

Successful resolution of catatonia in severe depression with ketamine infusion: A case report

Harshit Kumar¹, Rika Rijal² & Sulagna Mallik¹

¹ Department of Psychiatry, All India Institute Of Medical Sciences, Patna, India

² Lecturer, Department of Psychiatry, Kathmandu University School of medical sciences, Dhulikhel, Nepal

received: 24. 05. 2025;

revised: 13. 09. 2025;

accepted: 21. 10. 2025

* * * * *

INTRODUCTION

Catatonia is a severe, yet often reversible, neuropsychiatric syndrome presenting with motor, behavioural, and affective abnormalities. It is frequently observed in mood disorders, especially severe depression with melancholic or psychotic features. Timely recognition and treatment are critical. Ketamine, an NMDA receptor antagonist, is gaining attention for its rapid antidepressant and anti-catatonic effects. This case illustrates the successful use of ketamine in a patient with catatonia secondary to major depressive disorder, unresponsive to benzodiazepines.

CASE PRESENTATION

A 29-year-old married woman, pursuing postgraduate degree in physics, was brought to the emergency department by her family with acute onset of rigidity, mutism, and refusal to eat or drink for the preceding 24 hours. She was nonverbal, exhibited fixed staring, and required total assistance for mobility and basic activities. The history revealed persistent low mood for four months, triggered by interpersonal stressors involving her in-laws—particularly her brother-in-law. She became socially withdrawn, lost interest in academics and domestic responsibilities, and began to express feelings of worthlessness and hopelessness. She cried frequently and avoided interaction with her parents and peers. She expressed dissatisfaction with her marriage, accusing her husband of emotional neglect and her parents of abandonment. Despite returning to her parental home for temporary respite, her symptoms persisted—marked by insomnia, poor appetite, psychomotor slowing, and ruminative guilt. She was prescribed escitalopram 10 mg/day and clonazepam 2 mg/day by a local physician, but with poor adherence and no clinical improvement. Following mediation, she returned to her

in-laws' home. Over the next 20 days, she experienced 2–3 episodes of catatonic features—including rigidity, mutism, and withdrawal—each lasting up to a day and partially responsive to clonazepam. Three days prior to hospital admission, she developed persistent catatonia, with refusal to eat, drink, or speak, prompting emergency evaluation.

EXAMINATION AND INVESTIGATIONS

On presentation, she was mute, exhibited generalized rigidity and negativism, and was non-responsive to verbal commands. Her Bush-Francis Catatonia Rating Scale (BFCRS) (Bush et al., 1996) score was 17. A lorazepam challenge test (1 mg IV) yielded only marginal, temporary improvement (BFCRS score-13 after injection. Returned to 15 in an hour). Basic laboratory investigations including complete blood count, renal and liver function tests, thyroid profile, electrolytes, vitamin B12, and cranial imaging (CT scan) were normal.

MANAGEMENT AND HOSPITAL COURSE

She was admitted under psychiatry ward with a diagnosis of severe depressive episode with catatonic features. Lorazepam was started at 1 mg TID and increased to 2 mg TID and continue over next 3 days with partial improvement. However, due to persistent symptoms and poor oral intake, she was offered referral to higher centre where ECT was available. Family members were not willing for ECT so the decision was made to initiate intravenous ketamine infusion from Day 4 (BFCRS score-11).

A total of six ketamine infusions were administered over two weeks on alternate days, beginning at 0.5 mg/kg over 40 minutes and titrated to 1 mg/kg. The infusions were conducted under medical supervision with continuous monitoring of vitals, hydration status, and mental state.

She began improving after the second infusion—making eye contact and showing reduced psychomotor rigidity. By the third session, she whispered brief responses and accepted spoon-feeding. Following the fourth infusion, she initiated conversation, expressed emotional distress, and resumed independent eating. By the sixth session, catatonic symptoms had nearly resolved and her BFCRS score reduced to 5.

Escitalopram was gradually titrated to a dose of 20 mg/day for the management of depression, which achieved sustained remission. However, mild anhedonia and persistent ruminative thoughts about low self-worth and hopelessness lingered for approximately one month. To address these residual symptoms, aripiprazole 2 mg/day was initiated, leading to complete remission within 2–3 weeks. The patient also participated in psychotherapy emphasizing cognitive restructuring and emotion regulation, alongside family psychoeducation to strengthen support systems and address interpersonal issues. She has remained in remission throughout a six-month follow-up period (most recently reviewed one month ago).

DISCUSSION

The use of ketamine infusion in the treatment of catatonia represents a novel and emerging therapeutic approach, particularly in cases where standard treatments such as benzodiazepines and electroconvulsive therapy (ECT) have failed or are contraindicated. Traditionally, benzodiazepines and ECT are considered first-line treatments for catatonia, but a significant proportion of patients—estimated at 20% to 40%—do not respond to these interventions, especially those with chronic or treatment-resistant catatonia (Rogers et al., 2023).

Recent case reports have documented the successful use of ketamine, an N-methyl-D-aspartate (NMDA) receptor antagonist, in both acute and chronic forms of catatonia. In one report, a patient with schizoaffective disorder and chronic, treatment-resistant catatonia showed marked improvement with sublingual ketamine and intranasal esketamine after failing to respond to lorazepam, ECT, and transcranial magnetic stimulation. The patient not only achieved remission of catatonic symptoms but also maintained clinical stability and resumed

normal daily activities over a 13-month follow-up period (Mihaljević et al., 2020).

