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CASE REPORT
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Use of Ketamine in the Management of Acute Self-Harm Crisis: A Case Report

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Abstract

Intentional self-harm (ISH) is a significant public health concern, especially in young adults, and is frequently associated with depressive disorders.[1] While medical stabilization is the first priority, timely Psychiatric care is critical for the prevention of recurrence. Low-dose ketamine has been known to produce rapid antidepressant effects, including reduction of suicidal ideation. This report is of a patient already on treatment for Moderate Depressive Episode, who presented with an acute suicidal crisis after ingesting approximately 30 tablets of Clonazepam following a familial conflict. After initial emergency medical care, in view of persistent suicidal ideation, a protocol of eight sessions of slow intravenous ketamine infusions (0.5 mg/kg) was initiated at a frequency of two sessions per week. Within 24 hours, there was a clinically meaningful reduction in suicidal ideation. Ongoing treatment and psychotherapy were continued and there was a sustained improvement at six-week follow-up. Ketamine may be a useful rapid-acting adjunct for the rapid reduction of suicidal ideation in treatment-resistant depression, offering a bridge to ongoing treatment.

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Introduction

Intentional self-harm (ISH) remains a pressing global public health concern, particularly among adolescents and young adults, often a manifestation of underlying Psychiatric morbidity like depressive disorder, anxiety disorders, personality pathology and is frequently triggered by psychosocial stressors.[1] Epidemiological studies from India suggest the lifetime prevalence of self-harm among young adults ranges between 3-5%, with significant underreporting due to stigma and medico-legal implications. Mortality and morbidity associated with ISH are substantial, and survivors remain at elevated risk for recurrence if psychosocial interventions are not promptly instituted.[2,3]

The acute management of ISH typically involves medical stabilization, risk assessment, and Psychiatric intervention. Conventional pharmacotherapy, particularly with Selective Serotonin Reuptake Inhibitors (SSRIs), requires several weeks for optimal efficacy, creating a therapeutic gap during which patients remain vulnerable to repeated suicidal behavior. This challenge is even greater in treatment-resistant depression (TRD), which is diagnosed when a patient with

major depressive disorder fails to respond to at least two antidepressant trials from different classes, each given at an adequate dose (therapeutic range), for an adequate duration (≥6–8 weeks), with adequate adherence (≥80%), after ruling out pseudo-resistance and alternative diagnoses. Patients with TRD are known to have a higher prevalence of suicidal ideation and behaviors, necessitating alternative strategies for rapid and effective intervention.[4]

Ketamine, an N-methyl-D-aspartate (NMDA) receptor antagonist traditionally used as an anesthetic, has emerged in recent years as a novel antidepressant agent at sub-anesthetic doses.[5] Evidence indicates that low-dose intravenous ketamine exerts rapid antidepressant effects, often within hours of administration, with particular efficacy in reducing acute suicidal thoughts.[6-9] These benefits have been most consistently reported in individuals with TRD, where conventional options often fail. [4] This rapid action offers a potential life-saving intervention in emergency Psychiatric settings.

This case report is of a young male with a moderate depressive episode who attempted self-harm through Clonazepam overdose and was subsequently managed with medical stabilization followed by a low-dose Ketamine infusion. This case highlights ketamine's role as a rapid anti suicide bridge intervention in Indian emergency settings, allowing for more robust pharmacological and psychological support systems to be put in place.

Case Report

A 27-year-old male, unmarried, employed in a government job, presented to the emergency department of a tertiary care hospital in North India following a self-harm attempt. The patient had ingested approximately 30 tablets of Clonazepam (half mg each) around two hours prior to presentation, allegedly after a verbal conflict with family members regarding financial responsibilities.

Three years earlier, he presented with persistent depressive symptoms and active suicidal ideation amid chronic domestic and financial stressors. He was on treatment with Fluoxetine (60 mg/day), Mirtazapine (15 mg/day), Olanzapine (10 mg/day), and Lithium (1200 mg/day) with good adherence, despite adequate trials of antidepressants with augmentation strategies including lithium and antipsychotic therapy, significant depressive symptoms persisted, requiring consideration of alternative or rapid-acting interventions, particularly because when suicidality was prominent. There was no history of mania, psychosis, substance use, significant medical illness, family psychiatric history, or prior suicide attempts.

On arrival, the patient was drowsy but arousable, with stable vital parameters. Glasgow Coma Scale score was 13/15. Physical examination revealed no focal neurological deficits. Routine blood investigations, including liver and renal function tests, were within normal limits. Immediate medical management included gastric lavage, intravenous fluids, and supportive monitoring. The patient was admitted to the high-dependency unit for observation.

Psychiatric evaluation revealed a well-kempt, cooperative male who was tearful with a downcast gaze and reduced rate, tone, and volume of speech. Affect was depressed with restricted range and reactivity. Thought content showed cognitions of hopelessness, worthlessness, survivor's guilt and active suicidal ideation, without delusions or perceptual disturbances. Cognition was intact, with disturbed biological drives. Initial psychometry revealed severe depression (BDI, HAM-D) and severe intent of self-harm. (BSIS) (Table 1).

