquiries have shown that with the appropriate dose and depending on the user and the circumstances, MDA can produce the same type of psychedelic experience seen with other drugs of this class, e.g. LSD and mescaline.

Our experience with young drug users is that we are unable to tell from their story which psychedelic agent they have taken and that in most cases the effects of MDA have been indistinguishable from those of other psychedelics. The youthful drug user is often chemically promiscuous and various chemicals are frequently taken in combination. This makes it difficult to determine the specific action of any particular drug. Certain effects ascribed to MDA by street users may be due to other substances. There is no accurate information on the effect of high doses of pure MDA on humans.

MDA is available on the street. In a study of 621 illicit drug samples Addiction Research Foundation investigators in Toronto found 27 samples of MDA.⁷ This was usually in the form of a powder and was being taken orally, intra-nasally and intravenously. There were also 11 samples alleged to be MDA which contained other drugs. Samples are continuing to appear. Information on drugs from illicit users must be supported by laboratory analysis if it is to be accurate.

The mechanism of action of MDA is unknown but its chemical relationship to presumed neurotransmitters suggests that it acts by interfering

with their normal mediating functions.²

The psychoactive drugs, including the psychedelic agents, may cause toxic effects by either their psychological or physiological actions. Under the appropriate conditions of dose, user and circumstances most psychoactive drugs can contribute to behaviour that could lead to dangerous activities. MDA is no exception but as yet it is questionable whether there are any well documented reports of death attributable to MDA-induced behaviour.

In the doses used on the street, the physical effects of MDA seem to be quite mild, but more studies are required. From clinical observation, dilated pupils have been the only constant feature.⁶ Many of the other psychedelic agents have been consumed in large quantities, yet there have not been any deaths proved to have been due to their physical toxic effect.⁸⁻⁹ Newspapers have frequently mentioned deaths due to MDA but no actual evidence has been provided. Research into the possible toxicity of MDA is needed.

Two reported cases are sometimes quoted as being due to death from MDA although neither is properly documented. In the first¹⁰ another

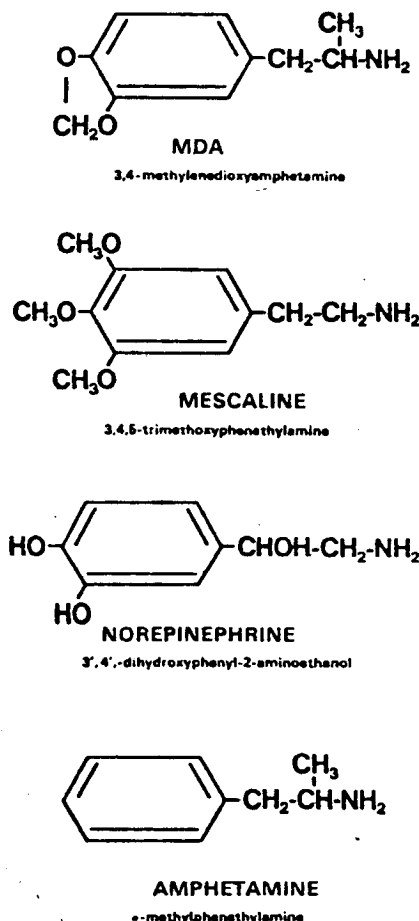


FIGURE 1

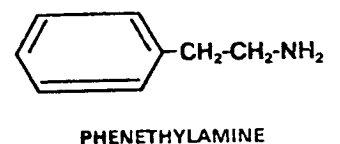


FIGURE 2

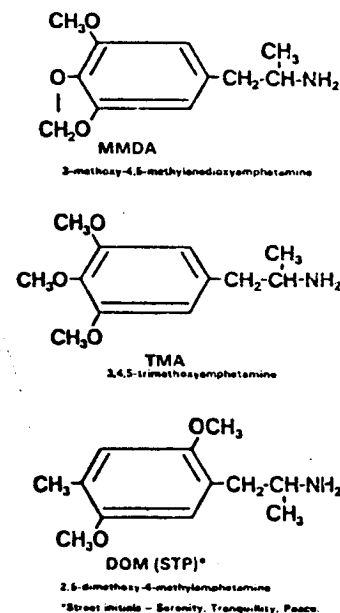


FIGURE 3

*Street initials - Serenity, Tranquility, Peace.

drug was used in combination with MDA but no details of dose or laboratory analysis are given. In the second death¹¹ at least one other drug was involved and, again, clinical details are lacking.

