

A Classification of LSD Complications

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■ As recently as 1963, at the White House Conference on Narcotics and Drug Abuse the committee was able to conclude that: "As yet these drugs (the hallucinogens) are of minor importance in the general picture of drug abuse in part because of their limited availability and inordinate high cost."¹ In the intervening few years lysergic acid diethylamide (LSD) and to a lesser degree, mescaline, peyote buttons, psilocybin, dimethyltryptamine (DMT) diethyltryptamine (DET) and the hallucinogenic varieties of morning glory seeds have become readily available at prices not beyond the reach of high school and college students, the "beat" and other venturesome groups.

Three years ago we reported that LSD taken by unselected individuals under casual conditions without proper safeguards was dangerous.² Examples of depressive reactions culminating in suicides, prolonged psychotic reactions, paranoid states and anti-social acting-out behavior were cited. Multihabitation, the simultaneous or serial ingestion of a variety of stimulants, sedatives, narcotics, delirants and hallucinogens was described. A subsequent case report³ mentioned a suicide following morning glory seed intake because spontaneous recurrences of the depersonalization aspect of the experience made the young man fear that he was going mad.

More recently, complications to the extralegal use of LSD have increased so rapidly that it is now possible to propose a more complete classification of these untoward reactions. The incidence of prolonged adverse reactions cannot be estimated since the total

number of LSD exposures remains quite unknown. The drug is purchasable in most large cities and on a number of campuses down to the high school level. Narcotics agents have made raids which in one instance, resulted in confiscation of enough LSD to provide one million doses. Individuals with LSD complications are being seen at student health centers,⁴ neuropsychiatric hospitals,⁵ physician's offices and the morgues.

Only the neuropsychiatric aspects of the hallucinogenic drug problem will be considered. The medicolegal and sociological issues are not considered here. The following classification may assist in the diagnosis of complications to hallucinatory drugs.

CLASSIFICATION

I. Psychotic Disorders

1. *Accidental LSD intoxication of children.* Three instances are known in which children mistakenly swallowed sugar cubes impregnated with LSD; in a fourth, a 3-year-old boy took a 250 µg. capsule. The reason why sugar cubes are used as a vehicle for black market LSD is obscure, but it is one of the forms in which it is peddled. In one case⁶ sugar cubes had been confiscated from a 'pusher' by the boy's father, a detective. The boy accidentally put one in his coffee and sustained a dissociation state accompanied by anxiety and visual illusions that lasted for weeks.

In the two other instances very young children got into the family supply of LSD sugar cubes and had hallucinatory reactions that subsided after treatment with intramuscular chlorpromazine. If LSD must be an item of underworld commerce it is hoped that it will not be placed on sugar cubes or animal crackers,⁶ items sought out by children in search of a sweet.

2. *Chronic LSD intoxication.* Before the drug became easily available it was assumed that chronic LSD intoxication could not occur

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due to the extremely rapid onset of tolerance. If a standard dose (1-2 $\mu\text{g}/\text{kilo}$) is taken daily by the third or fourth day it no longer has a psychic effect. Loss of tolerance occurs just as rapidly.

A 41-year-old white male had access to an unlimited supply of LSD. He made his living selling it in 250 μg . capsules. He consumed the drug as follows: On Day I he took one "cap", on Day II two, on Day III, four, on Day IV, eight and on Day V, 16 (or 4000 μg .). These figures are only approximately correct since he would "pop a few caps" any time he felt he was "coming down." On Days VI and VII he usually slept with the assistance of some "sleepers." He then started the procedure again. When seen he was ataxic, had a slurred speech and his coordination was decidedly impaired. He was euphoric and expansive and related his story without hesitation.

3. *Schizophrenic reactions.* A number of psychotic reactions have been seen that are indistinguishable from paranoid, schizoaffective or catatonic schizophrenia. These individuals were schizoid or ambulatory schizophrenics precipitated into an overt psychosis by the LSD experience. For example, a 20-year-old unmarried male had graduated from junior college and was working steadily in a supermarket. He had had some brief psychiatric assistance for excessive shyness when he was nine years old. He was known to be fearful of new experiences but performed routine tasks well. LSD had been taken four times, on the last occasion in a dose of 450 μg . three weeks prior to the interview. Since that time he was incoherent and agitated, behaving bizzarely and hallucinating. He refused food because he was convinced that he was the New Messiah and did not require sustenance. A trial of chlorpromazine at a county hospital was ineffective and he was committed to a state hospital. He alternately raged and wept and was often seen curled in a foetal position. After a long course of a phenothiazine and group psychotherapy he has improved and is awaiting discharge.

