

To treat or not to treat?

High-potency benzodiazepine use in a case of comorbid Hallucinogen Persisting Perception Disorder and Alcohol Use Disorder

Julie Christensen, M.D.¹, David Fipps, D.O.¹, J Michael Bostwick, M.D.¹

¹Department of Psychiatry and Psychology, Mayo Clinic, Rochester, MN

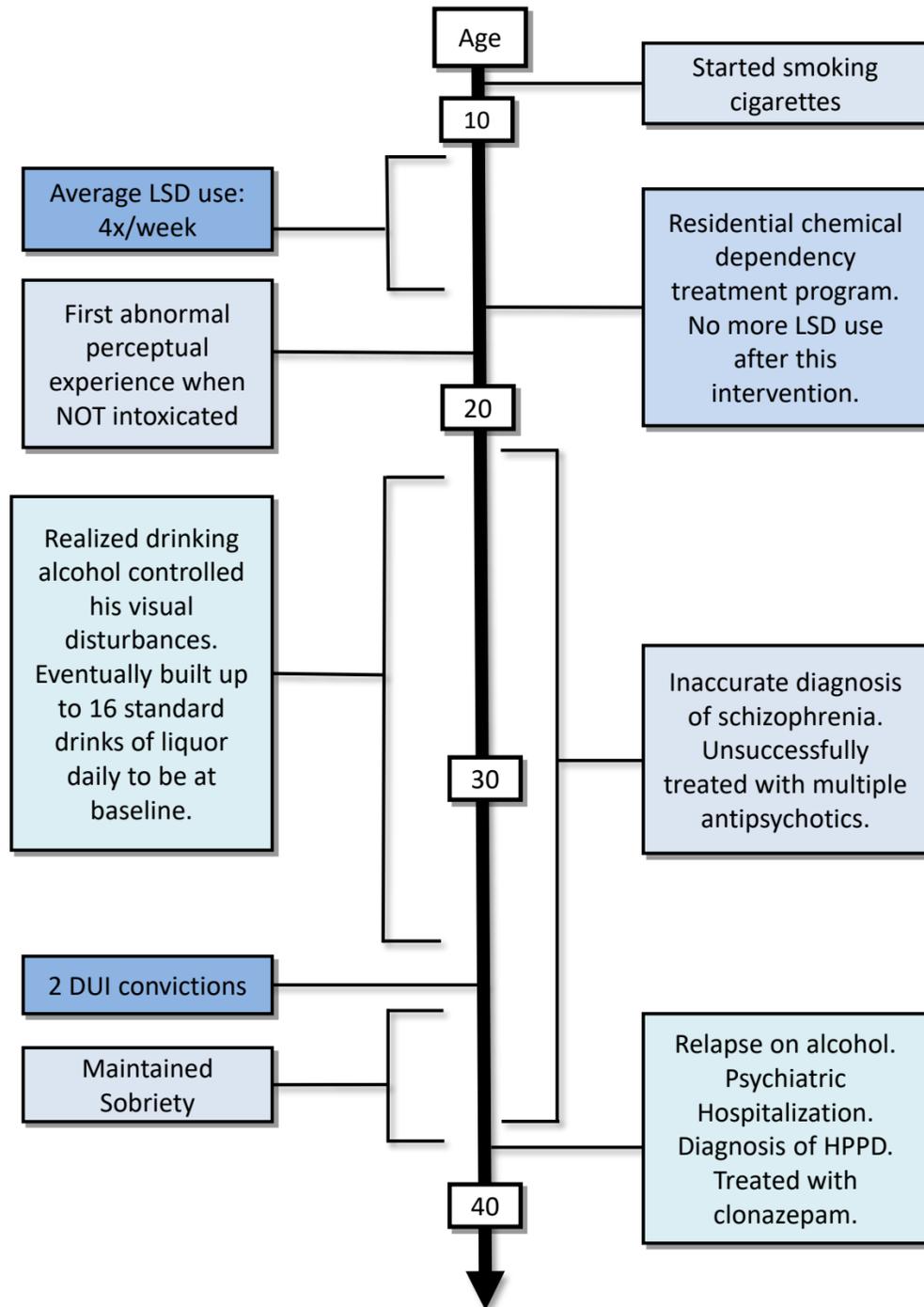
INTRODUCTION

- Hallucinogen Persisting Perception Disorder (HPPD): characterized by visual disturbances resembling acute psychedelic (PSD) intoxication and persist following cessation of the hallucinogen.
- Most common precipitants: lysergic acid diethylamide (LSD) and psilocybin.
- Severe and persistent PSD re-experiencing occurs in roughly 2% of people with past regular hallucinogen use.¹
- Treatment: modulating damaged serotonergic (5HT) neurons via GABA receptors (greatest evidence for benzodiazepines (BZD)).²

PATIENT INFORMATION

Mr. N is a 37-year-old with a history of alcohol, cannabis, LSD, cocaine, and nicotine use disorders. Although two decades had passed since his last LSD use, he continued to experience illusions of halos around objects, moving walls, and figures appearing cartoonish. These visual distortions resolved when he drank heavily or took BZD.

SUBSTANCE USE TIMELINE



WORKUP

- CBC, BMP, TSH, ALT, AST, lipids, Hgb A1C unremarkable
- Serum levels normal for ethanol, salicylate, acetaminophen, levetiracetam
- Urine drug screen negative
- Head CT with no acute abnormalities
- EEG with no evidence of epileptic activity during visual episodes

DISCUSSION

- It is important to clarify the diagnosis when patients present with perceptual disturbances that do not fit typical psychotic presentations.
- Visual misperceptions may occur and are distinct from visual hallucinations in that they represent distortions of objects rather than a perception of a nonexistent object.
- Chronic LSD use can cause dysfunction of cortical 5HT neurons that are inhibitory in nature with GABA outputs.³
- BZD have the greatest evidence in treatment of HPPD and provide GABAergic inhibition to damaged 5HT neurons.⁴
- Thorough substance use and social history are critical in clinical assessment.
- Patients with co-occurring HPPD and substance use disorders require close follow-up to ensure adequate control of HPPD symptoms and to reduce risk of BZD medication misuse.

CONCLUSION

The illusions of HPPD are distinct from the hallucinations of psychotic illnesses. Clinicians should be alert for atypical symptom presentations, particularly when a history of heavy psychedelic use is present, since antipsychotics are not appropriate treatment for the perceptual disturbances of HPPD. BZD, not antipsychotics, are the treatment of choice for HPPD, though careful consideration must be given to risks and benefits of benzodiazepine treatment for patients with comorbid alcohol use disorder.

REFERENCES

1. McGlothlin WH, Arnold DO. LSD revisited. A ten-year follow-up of medical LSD use. Arch Gen Psychiatry. 1971 Jan;24(1):35-49. doi: 10.1001/archpsyc.1971.01750070037005. PMID: 5538851.
2. Halpern JH, Lerner AG, Passie T. A Review of Hallucinogen Persisting Perception Disorder (HPPD) and an Exploratory Study of Subjects Claiming Symptoms of HPPD. Curr Top Behav Neurosci. 2018;36:333-360. doi: 10.1007/7854_2016_457. PMID: 27822679.
3. Adam L, Halberstadt, Mark A, Geyer. Serotonergic hallucinogens as translational models relevant to schizophrenia. International Journal of Neuropsychopharmacology. 2013 Nov; 16(10): 2165-2180. doi:10.1017/S1461145713000722.
4. Martinotti G, Santacroce R, Pettorruso M, Montemiro C, Spano MC, Lorusso M, di Giannantonio M, Lerner AG. Hallucinogen Persisting Perception Disorder: Etiology, Clinical Features, and Therapeutic Perspectives. Brain Sci. 2018 Mar 16;8(3):47. doi: 10.3390/brainsci8030047. PMID: 29547576; PMCID: PMC5870365.