Case Report

Ketamine Infusion Treatment in Bipolar Affective Disorder – a case report with focus on Depressive Symptomatology

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ABSTRACT

Bipolar Affective Disorder affects over 1% of the population and is associated with the highest lifetime suicide risk among psychiatric disorders., Currently, there is a pressing need for alternative treatment options for patients suffering from bipolar depression. Ketamine appears to have antidepressive and antisuicidal effects. We report a case of a 38-year-old female patient with severe depressive episode with past history of 2 episodes of mania. Patient was continued on Tab, Quetiapine, Tab Trazodone and Cap Duloxetine. As patient currently presented with severe depressive episode Ketamine infusion was started. Hamilton Depression Rating Scale was applied to assess the severity of depressive symptoms. A total of 6 cycles of ketamine was given and HAMD scores were assessed after each cycle. Patient achieved symptomatic improvement during discharge. Hence ketamine might be an effective treatment for bipolar depression.

Keywords: Bipolar affective disorder, Ketamine, mood disorders, depression.

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INTRODUCTION

Bipolar disorder, or Bipolar Affective Disorder (BPAD), is a mental health condition characterized by significant mood fluctuations, including manic or hypomanic and depressive episodes [1]. It affects over 1% of the population and is associated with the highest lifetime suicide risk among psychiatric disorders [2]. Many individuals with BPAD spend a considerable portion of their lives experiencing depressive episodes, and the chronic nature of the illness can lead to structural brain changes and neuropsychological deficits [3]. Currently, there is a pressing need for alternative treatment options for patients suffering from bipolar depression. Recent studies have highlighted the antidepressant and antisuicidal effects of ketamine, particularly in treatment-resistant cases. Ketamine acts primarily as a glutamatergic NMDA receptor antagonist and may also inhibit norepinephrine and serotonin transporter functions. While intravenous administration is the preferred route due to the poor oral bioavailability of ketamine, its unique mechanism of action positions it as a promising candidate for addressing bipolar depression [3].
In this case report, we present a patient with bipolar depression who demonstrated a favourable response to ketamine infusion therapy.

CASE REPORT

Mrs. X, a 38-year-old woman, presented to the psychiatry department with complaints of pervasive low mood, loss of interest in activities she once enjoyed, suicidal ideation, decreased sleep, and headaches that had persisted for one month following her daughter's recent confirmation of an alliance. She has a history of two manic and two depressive episodes and is managing co-morbid Type 2 Diabetes Mellitus and

Hypothyroidism, for which she is on regular medication. At the time of presentation, she was stable on Quetiapine 200 mg, Trazodone 100 mg, and Duloxetine 30 mg.

During the Mental Status Examination, she exhibited decreased psychomotor activity and slowed speech. Her mood was noted as sad, with a depressed affect. She expressed feelings of guilt, worthlessness, and suicidal thoughts. Based on these findings, she was admitted and diagnosed with Bipolar Affective Disorder, current episode severe depression without psychotic features.

The severity of her depressive symptoms was assessed using the Hamilton Depression Rating Scale (HDRS), yielding a score of 20. Given her existing treatment with antidepressants and the severity of her symptoms, the option of ketamine infusion therapy was discussed with her. After obtaining informed consent from Mrs. X and her family, a pre-infusion workup was conducted.

She received a sub-anaesthetic dose of 0.5 mg/kg of ketamine, administered intravenously over 40 minutes. Her vital signs were monitored closely before, during, and for one hour after the infusion, with no side effects reported. One-hour post-infusion, the HDRS was reapplied, revealing a score of 4. A total of six ketamine infusion cycles were administered on alternate days, with HDRS scores recorded after each session: 6, 4, 2, 2, and 2, respectively. The patient showed significant symptomatic improvement and was discharged with her previous medications.

DISCUSSION

Intravenous ketamine has demonstrated efficacy in alleviating depressive symptoms in patients with bipolar disorder. Previous studies have indicated that a single dose of 0.5 mg/kg infused over 40 minutes can lead to a rapid antidepressant response within 2 to 4 hours post-administration [4-5].

A meta-analysis conducted by Romeo et al. assessed ketamine's effectiveness in treating depression at various time points viz. day 1, day 2, days 3-4, day 7, and day 14 compared to placebo in cases of treatment-resistant depression. The results revealed a statistically significant antidepressant effect for ketamine from day 1 through day 7 [5]. While research remains limited, existing studies suggest that ketamine has short-term antidepressant and anti-suicidal effects in patients with Bipolar Affective Disorder (BPAD), with a low risk of inducing affective switch [6].

In a double-blind, randomized, crossover, placebo-controlled study, subjects with bipolar depression exhibited significant improvements in depressive symptoms and suicidal ideation within 40 minutes following ketamine infusion [7]. Ketamine presents several advantages, including its rapid antidepressant effects and a lower incidence of some side effects commonly associated with traditional antidepressants. However, it is important to note that while ketamine acts quickly, the antidepressant effects tend to be temporary, typically lasting from a few days to a week following a single infusion [8].

Ketamine emerges as a promising treatment option for bipolar depression, demonstrating both antidepressant and antisuicidal properties. In this case, a single infusion of ketamine led to a significant reduction in depressive symptoms, with further improvement observed after six cycles of infusion. These results suggest that ketamine may not only provide rapid relief for acute depressive episodes but could also serve as a viable long-term alternative for managing bipolar depression.

As more evidence accumulates regarding its efficacy and safety, ketamine could become an integral part of the treatment landscape for patients who are resistant to conventional therapies. Continued research is essential to better understand its mechanisms and optimize its use in this population. Overall, the findings from this case highlight the potential of ketamine as an effective intervention for individuals struggling with bipolar depression.

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