



## LETTERS TO THE EDITORS

# A case of bleach addiction associated with severe obsessive-compulsive disorder

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Obsessive-compulsive disorders (OCDs) and substance use disorders (SUDs) are listed in two separate sections in psychiatric classifications. However, they share many clinical, physiological, and epidemiological aspects. SUDs affect more than one-quarter of individuals who seek treatment for OCD, and the lifetime comorbidity rate between OCD and SUDs reaches 27%.<sup>1</sup> Furthermore, the co-occurrence of SUDs and OCD was shown to be higher than that of SUDs and other psychiatric disorders.<sup>2</sup> By comparing brain activity during reward anticipation and receipt tasks between OCD patients and healthy control subjects, researchers found that OCD patients may be less able to make beneficial choices because of altered nucleus accumbens activation when anticipating rewards.<sup>3</sup> This finding supports the conceptualization of OCD as a disorder of reward processing and behavioral addiction.

We report a case study of a patient with OCD who has progressively developed a form of addiction to bleach use. To the best of our knowledge, bleach has not yet been described as an abused substance in OCD in the literature.

The patient is a 50-year-old female with severe, treatment-resistant OCD and no lifetime history of SUDs. OCD onset was at the age of 23, following a traumatic rape. Her main obsessions were intrusive thoughts of

dirtyness and contamination, and her compulsions were excessive washing and/or cleaning. She showered several times per day using a diluted solution of bleach in water; this routine took up to 8 hours daily. Furthermore, the frequency of her compulsions as well as the concentration of the bleach solution she used were exacerbated by her anxiety levels. Despite several dermatological lesions due to bleach use, efforts to stop these behaviors have been unsuccessful. In 4 years, she has had five overdose-like incidents which required immediate medical attention due to excessive inhalation of bleach fumes. In addition to these symptoms, which are very similar to diagnostic criteria for addiction, the patient described a bleach craving independently of her obsessive thoughts and compulsion toward dirtiness: she felt an urge to buy and use the product when it was available and developed a form of withdrawal symptoms when it was not. We tried to qualify and quantify this form of “bleach addiction” using the classical diagnostic criteria (DSM-5 Other SUD) and addiction scales with two independent assessments by trained psychiatrists (AP and RD). Results are presented in Table 1, as are OCD and general psychopathology scale scores. These results show that diagnostic criteria for SUD are met, with elevated scores on all severity scales.

Several pharmacological treatments have been prescribed to the patient since OCD onset, following multiple consecutive hospitalizations in psychiatric departments: clomipramine 225 mg/day, fluoxetine 80 mg/day for more than 3 years, and paroxetine 60 mg/day. However, these treatments, as well as CBT, have had a very moderate effect on her symptoms.

This case report of severe OCD associated with a bleach addiction-like syndrome is original in its dependence to the “substance” itself and not only to the washing behavior. As seen in some patients with severe, treatment-resistant disease, a stepwise natural history of the disease can be identified, with a progression towards

**Table 1** Addiction scales and criteria applied to bleach use, and other symptomatic scales scores, in the patient

	Rater 1 (AP)	Rater 2 (RD)
<b>CAGE</b>		
Total score (0-4)	3	3
Met items	1, 2, 3	1, 2, 3
<b>DSM-5 SUD A criteria</b>		
Number of met criteria (0-11)	8	7
Current severity	Severe	Severe
Met criteria	1, 2, 3, 4, 8, 9, 10a, 11a	1, 2, 4, 8, 9, 10a, 11a
<b>AUDIT</b>		
Total score (0-40)	31	31
Individual item scores (0-4)	4, 4, 4, 4, 4, 0, 3, 0, 4, 4	4, 4, 4, 4, 4, 0, 3, 0, 4, 4
<b>Y-BOCS</b>		
Total score (0-40)		32
Obsession subscore (0-20)		13
Compulsion score (0-20)		19
<b>GAF (0-100)</b>		30
<b>MADRS (0-60)</b>		28
<b>CGI (1-7)</b>		7

AUDIT = Alcohol Use Disorder Identification Test; CAGE = Cut Down, Annoyed, Guilty, Eye-Opener; CGI = Clinical Global Impression; GAF = Global Assessment of Functioning; MADRS = Montgomery-Åsberg Depression Rating Scale; SUD = substance use disorders; Y-BOCS = Yale-Brown Obsessive Compulsive Scale.

