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Hallucinogen-Induced Persisting Perception Disorder

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Abstract

Hallucinogen persisting perception disorder (HPPD) is a drug-induced condition associated with inaccurate visual representations. Since the underlying mechanism(s) are largely unknown, this review aims to uncover aspects underlying its etiology. Available evidence on HPPD and drug-related altered visual processing was reviewed and the majority of HPPD cases were attributed to drugs with agonistic effects on serotonergic 5-HT2A receptors.

Hallucinogen persisting perception disorder (HPPD) is a chronic and non-psychotic disorder in which a person experiences apparent lasting or persistent visual hallucinations or perceptual distortions after a previous hallucinogenic drug experience, usually lacking the same feelings of intoxication or mental alteration experienced while on the drug. The hallucinations and perceptual changes consist of visual snow, trails and after images (palinopsia), light fractals on flat surfaces, intensified colors or other psychedelic visuals.

Hallucinogen use is widespread. In the United States, 16.9% of young adults report having used hallucinogens (Johnston et al., 2008). Although most hallucinogen use apparently occurs without adverse events, there have long been reports of prolonged or reoccurring perceptual changes in a subset of hallucinogen users (Asher, 1971; Rosenthal, 1964; Smart and Bateman, 1967).

Introduction

It was not until 1986, with the American Psychiatric Association's (American Psychiatric Association, 1986) publication of the revised third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R), that standardized operational diagnostic criteria for 'flashbacks' were offered, under the diagnosis of 'post hallucinogen perception disorder' although this condition was described by Ellis in 1898 after taking mescaline [1–4].

Operationally defined, hallucinogen-induced persisting perception disorder and psychosis is characterized by "The reexperiencing, following cessation of use of a hallucinogen, of one or more of the perceptual symptoms that were experienced while intoxicated with the hallucinogen. In essence, schizophrenic spectrum symptoms (e.g., geometric hallucinations, false perceptions of movement in the peripheral visual fields, flashes of color, intensified colors, trails of images of moving objects, positive afterimages, halos around objects, macropsia and micropsia). Importantly, DSM-IV specifies that ''the person must show no current drug toxicity.''

HPPD has been associated with a broader range of drugs than only hallucinogens, which primarily produce effects resembling those of lysergic acid diethylamide (LSD) through serotonergic 5-HT2A receptors. For example, cannabis and 3,4methylenedioxymethamphetamine (MDMA, 'Ecstasy') have been associated with HPPD–like syndromes [5–8].

In a literature review, Halpern, & Harrison, HG, prior to the publication of operationally defined hallucinogen-induced persisting perception disorder and psychosis, reviewed the literature on this clinical entity. In general, it appears that individuals administered LSD in therapeutic or research settings are far less likely to develop HPPD than individuals using LSD illicitly.

Despite all of these reservations, it seems inescapable that at least some individuals who have used LSD experience persistent perceptual abnormalities reminiscent of acute intoxication, not better attributable to another medical or psychiatric condition, and persisting for weeks or months after their last hallucinogen exposure.

The authors conclude that the most likely conclusion is that a neurological or psychiatric diathesis in some individuals leads to persistent visual phenomena long after hallucinogen exposure.

Also, it is likely that other drugs my contribute to this phenomena; Strassman; Weil, for example, describes eight patients who complained of ''recurrence of hallucinogenic symptomatology ('flashbacks')'' only while intoxicated with cannabis [9–12].

The largest study of hallucinogen-induced persisting perception disorder was a web questionnaire that included 14 hallucinogenic drugs from six pharmacological classes: classical serotonergic hallucinogens, including LSD; psilocybin-containing mushrooms; dimethyltryptamine (DMT); 2,5-dimethoxy-4-ethylphenethylamine (2C-E); 2,5-dimethoxy-4-iodophenethylamine (2C-I); 5-methoxy-alpha-methyltryptamine

(5-MEO-AMT); alpha-methyltryptamine (AMT); dipropyltryptamine (DPT); and lysergic acid amide; NMDA antagonists, including ketamine and high- dose DXM MDMA (methylenedioxymethamphetamine) anticholinergic - containing Datura plants; cannabis; the kappa opioid agonist-containing plant [13–16].

Conclusion

60% of the remaining 2455 individuals reported at least one of the nine visual experiences that were included in the questionnaire. 587 (23.9%) endorsed at least one experience on a constant or near-constant basis. Several specific drugs were statistically associated with unusual visual experiences in the sample. LSD appeared to be the most robust predictor, consistent with its prominence in case reports of HPPD. For the1,016 respondents who reported no LSD use, the prevalence of any constant or near-constant visual experience was 18.1%, and this number approximately doubled to 34.5% in the 525 individuals who had used LSD 10 or more times. Together, these results indicate that more objective testing of visual functioning in hallucinogen- using populations is warranted and could clarify mechanisms of HPPD and the effects of these drugs on the visual system.

References

1. Annis, H.M., Smart, R.G., (1973). Adverse reactions and recurrences from marihuana use. Br. J. Addict. Alcohol Other Drugs 68, 315–319.
2. Asher, H. (1971). “Trailing” phenomenon – a long-lasting LSD side effect. Am. J. Psychiatry 127, 1233–1234.
3. Baggott, M.J., Coylea, J.R., E. Erowidb, E., Erowid, F.L., Robertson, C. (2011). Abnormal visual experiences in individuals with histories of hallucinogen use: A web-based questionnaire.
4. Batzer, W., Ditzler, T., Brown, C., (1999). LSD use and flashbacks in alcoholic patients. J. Addict. Dis. 18, 57/63.
5. Creighton, F.J., Black, D.L., Hyde, C.E., (1991). ‘Ecstasy’ psychosis and flashbacks. Br. J. Psychiatry 159, 713–715.
6. Gaillard, M.C., Borruat, F.X., (2003). Persisting visual hallucinations and illusions in previously drug-addicted patients. Klinische Monatsblätter für Augenheilkunde 220, 176–178.
7. Halpern, J.H., H.G. Pope, Jr, H.G. (2003). Drug and Alcohol Dependence 69 109-119
8. Hermle, L., Kovar, K.A., Hewer, W., Ruchsow, M., (2008). Hallucinogen-induced psychological disorders]. Fortschr.Neurol. Psychiatr. 76, 334–34
9. Johnston, L.D., O’Malley, P.M., Bachman, J.G., Schulenberg, J.E., (2008). Monitoring the future national survey results on drug use: volume II college students and adults ages 19–45. In: DHHS, U.S. (Ed.). National Institute on Drug Abuse.
10. McGuire, P., Fahy, T., (1992). Flashbacks following MDMA. Br. J. Psychiatry 160, 276.
11. McGuire, P.K., Cope, H., Fahy, T.A., (1994). Diversity of psychopathology associated with use of 3,4-methylenedioxymethamphetamine (‘Ecstasy’). Br. J. Psychiatry 165, 391–395.
12. Nichols, D.E., (2004). Hallucinogens. Pharmacol. Ther. 101, 131–181.
13. Smart, R.G., Bateman, K., (1967). Unfavourable reactions to LSD: a review and analysis of the available case reports. Canadian Medical Association Journal 97, 1214–1221.
14. Strassman, R.J., (1984). Adverse reactions to psychedelic drugs: a review of the literature. J. Nerv. Ment. Dis. 172, 577/595.
15. Rosenthal, S.H., (1964). Persistent hallucinosis following repeated administration of hallucinogenic drugs. Am. J. Psychiatry 121, 238–244.
16. Weil, A.T., (1970). Adverse reactions to marijuana: classification and suggested treatment. N. Engl. J. Med. 282, 997/1000.