4. *Paranoia.* As a result of an "out of the body" LSD experience a few unstable individuals have returned in acute megalomaniacal states. After taking LSD a half dozen

times the manager of a door-to-door magazine sales crew became convinced that he was the Savior. He persuaded his wife who had indulged with him that she was Mary. After gathering a few LSD disciples around him, they made plans to go into the mountains and dwell there. He sold his car, his wife's fur coat and other property, and gave the money away to strangers. His boss was supposed to become Peter, but he refused to take the drug. It was he who called for advice because he didn't want to fire a previously effective sales manager. However, the salesmen were becoming uneasy about their manager's odd speech and behavior. During the interview the patient was hypomaniacal, garrulous and completely convinced of his divinity. In areas not involving his personal omniscience his thinking was relatively appropriate. No hallucinations were elicited, and he was not hostile. It was not possible to alter the focal delusion nor to divert him from his unrealistic plans during the single interview.

5. *Acute paranoid states.* These are transient episodes not extending beyond the period of LSD activity. However, the unprotected individual, responding to grandiose or persecutory delusional thought sequences, may endanger himself or others.

A young man under the influence of LSD left a party and took a walk along a busy street. He was seen stepping into the path of an oncoming car with hand upraised, shouting, "Halt." Death was instantaneous so that it can only be assumed that he was reacting to a delusion of omnipotence. Similarly, a long time user of a variety of hallucinogenic drugs told a classmate that he was going down to the beach to take "the acid." This was at 3:00 P.M. At 5:45 P.M., his body was taken out of the Pacific. It is impossible to know what caused the drowning. It could have been an accident or a suicide. It is possible that under the ego-dissolving effects of LSD he was overwhelmed with the idea that he could walk upon the water and he acted upon it. We have information from one survivor who, while driving his car under the influence of LSD, believed that he could control the traffic lights by concentrating on them. He did very well, driving along with the lights changing from red to green just

at the right time. Then he started missing a few and was picked up by the police.

A man took LSD for the first time in an estimated dosage of 200-300 μ g. He became intensely suspicious of the two people who were with him and of everything that they did. He was convinced that they were plotting an attack upon him so he proceeded to defend himself by assaulting them. One of the two had also taken the drug, the other was the "ground" man. The sober, "ground" man fled from the apartment leaving the murderously paranoid individual alone with his helpless LSD partner who was severely beaten. The rest of the story is unclear, but the battered victim fled or was thrown out of a fourth floor window. His life was saved by a half foot of snow on the street below, but he required extensive and complicated surgery for numerous fractures and considerable soft tissue damage.

6. *Prolonged or intermittent LSD-like psychoses.* Protracted or recrudescing typical LSD phenomena were described previously.^{2,7} A number of additional instances have been seen since the last report. The condition is called "persistent hallucinosis" by Rosenthal.⁸

A married college student tried marijuana on many occasions and found it relaxing. He took 125 μ g. of LSD with most pleasurable results. A few weeks later he swallowed 300 μ g and for three weeks thereafter remained very frightened because of recurrent visual hallucinations of animals crawling around the room. Time would completely stop, then start again. He was unable to sleep, being afraid to close his eyes because the condition would intensify. During the first week he walked the streets with his wife. "I would have killed myself if I didn't have her", he stated. She had been up with him almost constantly, but when she fell asleep from exhaustion he woke her up to go for a walk or to hold him. He tried smoking marijuana, but it made the hallucinations worse. He was extremely anxious and wondered whether he would ever "get out of this". A phenothiazine was prescribed with gradual subsidence of the temporal and visual distortions over a two-week period.

7. *Psychotic depressions.* These reactions are usually associated with agitation and

anxiety. The inability to cope with the release of overwhelming conflictual material that had come forth under LSD leaves the patient guilt-ridden.² Knudsen⁹ has recently reported on a 25-year-old woman who had been given LSD treatments for a psychopathic personality disorder associated with alcoholism. Three days after the last treatment she was depressed, confused and restless. She left the ward and stabbed her boy friend an hour and a half later. During the LSD state her rage at him had become manifest. The finding of the board of investigation was that the LSD had activated aggressive impulses and weakened her ability to control them.

II. Nonpsychotic Disorders

1. *Chronic anxiety reactions.* These may be the most common of the prolonged adverse effects of LSD. Depression, somatic symptoms and difficulty in functioning co-exist with the anxiety. These patients often continue to experience some LSD-like symptoms such as time distortion, visual alterations and body image change for weeks or months. They remain in contact and reality testing is not grossly impaired.

A university student took 150 μ g. of LSD at a party after much persuasion by his friends. It was "an interesting but disturbing time." Subsequently, it became very difficult for him to study or concentrate so that he decided to drop out of school. He was able to continue his part-time job as a stock clerk. There were strong feelings of the meaninglessness of life and he felt "philosophically confused." At times he would feel normal, but at others he became panicky and very upset. He wondered whether he was going crazy and had occasional thoughts of self-destruction. With considerable support, strong reassurance that he would recover, and tranquilizer therapy, the condition subsided gradually.

