

Safety and efficacy of Ketamine in a patient with psychotic depression, cardiovascular disease, and starvation risk

Eficacia y seguridad de la Ketamina en una paciente con depresión, síntomas psicóticos, enfermedad cardiovascular y riesgo de inanición

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DOI: [10.22517/25395203.24966](https://doi.org/10.22517/25395203.24966)

Abstract

Introduction: There has been a rising interest in ketamine as a promising treatment for refractory depression. Despite this, there is uncertain knowledge regarding aspects of the routinary use of ketamine for treating depression, such as optimal doses, long term toxicity, abuse potential in depressed patients, probable adverse effects associated with antidepressant drugs, the indication of ketamine in psychotic patients, and the ethical concerns of ketamine use.

Clinical case: A 63 year-old woman with a psychotic depressive episode, catatonic features, cardiovascular disease (patent foramen ovale and atrial fibrillation), and starvation risk because she refused food intake. She was sent to electroconvulsive therapy (ECT) after several weeks of oral administration of benzodiazepine, antipsychotic, and antidepressant medications; the patient presented no improvement, but she was rejected due to her cardiovascular comorbidity. Two IV Ketamine doses were used as a life-saving strategy with good clinical response, mainly in terms of the catatonic features. The ketamine treatment was not only effective but also well tolerated.

Discussion: Despite the little information regarding its use in psychotic and catatonic patients, this case would suggest that it remains effective and safe, as well as a good option for patients with cardiovascular disease and those who cannot use electroconvulsive therapy.

Key Words: Ketamine, depression.

Introduction

There has been a rising interest in Ketamine as a promising treatment for refractory depression over the last decade (1). Besides, it seems to be well-tolerated despite some acute and mild side effects (2). However, there is uncertain knowledge regarding several aspects of the routine use of ketamine for depression, such as optimal doses, long term toxicity, abuse potential in depressed patients, probable adverse effects associated with antidepressant drugs, the indication of ketamine in psychotic patients, and the ethical concerns of Ketamine use (1, 3).

In this report, we present a clinical case of a 63 years old woman with a depressive episode, and psychotic and catatonic features, who suffers from a cardiovascular disease and starvation risk. She was treated with ketamine with positive clinical response and tolerability.

Case presentation

A 63-year-old woman was referred to the general hospital from a psychiatric institution where she was receiving treatment for her second psychotic depressive episode (the previous episode was treated 3 years before with Quetiapine and Sertraline). She had nihilistic delusions, and she refused to bathe and to receive food or medications for 1 month, which caused a clinical worsening in the last week. She had a medical record of a patent foramen ovale and atrial fibrillation treated with anticoagulation. At the hospital, she continued with depression, psychotic, and catatonic features, and she refused food and medication intake. Enteral nutrition was conducted by nasogastric tube; in addition, sertraline, olanzapine, and lorazepam were administered for two weeks without significant improvement.

After two more weeks of treatment with a nasogastric tube, the patient remained with hyporexia and catatonic features, and the antidepressant and antipsychotic doses were increased. She was sent to electroconvulsive therapy, but she was not admitted due to her medical cardiovascular record and anticoagulation medicine intake.

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Ketamine was considered for the patient as a last option in the general hospital. The internist and the anesthesiologist approved its use on day 1 and 5 in a 0.5mg/kg dose for slow IV ketamine infusion (40 minutes), as it has been used in clinical studies (4).

Since the second day of administration, she began to eat fruits, and a reduction in catatonic features was observed. After 1 week, the patient was eating small pieces of food, remained psychotic and depressed, but she was performing basic activities without catatonic features. She was taken back to the psychiatric hospital to continue the treatment with quetiapine and sertraline.

The patients' husband gave approval for ketamine use and for publishing the clinical case in academic reports.

Discussion

Ketamine is an old and well-known drug studied for anesthetic indications since 1964. With the first clinical reports, its abuse potential was detected, especially in patients with depression. It was only until the 1990's that Ketamine emerged as a proposed treatment for depression (5).

Clinical studies have shown a Ketamine response rate around 50% in patients with treatment-resistant depression. The Ketamine doses in clinical studies range from 0.2mg/kg and 0.6mg/kg, with better outcomes at 0.5mg/kg (4). Despite the clinical reports indicating short effectiveness for Ketamine improvement, its repeated administration can maintain and prolong the response (4). In this clinical case, a 0.5mg/kg repeated administration was used based on clinical results.

The mechanisms underlying the ketamine antidepressant activity are unknown, but recent studies suggest that increased levels of regional alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid (AMPA) receptor activation and brain-derived neurotrophic factor (BDNF) expression, as well as enhanced synaptic plasticity are involved in the process (6).

Some authors declare their concern about using ketamine for depression in the clinical context without following research protocols, due to the lack of proven efficacy, poor recovery time, and abuse potential (1). In our case, we considered the risk of starvation and infections associated with the nasogastric tube as an indication to use ketamine as a life-saving strategy since other studies have focused on the ketamine potential to treat suicidal ideation in high-risk patients (7).

The Colombian depressive disorder clinical guidelines recommend treatment with antidepressant and antipsychotic drugs in cases of psychotic depression; however, ketamine is not recommended (8). The use of ketamine was a risk against benefit choice in this case considering the internal medicine, anesthesiologist, and family considerations.

Conclusions

Despite the little information regarding its use in psychotic and catatonic patients, this case would suggest that ketamine remains effective and well tolerated, as well as an advantageous option for patients with cardiovascular disease and those who cannot be treated with electroconvulsive therapy.

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