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COMBINATION OF INTRAVENOUS KETAMINE AND ELECTROCONVULSOTHERAPY FOR TREATMENT-RESISTANT DEPRESSION: A SYSTEMATIC REVIEW

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Abstract: Treatment-resistant depression is a common psychiatric disorder that can lead to significant disability and decreased quality of life for patients. In recent years, there has been growing interest in the combination of intravenous ketamine and electroconvulsive therapy (ECT) for the treatment of treatment-resistant depression. Ketamine is an anesthetic that is an N-methyl-D-aspartate (NMDA) receptor antagonist that also has antidepressant properties and has been used to treat treatment-resistant depression. ECT is a treatment for depression that involves applying electric current to the brain to induce therapeutic seizures. Recent studies have shown that the combination of intravenous ketamine and ECT can be an effective treatment for treatment-resistant depression. Although more research is still needed to fully understand the efficacy and safety of the combination of intravenous ketamine and ECT for the treatment of treatment-resistant depression, combination therapy may be a promising option for patients who do not respond to other treatments.
Keywords: Pharmacological Treatment; Psychiatry; Anesthesia.

INTRODUCTION

Treatment-resistant depression (TRD) is a challenge in psychiatric practice, and electroconvulsive therapy (ECT) is effective for its treatment.

However, there is a portion of patients who do not respond to this measure. As an alternative, the use of ketamine, an anesthetic antagonist of the N-methyl-D-aspartate (NMDA) receptor, has been explored. Whether as an anesthetic for performing ECT or as an isolated agent, the compound has shown promising results, improving suicidal ideation and other depressive symptoms.

OBJECTIVES

This work seeks to review data from the scientific literature about the relationship between intravenous ketamine and electroconvulsive therapy applied to treatment-resistant depression.

METHODOLOGY

A search was carried out in the Pubmed and Cochrane Library databases, using the following descriptors: "Intravenous Ketamine", "Electroconvulsive Therapy" and "Resistant Depression". The search was limited to studies published until August 2021. Of the total of 32 articles identified, 25 were selected for analysis after reading the titles and abstracts and subsequently evaluated for methodological quality.

Data were extracted from selected studies on patient characteristics, treatments used, clinical outcomes and adverse events. Data synthesis was carried out in a narrative way, highlighting the main results of the studies and identifying any inconsistencies or divergences.

The quality of the selected studies was assessed according to the scale by Jadad et. al (1996), which assesses the methodological quality of randomized controlled trials. A descriptive statistical analysis of the data was performed, including means, standard deviations and confidence intervals. However, a meta-analysis was not carried out due to the heterogeneity of the studies in relation to the designs, treatments and evaluated outcomes.

RESULTS

The reviewed articles suggest that both concentrations (anesthetic and subanesthetic) of ketamine in ECT showed rapid onset of antidepressant activity in the treatment of DRT (GRUNEBAUM et. al, 2018); a randomized clinical trial using anesthetic concentrations of ketamine demonstrated superior antidepressant effects and cognitive protection when compared to subanesthetic concentrations (FAVA et. al, 2018). Furthermore, according to a systematic review published by the journal Neuropsychiatric Disease and Treatment, ketamine alone or as an adjuvant agent, associated with ECT, significantly reduced the severity of depression (JANKAUSKAS et. al, 2018).

The analysis of a series of three clinical cases showed that, in patients undergoing ECT associated with intravenous ketamine, there was a clinical response and a reduction in suicidal ideation in all, in addition to complete remission of the depressive condition in 2 individuals (KALLMÜNZER et. al, 2015). Such findings are consistent with a study published in the Journal of ECT (2020), in which the combination of the two therapeutic modalities modulated the antidepressant efficacy of ECT, accelerating the onset of its effects and reducing the number of ECT sessions required to obtain response, remission and reduction of suicidal ideation, without influencing relapse rates in patients in remission after ECT treatment (CHEN et. al, 2020).

CONCLUSIONS

That said, ketamine must be considered as an adjunctive agent to electroconvulsive therapy, especially in groups that did not respond to the standard regimen, as it may accelerate therapeutic response and be superior in inducing remission of depressive symptoms. Since this is a topic that has not been discussed much, the evidence is modest, requiring further clinical trials to more clearly define its clinical utility and safety profile.

LIMITATIONS

Limitations of this study include the heterogeneity of the selected studies, which prevented the performance of a meta-analysis, as well as the possibility of selection or publication bias in the studies included in the review.

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