

# The Use of Low Dose Ketamine for Catatonic State: A Case Report

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## BACKGROUND

Ketamine is a noncompetitive antagonist of N-Methyl-D-aspartate (NMDA) receptors that has recently been used off-label for its 'fast-acting antidepressant effects' (Dennis et al., 2022). Several randomized trials have demonstrated the benefits of non-anesthetic ketamine as a treatment modality for depression, suicidal ideation, pain syndromes, seizures, catatonic state, alcohol/substance use disorders, and other neurological disorders (Lexicomp, 2022 & Kalava et al., 2020). Although it was initially believed that ketamine was a catatonia-inducing drug, several research has demonstrated the effectiveness of low-dose ketamine as an alternative treatment for patients in a catatonic state.

## CASE PRESENTATION

- The patient, a 25 year old female with a past medical history of catatonic schizophrenia, hypothyroidism, and selective mutism presented to the acute care hospital from a psychiatric facility for concerns of seizures related to benzodiazepine withdrawal, treatment of selective mutism, and poor nutritional intake secondary to catatonic schizophrenia.
- Upon initial evaluation, the patient presented with non-responsiveness, incontinent, refusing to eat meals requiring NGT, poor grooming, rigidity, flat affect, stereotypic blinking, and negativism. Based on these presenting factors, the patient received a score of 21 on the Bush-Francis Catatonia rating scale indicating a severe catatonic state.
- Despite the addition of a variety of mood stabilizers, antidepressants, anticonvulsants, and antipsychotics improvement was not observed in the patient's condition.
- Although electroconvulsive therapy (ECT) is considered to be the gold standard for catatonic state, consent for the procedure could not be obtained by the patient's family.
- Thus low-dose ketamine was considered as an off-label treatment regimen for this patient.
- The patient was prescribed biweekly administration of low dose ketamine 0.5mg/kg IVPB to be given over 40 minutes.

## CLINICAL COURSE

- After the initial dose of low dose ketamine the patient was more verbally responsive and interactive.
- Sixteen days after the administration of the low dose ketamine, the patient was evaluated by Psychiatry and given a Bush-Francis score of 25 based on the presentation of rigidity, stereotypic blinking, grimacing, negativism, poor oral intake, and poverty of speech.
- As a result, an order was placed for a second dose of low dose ketamine 0.5mg/kg IVPB to be given over 40 minutes.
- Eleven days later, the patient was observed to be walking with improved oral intake despite a Bush-Francis score of 26.
- Due to complications related to the hospital's policy regarding level of care for the administration of the drug, an ethics consult was placed to determine the plan of care and the ethical permissibility of low dose ketamine.
- It was determined that despite its off-label use, low dose ketamine is an appropriate treatment for catatonic state when informed consent is obtained.
- After conducting an inter-professional meeting with the patient's mother, physicians, psychiatrist, social worker, case manager, nurse, and patient it was determined that the patient had received the maximal benefit during the hospital admission as evidenced by improve oral intake, improved communication, smiling, eye contact, increased responsiveness, and improved mobility.



Ketamine



## CONCLUSION

Low dose ketamine is a safe and effective treatment for patients presenting in a catatonic state who are unwilling or unresponsive to ECT which is the gold standard for treatment for catatonic state. After the administration of two doses of low dose ketamine, minor improvements were observed in the presented case. There are some potential confounding variables that may be associated with the results of the low dose ketamine. During the 115 days of the patient's admission, the patient only received two doses of low dose ketamine despite the fact that the order was written to be given on a biweekly basis. Although most patients may experience an improvement after a single infusion of ketamine, studies suggest that repeated intravenous infusion may be administered for patients who are not responsive to a single dose. (Andrade, 2017, Bobo et al., 2016, & Byrow et al., 2016). Additionally, the facility had not created a workflow for the administration of low dose ketamine in the Medical/Surgical setting causing the patient to have to be transferred to ICU for these infusion. To address these barriers, the CNS Extern created and presented an evidence-based low dose ketamine guideline and workflow recommendations to the involved stakeholders.

## REFERENCES



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