Treatment of adverse reactions to MDA is the same as for other psychedelic agents. This consists of "talking down", a comfortable empathetic environment, and the administration of tranquilizers as required.¹²

When the substituted phenethylamine, STP, was first used on the street there were some adverse reactions to it in individuals who had been treated with chlorpromazine. Since then it has been found that the ill effects were caused not by STP but by the belladonna group of drugs that were sometimes combined with it. The latter, in combination with chlorpromazine, may produce severe reactions. There is no evidence that any of the hallucinogenic group of drugs, including MDA, in their pure form are responsible for adverse reactions when tranquilizing or sedative drugs are used to combat their effects.

The psychedelic agents, including MDA, do not appear to cause physical dependence. Studies are not available regarding the degree of psychological habituation or tolerance developed with MDA. Presumably it will resemble the other psychedelics in this respect.

For many centuries nutmeg has been used for its psychedelic properties. Nutmeg contains numerous chemicals, specific among which are safrole, myristicin and elemicin. These can be converted by chemical means *in vitro* into MDA, MMDA, and TMA respectively and, therefore, this has been a theory to account for the psychedelic properties of nutmeg.¹³ This transformation has never been demonstrated *in vivo* and further research into the metabolism of nutmeg is needed.

At present there are no definite medical indications for MDA and its legitimate use is restricted to investigators.

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Iron deficiency in infancy

Recommendations from the Nutrition Committee,* Canadian Paediatric Society

Iron deficiency is a significant health hazard amongst Canadian infants. For this reason the statement "Iron-Fortified Formulas" issued by the Committee on Nutrition of the American Academy of Pediatrics as a Newsletter supplement on December 15, 1970 is of interest to all pediatricians. This statement should be read in conjunction with an earlier memorandum by the Committee on Nutrition "Iron Balance and Requirements in Infancy".¹ This memorandum discusses in detail iron metabolism and requirements in the newborn and makes specific dietary recommendations.

Two interdependent factors are mainly responsible for iron deficiency in infancy. Firstly, newborn infants may be endowed with less than normal body stores of iron such as in the case of the low birth weight infant and the infant who suffers perinatal blood loss. Secondly, postnatal intake of iron may be inadequate. Multiparity, low socioeconomic status and racial factors, which are commonly associated with a high incidence of iron deficiency in the older infant, are linked to these two main predisposing causes. In addition, the ingestion of large amounts of nonheat-processed whole cow's milk may induce gastrointestinal blood loss and subse-

quent iron deficiency in some infants.²

The statement of the Committee on Nutrition emphasizes that the prevalence of iron depletion or iron deficiency depends upon the criteria used for the diagnosis. Diagnostic criteria of anemia differ in the infant and the adult since levels of serum iron and hemoglobin and hematocrit values in infancy are usually considerably lower than in the adult. Adult standards should therefore not be used as a basis for the diagnosis of anemia in the infant. Furthermore, it should be recognized that by the time significant degrees of anemia develop due to inadequate hemoglobin synthesis, iron deficiency is well advanced. For this reason, physicians should not rely solely on minimal blood values when considering iron deficiency. Such values are difficult to determine, although it has been suggested that the lowest acceptable levels for hemoglobin in infants between six and 18 months of age and in older children two to six years of age are 11 g./100 ml. and 12 g./100 ml. respectively.³

The Committee on Nutrition recommends an iron intake of 1.0 mg./kg./day (maximum 15 mg.) begun at an appropriate time with respect to initial iron endowment. This intake will provide sufficient iron to

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