LSD: History and Toxicity

Today, there is growing concern over long-term posthallucinogen perceptual disorder.

by DAVID E. SMITH, MD, and RICHARD B. SEYMOUR, MA

In the 1960s, the primary concern with LSD was acute toxic reactions, or "bad trips," flashbacks, and prolonged psychotic reactions. Today a growing concern is the longer-term effects of posthallucinogen perceptual disorder. A more extensive discussion of these topics can be found in the authors' recently published pamphlet, "The Psychedelic Resurgence: Treatment, Support, and Recovery Options"[1] and in their chapter in Miller's *Comprehensive Handbook of Drug and Alcohol Addiction*.[2]

HISTORICAL BACKGROUND

The nonmedical use of LSD did not become illegal until June 1966. By then its street use was so widespread that it was the most commonly available psychedelic drug in the United States. The public perception of LSD, however, underwent a transformation between its general introduction in the 1950s and the banning of all hallucinogens in 1970.

At first there was a general sense of trust in the drug, which was echoed in the hippie culture's mystical trust in the universe itself. During the summer of 1965, the number of people in the United States who had ingested LSD increased dramatically and proceeded to accelerate. The drug was still legal, but commercial LSD, produced by Sandoz Laboratories in Switzerland by a slow process involving natural ergotomine, became more and more difficult to obtain. Individual entrepreneurs began producing quantities of LSD, often of questionable quality.

By January 1967, the acid culture had grown large enough to bring together 40,000 people, mostly psychedelic drug users, for a Tribal Be-In in San Francisco's Golden Gate Park. Media and word-of-mouth descriptions of the growing subculture in San Francisco's Haight-Ashbury district, where many early LSD users were concentrated, led to a flood of young people descending on the Haight-Ashbury from across the nation in the summer of 1967. This influx was labeled the Summer of Love by both media and the evolving counterculture. Young people in the Haight-Ashbury and across the United States had embraced the psychedelic movement. In the proliferation and increasing misuse of LSD, public opinion and the government took an increasingly negative view of psychedelic drugs and their users.

It was during this proliferation that the problem of LSD-induced negative reactions became acute. During the clinically supervised stage of LSD sociopharmacological study, adverse reactions were rare. Sidney Cohen,[3] one of the pioneer clinical investigators of LSD, reported that the incidence of psychotic reactions lasting more than 48 hours was 0.8 per 1,000 in experimental subjects and 1.8 per 1,000 in mental patients. However, by June 1967, when the Haight-Ashbury Free Medical Clinic first opened its doors in San Francisco, negative acid trips, or "bad trips," as the acid culture called them, were frequent.

While the banning of LSD in 1966 may have decreased the immediate availability of that drug, it did nothing to diminish young peoples' appetite for drugs. A second wave of drug experimentation in the late 1960s pro-

Dr. Smith is President and Medical Director, Haight-Ashbury Free Clinics, Inc., and Associate Clinical Professor of Occupational Health and Clinical Toxicology, University of California, San Francisco Medical Center.

Mr. Seymour is President, Westwind Associates; Consultant, Haight-Ashbury Free Medical Clinics Drug Training and Education Projects; and Instructor of Psychopharmacology at Sonoma State University, Rohnert Park, and John F. Kennedy University, Orinda, California.

Address reprint requests to David E. Smith, MD, Haight-Ashbury Training and Education Projects, 409 Clayton St., San Francisco, CA 94117.

In 1970, all of the known psychedelic drugs were placed in Schedule I, as highly dangerous drugs with no potential for medical use.

duced massive abuse of methamphetamines, barbiturates, and heroin. In 1970, when new federal legislation produced a graduated sequence of drug schedules based on abuse potential versus medical use, all of the known psychedelic drugs were placed in Schedule I, as highly dangerous drugs with no potential for medical use.

For the two decades following the classification of LSD and virtually all other psychedelic drugs in Schedule I, little meaningful research was conducted on LSD or any other psychedelic drug at the clinical level. In contrast to the late 1960s and early 1970s, the clinical treatment of psychedelic acute toxicity became a rare occurrence. During the 1970s and 1980s, from a public awareness standpoint, the use of psychedelics was eclipsed by the emergence of a massive and nationally demoralizing succession of drug epidemics involving such substances as heroin, PCP, and crack cocaine. This did not mean, however, that the street use of psychedelic drugs had ceased.

It would appear that the 20-year eclipse of psychedelic research, with its simultaneous decrease in clinical mentions, was a period that gave rise to two distinct use phenomena. On the one hand, young people were still using LSD, but at low doses for intoxication at rock concerts. At the same time, ritualized use occurred within certain psychedelic drug-using communities with the goal of altered consciousness and spiritual enhancement.