an addiction to compulsion: the patient initially used bleach to reduce stress and anxiety, but then developed a compulsive and addictive use independently of her obsessions. Diagnostic criteria for addiction and markers of severity are almost all applicable to this particular craving and dependence without ingestion; yet, bleach abuse and dependence could not be considered as independent of OCD. This observation raises questions, then, about the shared physiopathology of both disorders under a different angle than that of a classical comorbidity. We suggest that, for these treatment-resistant symptoms, in our patient in particular and in those with severe and complex OCD in general, innovative therapies should be explored, e.g., new pharmacological agents such as baclofen<sup>4</sup> or deep brain stimulation.<sup>5</sup>

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## Disclosure


The authors report no conflicts of interest.

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# S-(+)-ketamine-induced dissociative symptoms as a traumatic experience in patients with treatment-resistant depression

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Ketamine, an NMDA receptor antagonist, is a rapid-acting antidepressant and anti-suicidal agent.<sup>1</sup> However, most clinical trials assessing its antidepressant action involve RS(±)-ketamine, which is considered a more dissociative drug than S-(+)-ketamine.<sup>2</sup> In this report, we describe

severe psychotomimetic side effects after S-(+)-ketamine infusion therapy in two patients with treatment-resistant depression (TRD), contrasting with previous evidence that S-(+)-ketamine is less prone to inducing these side effects.

**Case 1.** A 43-year-old married man, educated at the vocational level, presented with a 2-year history of TRD with no previous report of dissociative or psychotic symptoms. The patient had not responded to citalopram, venlafaxine, mirtazapine, or augmentation trials with lithium and quetiapine. After a severe suicide attempt and refusal of electroconvulsive therapy (ECT), the patient was treated with an S-(+)-ketamine infusion (0.25 mg/kg, IV over 10 minutes) in July 2014, while still on mirtazapine and quetiapine. His baseline Montgomery-Åsberg Depression Rating Scale (MADRS) score was 40. After 24 hours, the MADRS score was 28 (30% improvement). The patient reported marked dissociative symptoms during infusion and described the procedure as a terrible experience: “There was a devil and he removed my heart with his own hands; it was terrible.” One week after the infusion, he persistently re-experienced recurrent dissociative thoughts and nightmares. Three weeks after the infusion, he was in remission from both depression and dissociation, but still hesitant to mention the psychotomimetic experience. At that time, he asked his psychiatrist: “to get out of limbo, I should go to hell?”

**Case 2.** A 66-year-old, college-educated married man was diagnosed with severe long-standing TRD. There were no previous reports of dissociative or psychotic symptoms. The patient had not responded to venlafaxine, citalopram, duloxetine, or augmentations with bupropion, aripiprazole, quetiapine, pramipexole, and agomelatine. The patient’s family would not accept ECT, and lithium was avoided due to a unilateral nephrectomy. He was treated with S-(+)-ketamine infusion (0.25 mg/kg IV over 10 minutes) in August 2015; mirtazapine and olanzapine were maintained. His baseline MADRS score was 48, declining to 31 after 24 hours (35% change). During the S-(+)-ketamine infusion, the patient developed dissociative symptoms that were experienced as traumatic. He felt a strange sense of bodily disintegration “into atoms. [...] It was death. I died... am I here? My body exploded.” He avoided talking about the experience, and dissociative and psychotic behavior persisted for almost 4 weeks.

We reported two cases of severe psychomimetic effects in TRD patients associated with rapid infusion (10 minutes) of S-(+)-ketamine, the ketamine formulation most widely used in Brazil. Thus, we raise the hypothesis that S-(+)-ketamine is not sufficiently less dissociative than RS(±)-ketamine to the point of justifying rapid infusion, as has been common practice in Brazil.

It is noteworthy that, despite being reported as a traumatic event by patients, these experiences cannot be diagnosed as such according to the DSM-IV criteria; acute stress disorder (ASD) is characterized by symptoms of negative mood, intrusion, dissociation, avoidance, and arousal that last from 3 days to 1 month, usually during or subsequent to a traumatic episode not correlated with the physiological effects of a substance.<sup>3</sup>

A core aspect related to ketamine use is its safety and tolerability, especially with respect to cardiovascular risks,