Other case studies have described rapid and substantial improvement in catatonic symptoms following intravenous ketamine administration in both acute and recurrent cases, with symptom relief lasting from weeks to several months (Conrad et al., 2023). Ketamine's rapid onset of action, availability in multiple routes of administration, and lack of respiratory depression make it an attractive alternative, particularly when ECT is not feasible due to medical comorbidities or resource limitations (Sarma et al., 2023). The underlying mechanism by which ketamine alleviates catatonia is not fully understood, but it is hypothesized to involve modulation of glutamatergic neurotransmission via NMDA receptor antagonism. This is particularly relevant given that other NMDA antagonists have shown moderate success in catatonia, and that glutamatergic dysfunction has been implicated in its pathophysiology (Mihaljević et al., 2020). However, animal studies have also suggested pro-catatonic effects of ketamine, indicating a complex and not yet fully elucidated mechanism (Kobayashi et al., 2021).

Despite these promising findings, the evidence for ketamine's efficacy in catatonia is limited to case reports and small case series. (Gregor & Zheng, 2023) The heterogeneity of underlying psychiatric diagnoses, variability in dosing regimens, and the lack of controlled studies limit the generalizability of these results. Additionally, potential adverse effects, such as dissociation and the risk of exacerbating psychosis, must be carefully considered, especially in populations with underlying psychotic disorders.

In summary, ketamine may represent a viable option for treatment-resistant catatonia, particularly when conventional therapies are ineffective or contraindicated. However, further research, including controlled clinical trials, is necessary to establish its safety, efficacy, and optimal use in this population (Siddiqui 2024, Conrad et al., 2023, Caliman-Fontes et al., 2024).

CONCLUSION

This case demonstrates the effectiveness of IV ketamine infusions in resolving catatonic symptoms in severe depression unresponsive to benzodiazepines. The use of adjunctive SSRI and low-dose aripiprazole provided additional mood stabilization. In resource-constrained or ECT-limited settings, ketamine offers a viable, evidence-supported alternative for catatonia management. Prompt recognition and a flexible, multimodal treatment approach are key to favourable outcomes.

Ethical Considerations: Does this study include human subjects? YES

Authors confirmed the compliance with all relevant ethical regulations.

Conflict of interest: No conflict of interest

Funding sources: The authors received no funding from an external source

Authors' Contributions: The authors are solely responsible for the content and writing of this paper. Harshit Kumar: Conceptualization; writing – original draft; writing – review and editing. Rika Rijal: submission; conceptualization. Sulagna Mallik: Conceptualization; data curation
Acknowledgments: Dr Shubh Mohan Singh.

References

- Bush, G., Fink, M., Petrides, G., Dowling, F., & Francis, A. (1996). Catatonia. I. Rating scale and standardized examination. *Acta Psychiatrica Scandinavica*, 93, 129–136.
- Caliman-Fontes, A. T., Vieira, F., Leal, G. C., Carneiro, B. A., Quarantini-Alvim, Y., Andrade, T. V., et al. (2024). Ketamine for catatonia: A novel treatment for an old clinical challenge? A systematic review of the evidence. *Schizophrenia Research*, 271, 355–370.
- Conrad, E. J., Stielper, Z. F., Mermilliod, I. V., & Eng, M. R. (2023). The Lysing of Catatonia With Intravenous Ketamine Prior to Definitive Treatment With Electroconvulsive Therapy. *The Journal of ECT*, 10.1097/YCT.0000000000001151
- Mihaljević, S., Pavlović, M., Reine, K., & Cacic, M. (2020). Therapeutic mechanisms of ketamine. *Psychiatria Danubina*, 32, 325–333.
- Gregor, E., & Zheng, W. (2023). Oral and Intranasal Ketamine Use in Treatment-Resistant Catatonia: A Clinical Case Report. *The American Journal of Case Reports*, 24, e939530-1-e939530-5.
- Kobayashi, B., Wright, C., Burns, M., & Bera, R. (2021). Ketamine for acute catatonia: A case report. *Current Psychiatry Reports*, 20, 24–28.
- Rogers, J. P., Oldham, M. A., Fricchione, G., Northoff, G., Ellen Wilson, J., Mann, S. C., et al. (2023). Evidence-based consensus guidelines for the management of catatonia: Recommendations from the British Association for Psychopharmacology. *Journal of Psychopharmacology (Oxford, England)*, 37, 327–369.
- Sarma, S., Arunachalam, A., Kamara, M., & Branjerdporn, G. (2023). Ketamine as an alternative to ECT in catatonia in elderly women with bipolar disorder: A case report. *Frontiers in Psychiatry*, 14, 1138772.
- Siddiqui, A. (2024). Intravenous ketamine successfully treats treatment-resistant catatonia in schizophrenia: A case report. *Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy*, 44, 822–824.

Correspondence:

Harshit Kumar

Department of Psychiatry, All India Institute Of Medical Sciences, Patna, India

e-mail id: harshit1044@gmail.com

Published under



<https://creativecommons.org/licenses/by-nc-nd/4.0/>