TOXICITY

In 1967, Smith identified the adverse effects of psychedelic drugs as "largely psychological in nature," and classified them as either acute toxicity, effects occurring during the use of the drug, or chronic after-effects.[4]

Not all acute toxicity is based on anxiety or loss of control. Some people taking psychedelics display decided changes in cognition and demonstrate poor judgment. Negative psychological set and environmental setting are the most significant contributing factors to bad hallucinogenic trips.[5] Techniques originally developed within the psychedelic community and adopted by free clinics are based on the findings that most psychedelic bad trips are best treated in a supportive, nonpharmacological fashion through the restoration of a positive, nonthreatening environment.[6] Talk-downs of most acute toxicity reactions can be accomplished without medication or hospitalization.

Four recognized chronic reactions to LSD were reported in the 1960s: (1) prolonged psychotic reactions; (2) depression sufficiently severe so as to be life-threatening; (3) flashbacks; and (4) exacerbations of preexisting psychiatric illness. Since then a fifth chronic reaction has been listed in the DSM-III-R: posthallucinogen perceptual disorder (PHPD).

Some people who have taken many hallucinogenic drug trips, especially those who have had acute toxic reactions, show what appears to be serious long-term personality disruption. These prolonged psychotic reactions have similarities to schizophrenic reactions and appear to occur most often in people with preexisting psychological difficulties, such as primarily prepsychotic or psychotic personalities. Psychedelic drug-induced personality disorganizations can be quite severe and prolonged. Appropriate treatment often requires antipsychotic medication and residential care in a mental health facility followed by outpatient counseling. In certain patients, chronic psychological problems induced by LSD and other hallucinogenic drugs have led to complicated patterns of polydrug abuse that required additional treatment approaches.[7] A major concern involves teenagers with depressive reactions to psychedelic use that may result in severe depression culminating in suicide.

POSTHALLUCINOGEN PERCEPTUAL DISORDER

The long-term study of adverse psychedelic drug reactions has revealed the existence of infrequent but quite disabling chronic consequences of LSD use. Of particular concern is the posthallucinogen perceptual disorder (PHPD) (292.89, DSM 3-R). With PHPD, individuals experience a persistent perceptual disorder that they describe as like living in a bubble under water. They also describe trails of light and images following movement of their hands, and often describe living in a "purple haze." This perceptual disorder is aggravated by any psychoactive drug use, including alcohol and marijuana, and is distinguished from flashbacks, which are episodic rather than chronic phenomena.

With PHPD, the individual often suffers anxiety, even panic, and becomes phobic and depressed. With the PHPD sufferers, our experience has been that individuals do not have a disturbed psychiatric history prior to the onset

of psychedelic drug use and that the PHPD can occur even after a single dose.

For PHPD, drug-free recovery with supportive counseling is often adequate treatment, although recovery may take several months. Antianxiety medication may be needed to treat the secondary anxiety and panic disorder that often develop when the individuals feel that they are irreversibly brain-damaged. Often these individuals develop a phobic reaction similar to agoraphobia, in which they are unable to leave their homes or meet in groups or travel to a therapist's office or treatment center for therapy. A current solution to this problem has been found by the development of phone networks and therapy sessions conducted by telephone.

In some, psychopharmacotherapy may be required on an interim basis. With severe and disabling panic disorder associated with PHPD, benzodiazepines have been effective in treating the anticipatory anxiety and severe panic, allowing the patient to reestablish an improved level of functioning. Severe depression may be associated with the phobia and the SSRIs have been effective. In extreme cases a combination of benzodiazepine and SSRI therapy has been effective. As the patients recover from PHPD through abstinence and supportive counseling, the medications can be gradually discontinued.[2]

REFERENCES

1. Seymour RB, Smith DE. *The Psychedelic Resurgence: Treatment, Support, and Recovery Options*. Center City, Minn: Hazelden; 1993.
2. Seymour RB, Smith DE. Hallucinogens. In: Miller NS, ed. *Comprehensive Handbook of Drug and Alcohol Addiction*. New York, NY: Marcel Dekker; 1991.
3. Cohen S. Lysergic acid diethylamide: side effects and complications. *J Nerv Ment Dis*. 1960; 130:30-40.
4. Smith DE. Editor's note. *Journal of Psychedelic Drugs*. 1967; 1:1-5.
5. Smith DE, Seymour RB. Dream becomes nightmare: adverse reactions to LSD. *J Psychoactive Drugs*. 1985; 17:297-303.
6. Smith DE, Shick JFE. Analysis of the LSD flashback. *Journal of Psychedelic Drugs*. 1970; 3:13-19.
7. Smith DE, Wesson DR. Editor's note. *J Psychoactive Drugs*. 1975; 7:111-114.