

# Intravenous Ketamine for the Treatment of Mental Health Disorders: A Review

## Context

Each year, one in five Canadians will experience a mental health disorder such as an anxiety, mood, or personality disorder. Major depressive disorder (MDD) affects approximately 10% of Canadians over their lifetimes, with nearly 4% having a depressive episode in the last 12 months. Nearly 10% of Canadians have had suicidal thoughts or ideation at some point in their lives. Just over 1% of the Canadian population is suffering from posttraumatic stress disorder (PTSD). While many pharmacotherapies exist for the treatment of mental health disorders, there are issues with delayed onset of action, side effects, adherence, stigma, and early discontinuation.

## Technology

Ketamine is a rapid-acting, non-competitive N-methyl-D-aspartate (NMDA) receptor antagonist that is used as a general anesthetic and has analgesic properties. The NMDA receptor mediates glutamate excitatory neurotransmission in the brain. A dysfunction in this regulation may play a role in depressive symptoms, making ketamine a potential novel treatment for some mental health disorders. However, side effects such as vivid dreams and a dissociative effect (where the patient experiences a separation of body and mind) occur frequently — side effects that have created an illicit market for the drug, also known as “Special K.” Unlike other drugs for mental health disorders, intravenous (IV) ketamine requires close in-patient monitoring.

## Issue

Given the uncertainty about the use of ketamine in the treatment of mental health disorders, a review of its

clinical effectiveness and of the evidence-based guidelines will help to guide decisions about its use.

## 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.

## Key Messages

- IV ketamine appears to improve symptoms of MDD after 24 hours.
- It is unknown which patients with MDD are likely to respond to ketamine.
- IV ketamine may be useful for the treatment of PTSD but evidence is lacking.
- IV ketamine may be helpful in the treatment of suicidal ideation, but it is uncertain which patients would benefit and evidence is lacking.
- There are no evidence-based guidelines on the use of ketamine to treat mental health disorders.

## Results

The literature search identified 190 citations, 12 of which were deemed potentially relevant. One additional article was identified from other sources. Of these 13 studies, 5 met the criteria for inclusion in this review: 3 systematic reviews and 2 randomized controlled trials.

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