Letters to the Editor

'Ecstasy': A Human Neurotoxin?

To the Editor.—3,4-Methylenedioxymethamphetamine (MDMA; "ecstasy") is a ring-substituted amphetamine derivative that is chemically related to both hallucinogens and stimulants. The drug appears to have unique psychoactive properties and has been advocated by certain therapists as an adjunct to psychotherapy.[1] However, due to findings in laboratory animals[2] of neurotoxicity caused by MDMA and related compounds, the drug was placed on Schedule I by the Food and Drug Administration in July 1985. Significant controversy exists concerning the legal status of MDMA, its potential clinical efficacy, and, most importantly, the possibility that it may cause irreversible neurotoxicity in human users.[3]

In addition, undocumented reports have suggested that the recreational use of MDMA has been increasing at university campuses in the United States during the past few years. Although no formal epidemiological studies have been performed, a recent informal survey found that a significant number of students on an undergraduate campus reported taking at least one recreational dose of MDMA.[4] The median amount of MDMA usage was four doses, while the mean number of doses taken was 5.4. The amount of drug taken in a single dose ranged from 60 to 250 mg (approximately 1 to 4 mg/kg). Similar dosage patterns have been reported to be neurotoxic in primates,[3] and at least five deaths in humans have been attributed to recreational use of MDMA and related compounds.[5]

Presently, there are no data to indicate that recreational doses of MDMA permanently damage the human brain. However, it should also be stressed that no scientific studies have addressed this problem. Nonetheless, based on informal discussions with approximately 100 recreational users of MDMA, a number of personal observations suggest that MDMA is much different from other recreational drugs, as described below.

1. Recreational users of MDMA frequently state that they usually wait at least two to three weeks between doses of the drug. The reason given for this unusual pattern of recreational drug use is that the "good" effects of the drug appear to diminish while the "negative" side effects of the drug appear to increase if the drug is taken too frequently. For example, taking a double dose of MDMA does not double the supposed good effects of the drug but simply increases the negative effects of the drug.

2. The majority of people who have taken more than five individual doses of MDMA state that the good effects of the drug change with successive doses. As stated by one college student, "Freshmen love it; sophomores like it; juniors are ambivalent, and seniors are afraid of it." These observations are of concern, since no other drugs are known that, when taken at very infrequent intervals (ie, every month or so), cause different effects with successive doses.

3. MDMA is not "addictive." It is extremely rare to find individuals who have taken large quantities of this drug. Again, this is quite different from many recreational drugs, which tend to be either psychologically or physically addictive. To my knowledge, there are simply no reports of individuals who take frequent and large amounts of MDMA for an extended period.

In summary, these completely informal anecdotal observations are consistent with the belief that there is a long-term, and potentially irreversible, effect of MDMA on the human brain. Obviously, a definitive assessment of the human neurotoxic potential of MDMA must await the completion of formal clinical[6] and epidemiological studies. However, a reasonable and informed conclusion would be that recreational use of MDMA should be avoided.

STEPHEN J. PEROUTKA, MD, PHD
Department of Neurology, C-338
Stanford University Medical Center
Stanford, CA 94305

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The Art of Turf Creation

To the Editor.—In a letter to the editor, Dr Nuwer[1] expressed his concerns and those of the American Electroencephalographic Society (AEEGS) about several issues. Reservations were voiced about whether the clinical use of the so-called quantitative electroencephalogram (EEG) is warranted for the care or diagnosis of individual patients with dyslexia, dementia, depression, schizophrenia, and posttraumatic disorders. Opinions were expressed that the application of quantitative EEG is of limited or even of doubtful value in psychiatric populations and is adjunctive to conventional EEG, and that there is no justification for stand-alone, computer-based clinical EEG analysis. It was asserted that competence in the interpretation of a conventional EEG is a prerequisite for the interpretation of a quantitative EEG. A number of issues were also raised about technical problems, artifacts, effects of age, and statistical assumptions. These issues were cited as further compelling reasons why quantitative analyses can only proceed as an adjunct to conventional examinations.

Conventional EEG is of little or no utility in most cases of cognitive dysfunction and psychiatric disorder, showing neither sensitivity nor specificity, even though members of the AEEGS are apparently willing to perform such examinations on these patients. The medical basis for the routine use of the conventional EEG examination in psychiatric populations no more exists than does the scientific basis for the insistence that conventional EEG and evoked potential (EP) examinations must accompany functional imaging. Demanding the addition of a procedure that has been demonstrated to be of little use only adds to income. Requiring a neurologist to correlate clinical features with functional images and quantitative findings in psychiatric patients only adds to incredulity.

It is remarkable that a group representing practitioners of an older technology that, although developed by a psychiatrist, has been found virtually useless in psychiatric practice is so quick to proclaim itself the self-annointed protector of the psychiatric patient. It is a misnomer to call functional imaging quantitative EEG. This latter phrase suggests that the new technology is simply another kind of EEG. Conventional subjective EEG and EP interpretations, when compared with functional imaging of quantitative features derived from sponta-