2. *Acute panic states.* It is not unusual for "hellish" LSD experiences to occur; however, these do not come to medical attention. At times, overwhelming panic develops as a result of the loss of control and a disintegration of the ego defenses. Without proper supervision such individuals can run away and injure themselves. One very frightened girl put her hand through a window, lacerating it.

It required four men to keep her from fleeing into the street. Her violent struggles went on for over an hour before she could be brought to a hospital emergency room.

3. *Dyssocial behavior.* The high dose LSD effect can be disruptive to an unstable person. A complete loss of previously held values and aspirations might result. Motivation to study or work disappears, family ties dissolve and personal cleanliness is neglected. Speech consists of a pseudophilosophic jargon. There is a tendency to form cults or to affiliate with "beat" elements. The LSD-induced transcendental state occurring at the same time that the critical functions of the ego are in abeyance has an enormous impact which makes the experience seem more real than this reality. They see here-and-now living as a game and believe they can withdraw from all games and role playing. The details of the significance of this chemically induced mystical state are discussed elsewhere.¹⁰

As an example, a 23-year-old student was a few weeks from obtaining his bachelor's degree when he dropped out of school. He had always had feelings of being an outsider. Since taking LSD and having seen the "Absolute Reality" he lost interest in school and other mundane matters. He and a similarly oriented friend wandered about the countryside eating only brown rice and cheese. They were picked up twice on marijuana possession charges and were given suspended sentences after spending some time in jail. During the interview the young man acknowledged a complete lack of future plans or any sense of responsibility. He had no objection to being supported by his mother. He was concerned whether his sugar cubes containing LSD might have lost their potency since they had recently gotten moist. These were his prized possessions. When he was alone, he would take them out of their foil wrapping and fondle or look at them.

4. *Antisocial behavior.* Following the LSD experience one may return with an impaired ethic. Society's rules of right and wrong, or cultural values of good or bad are obliterated especially in those who entered the state with an already attenuated moral code. They may completely lose their awareness of the cultural limits and get into difficulties with the legal authorities.

A man who had been taking LSD two to May-June, 1966

three times weekly in enormous doses (up to 2000 μ g.) for three years supported himself by selling the drug. In addition, he sold heroin in large quantities to narcotics agents. He was prosecuted for the heroin transactions. His defense consisted of the plea that he was unable to distinguish right from wrong because his judgment had been impaired by LSD.

III. Neurologic Reactions

1. *Convulsions.* Baker¹¹ mentioned five grand mal seizures occurring in the course of treatment of 150 patients. One was an epileptic who went into status epilepticus. A single convulsion was seen by Sandison.¹² We have heard of a seizure immediately following the intravenous injection of a dissolved sugar cube.

2. *Permanent brain damage.* It is not possible to offer an opinion at this time whether frequent use of LSD in large amounts produces histologic central nervous system changes. Long-term toxicity studies with LSD have never been done with humans. However, there are a few individuals who have taken over 150,000 μ g. of LSD from black market sources during the past few years. It will be of interest to determine whether they will be found to have irreversible tissue alterations. Adey¹³ has noted prolonged shifts in the behavior and EEG of cats given large amounts of LSD. These returned to normal over a period of weeks. The purity of the illicit LSD is open to question, and nothing is known about the toxicity of possible contaminants due to unskillful manufacture.

DISCUSSION

The increased consumption of LSD during the past three years has been accompanied by an increase in untoward reactions, a number of which had not been previously observed. Most of the complications have been seen in young adults from middle or upper class families. Their reasons for indulging in LSD were: curiosity about a new experience, to achieve a "high", to expand one's consciousness or to achieve a quick change in themselves. Not infrequently, group pressures were brought to bear on the more reluctant, "Don't be a square," or, "The worst that can happen to you is that you will come back no

better than you are," were told those who hesitated. These individuals should know that catastrophes have occurred, and these should be considered before the decision to take LSD without proper safeguards is made.

The neuropsychiatric after effects of hallucinogenic drug abuse will not diminish in the coming years. Despite recent legislation,¹⁴ the ready availability of some hallucinogens and the impressive state that they induce will result in indulgence by unscreened, unsupervised people. It must be explicitly stated that some individuals should never take drugs of this category, and that one's friends are not suitable judges of suitable candidates. Furthermore, a secure environment is essential for the protection of the subject who takes LSD, since he is now vulnerable, hypersuggestible and emotionally labile. In the hands of experts these agents are relatively safe¹² but they are potent mind-shakers which should not be lightly or frivolously consumed.

CONCLUSION

A classification of LSD complications is offered based upon those observed during the past three years. No doubt, further novel, adverse reactions will be noted as the indiscriminate use of LSD and other hallucinogens continues.

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