

Ketamine

Recent studies have shown that Ketamine infusions have very positive and nearly immediate effects on clinical depression and suicidal ideation in treatment resistant patients who have not benefited from antidepressant medications.

Why Does it work?

Depression	VS	Ketamine
Synaptic dis-connectivity and reduction in glutamate neurotransmission (excitatory amino acid)		Blocks NMDA receptors located on inhibitory GABAergic interneurons, leading to a widespread prefrontal glutamate surge
Reduction of amino acid transporters (EAATs)		Upregulates the expression of EAAT2 and EAAT3 in the hippocampus
Reduction of mammalian target of rapamycin complex 1 (mTORC1) signaling		Activates MTORC1 signaling which increases protein synthesis and AMPA cycling
Stress reduces brain-derived neurotrophic factor (BDNF) activity in the hippocampus which reduces neuronal plasticity		Increases (BDNF) via phosphorylation of histone deacetylase 5 which increases neuronal plasticity
Increase inflammatory cytokines leading to reduced glutamate transporter expression, reduced BDNF and increased excitotoxicity		Down regulates pro-inflammatory cytokines in the Hippocampus

The exact mechanism that causes ketamine to relieve depression is still under study, and is quite complex. In short, when ketamine is administered in a very precise way it triggers a cascading sequence of events in the brain, which ultimately results in the re-growth of neural connections. It is thought by some researchers that prolonged exposure to stress causes these connections to die off, resulting in depression, but ketamine causes the connections to rapidly re-grow, relieving the depressive symptoms.

Infusions are typically given once or twice a week for up to 6 infusions in a series (this may vary depending on individual needs and response). A low dose of Ketamine is administered intramuscularly or infused through an IV over 40-60 minutes, during which time the patient is closely monitored. Following the initial series, maintenance infusions are available on an as needed basis.

During the infusion patients may experience an altered mental status (although they will be awake and able to talk). Patients have also reported blurred vision, confusion, nausea, and slurred speech. These symptoms are temporary and gradually subside after the completion of the treatment. Normal Mental state is returned quickly after the infusion is complete. Patients are required to have someone drive them home and should not drive or operate machinery the day of their treatment.

For more information or to schedule an appointment please call: 801-448-1470.

Patient information for Ketamine Infusions

How to prepare:

Do not eat or drink anything except water for 8 hours prior to treatment. Some patients find it helpful to practice mindfulness or meditation prior to treatment to help them fully relax during the infusion.

What to bring:

- Wear comfortable clothes
- Bring a blanket (you may also bring a pillow if you prefer to use your own)
- Bring a prepared play list of songs (we recommend music that is relaxing with no lyrics)
- Headphones
- Someone to drive you home

What to expect:

- A low dose of Ketamine will be infused or administered over approximately 40-60 minutes.
- You will be awake and able to speak during the infusion
- During the infusion you may experience an altered mental status or dissociative state.
- Dissociation is a kind of out-of-body experience, where you partially lose awareness of your body, most patient find the experience relaxing and pleasant.

Physical Side Effects:

- Relaxation
- Blurry vision or slurred speech during the infusion
- Sleepiness or fatigue for a few hours following the infusion
- Nausea during or after the infusion (If you are prone to nausea please let the provider know beforehand)
- On rare occasions patients experience brief anxiety or fright, you will be monitored closely and the infusion can be stopped if needed

Safety:

- You should not drive, operate machinery, or be the sole provider of care for others on the day of your treatment.
- You will be able to leave 20-30 minutes after your infusion and will need someone to drive you home

Mental/Emotional Side Effects:

- Relief from depression and suicidal thoughts
- Sense of wellbeing and relief that extends into the next few days weeks and months
- Most patients notice a subtle and increasing improvement in their ability to function which in turn positively affects their mood

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