Successful Treatment of Catatonia with Methylphenidate in a 25-Year-Old Patient With Schizophrenia

To the Editor: Catatonia is a distinct syndrome that involves a constellation of up to 40 different symptoms with a complex mixture of psychiatric, motoric, behavioral, and systemic manifestations.[1]

In the medical literature, the prevalence of catatonia varies significantly from 15%[2] to 31%[3] in hospitalized psychiatric patients. In general, patients with catatonia may show immobility, rigidity, staring, cataplexy, mutism, echolalia or echopraxia, and posturing. The most common causes of catatonia are affective disorders, particularly mania, psychosis, and autism spectrum disorder, as well as general medical and neurologic conditions such as autoimmune diseases, metabolic disorders, and encephalitis.[1] Benzodiazepines and electroconvulsive therapy (ECT) can effectively treat catatonia in most cases with a favorable outcome.[4]

We present the case of a young woman with schizophrenia with catatonia who was refractory to benzodiazepine treatment and did not have access to ECT treatment in the hospital. We successfully treated her with methylphenidate.

Case report. A 25-year-old woman with schizophrenia was prescribed olanzapine 10 mg daily. She refused to eat or drink for 2 days and was admitted to the intensive care unit with a diagnosis of schizophrenia with catatonia (*DSM-5* criteria) after clinical examination, review of old charts, and obtaining information from family. She exhibited the following symptoms of catatonia: mutism, immobility, posturing, rigidity, and negativism. Her admission medications were maintained, and she was started on intravenous fluids, nasogastric tube feeding, and lorazepam 2 mg every 4 hours. She remained selectively mute and negativistic, refusing to engage in treatment, and became aggressive on multiple occasions to the point that she had to be placed in physical restraints to decrease the risk of harming herself or others. She remained symptomatic despite the trial of lorazepam. Finally, she was started on methylphenidate 5 mg twice a day, which was titrated up to 15 mg twice a day over the course of 3 days. The initiation of methylphenidate led to significant clinical improvement as evidenced by decreased rigidity and improved speech. She resumed oral intake. Once medically stabilized, she was transferred to a psychiatric unit to treat underlying psychopathology.

Neurobiology of catatonia includes a complex interaction between γ-aminobutyric acid (GABA), glutamate, and dopamine. There is a decrease in GABA activity in the right lateral orbitofrontal cortex or decrease in the glutamate levels in the striatum. Treatment with GABAergic medications such as benzodiazepines, barbiturates, or ECT restores the balance in these areas by increasing GABA-A activity and thus treats the catatonia.[5] It is also hypothesized that hypofunctioning of dopaminergic activity in the mesostriatal dopamine pathway can lead to catatonic symptoms.[5] This theory suggests that use of dopaminergic drugs can be effective in the treatment of catatonia by enhancing dopaminergic transmission.

Methylphenidate is a psychostimulant frequently used in the treatment of attention-deficit/hyperactivity disorder. Its mechanism of action involves increasing the presynaptic level of catecholamines primarily by inhibiting the reuptake of dopamine. Methylphenidate instantly causes a resolution of catatonic symptoms because of its rapid absorption and ability to cross the blood-brain barrier and to increase dopamine levels.

Clinicians should be cognizant about avoiding a strong D_2 antagonist to treat psychosis or mood disorders in catatonic patients, as these agents may worsen catatonia by decreasing the dopamine levels in the brain. Moreover, there is a rare risk of worsening the psychosis with stimulant use as well.[6]

To our knowledge, there are only 3 documented cases[5,7,8] of successfully treating catatonia associated with affective disorders, and this is the first case to document the use of a stimulant in the treatment of catatonia linked with psychosis. Randomized controlled trials are warranted to document the complete efficacy and safety of psychostimulants in the treatment of catatonia.

Benzodiazepines and ECT remain the first-line treatments for catatonia. However, in refractory cases, or in patients for whom the use of GABAergic medications can be nefarious (eg, during altered mental status, central nervous system depression, or allergic reaction to the medications or if ECT is unavailable or not a viable treatment option), stimulants should be considered as an alternative treatment.

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