A diagnosis of Moderate Depressive Episode (ICD 10 32.1), now subsumed as Single episode depressive disorder, Moderate (6A70.1) in ICD 11,[7] with clinical qualifier of TRD, Stage III, (Thase and Rush Model)[8] was made. Considering persistent suicidal ideation despite ongoing treatment, after his consent and a pre-anesthetic checkup, a protocol of eight sessions of slow intravenous ketamine infusions was initiated at 0.5 mg/kg body weight, diluted in normal saline over 45-50 minutes, under continuous monitoring of blood pressure, pulse rate and oxygen saturation every 15, 30, 45, 60 and 90 mins. (0.5 mg/kg) It was done at a frequency of two sessions per week, giving adequate duration for observation of its effects and recovery from any transient adverse reactions.

The patient experienced transient adverse effects in the form of dissociation after the first two sessions, without any perceptual disturbances, blood pressure elevations, or nausea, which are commonly associated with ketamine infusions.

Table 1

Scales/ Maximum score	*Initial (Score, Severity)*	*After 24 hrs (Score, Severity)*	*At six-weeks follow up (Score, Severity)*
Beck's Depression Inventory (BDI)/63	29 Severe	23 Moderate	13 Mild
Hamilton Depression Scale (HAM-D)/52	21 Severe	17 Moderate	8 Mild
Beck's Suicide Ideation Scale (BSIS)/38	20 Severe intent	12 Moderate intent	5 Low or No intent

Psychometry after 24 hrs of the first infusion revealed a reduction in the severity of depression (BDI, HAM-D) and intent of self-harm (BSIS) from severe to moderate. At six-week follow-up, he reported significant improvement in mood, reinstatement of occupational functioning, and no recurrence of self-harm or suicidal ideation (Table 1).

Discussion

This case highlights ketamine's potential as a rapid-acting intervention for imminent self-harm risk in treatment-resistant depression (TRD). Despite adherence to ongoing therapy, the patient presented with an acute suicidal crisis precipitated by domestic stress. Sub-anesthetic Ketamine infusions revealed clinically meaningful improvement within 24 hours[2,6,9] and sustained remission of depressive symptoms over six weeks, providing a crucial window for initiating psychotherapy and long-term pharmacological maintenance. Ketamine acts via NMDA receptor antagonism, enhancing synaptic plasticity through increased Brain-Derived Neurotrophic Factor (BDNF) and glutamatergic modulation.[5] These mechanisms underpin its rapid antidepressant and anti-suicidal effects, unlike conventional antidepressants' delayed onset.[6] Randomized controlled trials confirm that ketamine has been shown to produce reductions in suicidal ideation, often within hours of administration, with beneficial effects persisting for up to one week after a single infusion.[6]

Recent meta-analysis revealed that ketamine significantly reduced suicidal ideation within the first day after treatment and that the patients receiving ketamine were more likely to show improvement on day one compared with placebo.[9] Its utility is strongest in TRD, where patients fail at least two antidepressant classes and have high suicide risk.[4] Around 30% of major depressive disorder cases meet TRD criteria, facing elevated suicidality.[4] Ketamine offers rapid relief, improving engagement in treatment. In India, where access to rTMS and tDCS is limited, ketamine, like ECT, is a feasible, cost-effective option for suicidal TRD cases. Given that impulsive self-harm (ISH) often follows interpersonal conflicts, such rapid interventions can be life-saving. The case demonstrates ketamine's role as a bridge during the post-crisis period, supporting psychotherapy and family interventions. However, due to risks like dissociation and misuse,[10] careful patient selection and differentiation between true treatment resistance and non-adherence remain essential.

Limitations and Future Directions

While the rapid reduction of suicidal ideation in this case is encouraging, the long-term efficacy of ketamine remains under investigation. Maintenance strategies, whether through repeated dosing, oral or intranasal esKetamine, or combination with evidence-based psychotherapy, require further evaluation in TRD cohorts. Future research should also address cost-effectiveness, scalability, placebo effect, natural recovery, concurrent treatments and integration into emergency psychiatric care pathways in low- and middle-income countries.

Conclusion

This case highlights the promising role of low-dose intravenous ketamine infusion in the acute management of suicidal ideation following intentional self-harm. When integrated with ongoing pharmacotherapy and psychotherapy, ketamine can provide rapid symptom relief, potentially reducing the risk of recurrence during the vulnerable immediate post-crisis period. Given the rising burden of ISH in India, Ketamine may represent a valuable adjunct

in comprehensive suicide prevention strategies, though judicious use under specialist supervision remains paramount.

Declaration of Patient Consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his clinical information to be reported in the journal. The patient understands that name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Conflicts of Interest

There are no conflicts of interest.

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