

## Ketamine Treatment Information

This document contains important information about the Ketamine treatment services offered at Integrative Psychiatry of the Treasure Coast, as well as about Ketamine itself. