

Psilocybin and Obsessive Compulsive Disorder

James Allen Wilcox, M.D., Ph.D.^a

Abstract— Obsessive Compulsive Disorder (OCD) is a psychiatric disorder with considerable morbidity and mortality. This condition disables many individuals and is often refractory to treatment. Research suggests that serotonin plays a role in OCD symptom reduction. We present a case of an individual who successfully used psilocybin, a serotonergic agent, to reduce the core symptoms of OCD for several years. Although not endorsing this form of treatment, we feel that the successful use of this agent highlights the role of serotonergic factors in OCD and the need for further, legitimate research into the value of psilocybin in the treatment of anxiety disorders.

Keywords— anxiety, obsessive compulsive, psilocybin, psychedelic

Obsessive Compulsive Disorder (OCD) is a chronic condition characterized by disturbing, intrusive thoughts and compulsive rituals (Karno, Golding & Sorenson 1988; Kessler, McGonagle & Zhao 1994). This problem has a lifetime prevalence of about 2.5%, therefore affecting millions of people to various degrees. OCD has many co-morbid symptoms, including anxiety, insomnia, and depression. It is a serious public health problem which has significant associated morbidity and mortality (Karno, Golding & Sorenson 1988). The search for effective treatment of this disorder poses challenges for scientists and clinicians alike. It is one of the few psychiatric conditions where the level of suffering and the lack of available treatment still allow for the use of psycho-surgery in some countries (Patel et al. 2013; Ramesh & Balasubraminian 2013; van Vliet et al. 2013). It is widely thought that serotonin (5-HT) plays a role in obsessive ideation and behavior. Clinical research has also found that regulation of 5-HT receptors can change symptoms of this syndrome in some individuals (Goodman et al. 1990). In spite of

new treatments for this disorder, the total elimination of symptoms is rare (Fineberg et al. 2012).

Psilocybin is a known hallucinogen which has demonstrated serotonergic properties in preclinical studies (Hoffer & Osmond 1967; Aghajanian & Marek 1999). A small number of reports suggest that psilocybin is well-tolerated under controlled environments and may relieve the symptoms of obsessive compulsive disorder in some individuals (Brandup & Vanggard 1977; Delgado & Moreno 1998; Moreno et al. 2006). Although Moreno et al. (2006) have demonstrated safety and tolerability for psilocybin in a small number of patients, no real test of efficacy for OCD has been reported. No tests involving large numbers of individuals have been conducted with this agent in the treatment of OCD. It is an odd situation where brain surgery is tolerated for OCD, but research on a potential noninvasive pharmacological therapy is virtually nonexistent. This places clinicians and researchers in a position where case reports are a necessary source of information.

There are also a number of reported individual cases concerning beneficial effects of serotonergic hallucinogens in the treatment of obsessive thoughts (Brandup et al. 1977; Del Gado & Moreno 1998; Moreno et al. 2006). Some reports have suggested that remission of the symptoms of OCD may continue for several months after one exposure to psilocybin (Moreno et al. 2006). This compound

This article is not subject to U.S. copyright law.

^aProfessor of Clinical Psychiatry, University of Arizona, Tucson, AZ.

Please address correspondence to James Allen Wilcox, M.D., Ph.D., 3601 S. 6th Avenue, Tucson, AZ 85723; phone: 520-792-1450; fax: 520-629-1864; email: James.Wilcox2@va.gov

is a naturally derived hallucinogen, common to the genus *Psilocybe*. Psilocybin is an indolealkylamine known to bind tightly as an agonist to the 5-HT_{1a}, 5-HT_{2a}, and 5HT_{2c} receptors (Aghajanian & Marek 1999). Current research strongly suggests that agonist activity at the 5HT₂ receptor has a hallucinogenic effect in humans (Aghajanian & Marek 1999; Brandup et al. 1977). Appropriate University of Arizona IRB approval was obtained for this case report.

CASE REPORT

A 38-year-old, 170-pound, married White male presented to the clinic over a period of years. He reported chronic anxiety and worry since childhood. He denied use of illegal substances when he first came to the clinic. As an adult, his primary issues developed into a consistent pattern of intrusive, disturbing thoughts (ego dystonic thinking), checking behaviors, and worry. These thoughts would come to mind as often as 100 times per day and interrupted his daily activities. Over time, he developed counting rituals to reduce intrusive thoughts and repetitive routines to make sure things were done to his satisfaction. None of these techniques reduced his anxiety and instead became incorporated into a dysfunctional pattern in his day. His ritualistic behaviors would occur dozens of times per day and were very disruptive his lifestyle. He could no longer work and lost most social contacts, as he spent more and more time with his uncomfortable thoughts and ritualistic routines. His anxiety was severe. He tried several forms of treatment, including one year of psychoanalysis, supportive psychotherapy, and several months of cognitive behavioral therapy, without success. Eventually, he took medications for his condition, but found diazepam up to 10 mg three times a day, fluoxetine up to 60 mg/day, buspirone up to 30 mg/day, and clomipramine at therapeutic dosages (150 mg/day) ineffective. In desperation, he looked for herbal remedies and found no relief until a friend gave him “magic mushrooms” he had grown at home from a spore sample, labeled as “psilocybin cubensis.” The patient reported that he consumed three of these mushrooms in his apartment with a friend watching over him. The subject found the immediate experience of mushrooms to be unpleasant and anxiety-provoking; however, the next day, his intrusive thoughts were significantly reduced. The subject denied actual hallucinations or strong psychedelic effects, but did report a feel of disassociation for four hours

post-ingestion. He related that the next day his intrusive thoughts were significantly reduced. Several months later, when he appeared for an appointment at the clinic, the patient reported that he had found ongoing relief from his anxiety, intrusive thoughts, and rituals. This individual reported that each time he ingested approximately two grams of psilocybin mushrooms, he experienced about three weeks of relief from his intrusive thoughts and anxiety. The patient said that he did this about every three weeks to keep symptoms away. He denied side-effects or emotional distress from his use of mushrooms. He reported that he grew them from spores and was confident of the species. He was warned about the potential danger of taking a substance that had not been studied for its effects on OCD. He was seen one more time one year later and reported that he remained symptom-free during this time.

DISCUSSION

The use of serotonergic pharmaceuticals has been well-studied and found to reduce some of the symptoms of OCD (Goodman, Price & Delgado 1990). This phenomenon is not a new report. There are limitations to any case report. This individual had no way to verify that the mushrooms he consumed were actually of the psilocybin type. He claimed to produce them himself from spores to eliminate contaminants, but we still have no way to know the actual species of the spores. Nevertheless, common edible mushrooms have no efficacy against OCD. This person had no medical or scientific supervision during his self-experimentation. It is still important to report such cases because the availability of systematic trials is extremely limited in the literature. Although the patient’s mushrooms were never examined by anyone in our clinic, the individual reported ongoing maintenance of symptom remission with his mushroom home remedy over a long period of time. Such duration of symptom control would be unlikely with a placebo. Valid concerns arise whenever anyone uses a powerful resource (for example, some species of mushrooms are deadly) for self-diagnosis or treatment. An individual may be ignorant of the potential consequences of the ingestion and be harmed by it. Real research on the role of psilocybin should be funded and properly performed in a safe, scientific setting to evaluate its potential use in the treatment of OCD. We encourage clinicians with similar observations to report them in the literature.

REFERENCES

- Aghajanian, G. & Marek, G. 1999. Serotonin and hallucinogens. *Neuropsychopharmacology* 21 (suppl 2): 16S–23S.
- Brandup, E. & Vanggaard, T. 1977. LSD treatment in a severe case of compulsive neurosis. *Acta Psychiatrica Scandinavica* 55: 127–141.
- Delgado, P. & Moreno, F. 1998. Hallucinogens, serotonin, and obsessive compulsive disorder. *Journal of Psychoactive Drugs* 30: 359–366.
- Fineberg, N.; Brown, A.; Reghunandan, S. & Pampaloni, I. 2012. Evidence-based pharmacotherapy of obsessive-compulsive

- disorder. *International Journal of Neuropsychopharmacology* 15(8): 1173–91.
- Goodman, W.; Price, L. & Delgado, P. 1990. Specificity of serotonin reuptake inhibitors in the treatment of obsessive-compulsive disorder. *Archives of General Psychiatry* 47: 577–585.
- Hoffer, A. & Osmond, H. 1967. *The Hallucinogens*. New York: Academic Press, 480–510.
- Karno, M.; Golding, J. & Sorenson, S. 1988. The epidemiology of obsessive compulsive disorder in 5 US communities. *Archives of General Psychiatry* 45: 1094–1099.
- Kessler, R.; McGonagle, K. & Zhao, S. 1994. Lifetime and 12 month prevalence of DSMIII-R psychiatric disorders in the United States. *Archives of General Psychiatry* 51: 8–19.
- Moreno, F.; Wieland, C.; Taitono, E. & Delgado, P. 2006. Safety, tolerability, and efficacy of psilocybin in 9 patients with Obsessive-Compulsive Disorder. *Journal of Clinical Psychiatry* 67 (11): 1735–1741.
- Patel, S.; Aronson, J.; Sheth, S. & Eskandar, E. 2013. Lesion procedures in psychiatric neurosurgery. *World Neurosurgery* 80 (3–4): S31 e9–16.
- Ramesh, V. & Balasubraminian, C. 2013. Obsessive-compulsive disorder and cingulotomy. *Journal of Neurosurgery* 119(2): 526.
- van Vliet, I.; van Well, E.; Bruggeman, R.; Campo, J.; Hijman, R.; van Megen, H.; van Balkom, A. & van Rijen, P. 2013. An evaluation of irreversible psychosurgical treatment of patients with obsessive-compulsive disorder in the Netherlands, 2001–2008. *Journal of Nervous and Mental Disease* 201 (3): 226–8.