

Ketamine and Its Effects On Chronic Post Traumatic Stress Disorder: A Systematic Review

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Introduction

Post traumatic stress disorder (PTSD) is a mental health condition that is caused by a traumatic or stressful event such as assault, war, or disaster.^{13,15} PTSD presents within three months of the event, but symptoms can also present years later.¹⁵ If it presents for more than three months it is chronic.¹³ PTSD is more common in males than in females with leading cause of PTSD in males being war and in women sexual assault.¹³ PTSD causes symptoms of flashbacks, severe mood changes, and impact social experiences and effect daily activities.¹⁵ PTSD has also been found to reduce the firing of the prefrontal cortex and the hippocampus which drastically affects cognitive ability and interactions with people and throughout the body.¹⁴

Ketamine is classified as a psychedelic, but acts as a dissociative anesthetic. Ketamine's function on the brain is unknown, but its main target is the NMDA receptor which is responsible for a cognitive and physical functions.⁹ In attempts to find an alternate solution to PTSD symptoms, the purpose of this review is to see if ketamine infusions can alleviate symptoms in patients with chronic PTSD.

Methods

Sources for research were derived from PubMed and CINAHL databases. Primary sources were obtained during January and February of 2025. The terms PTSD AND ketamine AND infusion AND trauma AND veterans were used in both databases. Other articles were obtained from the bibliographies of other systematic reviews. The search was narrowed down to nine relevant articles.

Results

Out of the nine articles, three were case reports,^{1,7,10} three were randomized clinical trials,^{2,4,5} one was a randomized double blind clinical trial,⁸ one was a case series,⁶ and one was a pilot study.³ A majority of the reviewed studies concluded that intravenous ketamine showed significant decrease in symptoms of those diagnosed with chronic depression. In one study in comparison to ketorolac there was no significance between the two medications, but they both showed a decrease in symptoms.⁸ Studies varied in their remission timeline between 14 to 41 days.^{2,5,7,10} Each study found significantly lowered scores in the MADRS and other mental health diagnostic criteria. In some of the studies there were some comorbid disorders^{5,8} and comparisons in medications^{2,3,4,7,8} but all had the same finding that ketamine infusions helped patients suffering from PTSD.

Discussion

The studies reviewed were a mix of randomized clinical trials,^{2,4,5,8} case reports,^{1,7,10} a case series,⁶ and a pilot study.³ Patients in these studies were veterans, victims of assault or abuse.^{1,5,6,7,10} The randomized clinical trials has strong sample sizes and clear results.^{2,4,5,8}

Ketamine hallucinogenic properties has kept practitioners and researchers from fully exploring its potential benefits of this therapy. From this review The findings of this review can be used to form new research hypothesis and emphasize the finding that ketamine can relieve symptoms of PTSD. Making ketamine infusions part of standard medical practice will help provide a solution to relieving PTSD in veterans, trauma victims, and abuse victims.

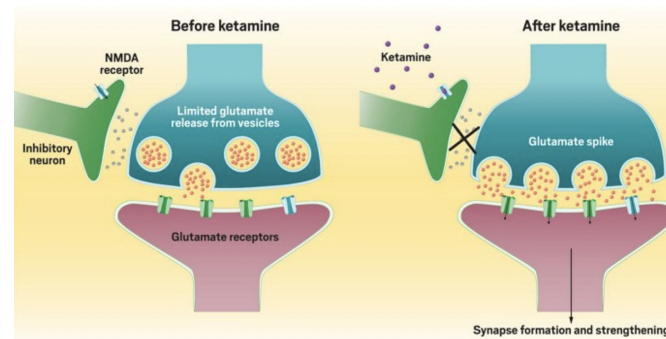


Figure 1. Ketamine effect on NMDA receptor¹⁶

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