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■ Summary



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Health Technology Review

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## Ketamine for Adults With Treatment-Resistant Depression or Post-Traumatic Stress Disorder

### Key Messages

**It is** unclear if ketamine — administered by IV, orally, or by intramuscular injection — is effective for treatment-resistant depression.

**The studies** we found on ketamine for treatment-resistant depression suggest that ketamine could lead to an immediate improvement in depressive symptoms. None of the studies, however, had a long enough follow-up period to determine if the effects last beyond a few weeks.

**It is** unclear if ketamine is an effective treatment for PTSD.

**We found** 2 studies on ketamine for PTSD. One study found that IV ketamine infusions were more effective than midazolam infusions at improving PTSD symptoms. The other study, which was on the military population, found that IV ketamine infusions were not effective compared with placebo.

**For treatment-resistant** depression or PTSD, ketamine appears to be safe and tolerable, with short-lived side effects — the most frequent being dissociative symptoms and cardiovascular changes (e.g., increased blood pressure and heart rate).

**The Canadian** guideline recommends that IV ketamine be used as a third-line treatment for adults with treatment-resistant depression, and the guideline from Denmark recommends against using IV ketamine for treatment-resistant depression.

**No guidelines** were found on the use of ketamine to treat PTSD.

### Context

Depression is a debilitating mental illness that affects approximately 5.4% of the Canadian population. There are many drug treatments available, but 21.7% of Canadians with depression have treatment-resistant depression. For these people, standard drug treatments do not improve their symptoms or do not work for long.

Post-traumatic stress disorder (PTSD) is a disabling mental condition that affects about 9.2% of Canadians in their lifetime. There are only a few drugs available for treating PTSD, none of which are sufficiently effective.

## ■ Contact

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[requests@cadth.ca](mailto:requests@cadth.ca)

## Technology

Ketamine is a non-competitive N-methyl-D-aspartate receptor antagonist. It has been approved for, and is primarily used as, an IV anesthetic drug. However, ketamine has been explored for other indications, such as treatment-resistant depression and PTSD. In addition to being available as an IV medication, ketamine is also available in an oral form and as an intramuscular injection.

## Issue

Because of the lack of effective therapies for treatment-resistant depression and PTSD, there is interest in ketamine as a potential alternative treatment. A review of the clinical effectiveness and guidelines on the use of ketamine in patients with treatment-resistant depression or PTSD will help to guide decisions on the use of ketamine for managing these conditions.

## Methods

A limited literature search was conducted of key resources, and titles and abstracts of the retrieved publications were reviewed. Full-text publications were evaluated for final article selection according to predetermined selection criteria (population, intervention, comparator, outcomes, and study designs).

## Results

The literature search identified 1,004 articles, with 2 additional articles identified from other sources. Of these, 47 were deemed potentially relevant, and 10 met the criteria for inclusion in this review – 7 randomized controlled trials, 1 observational study, and 2 guidelines.



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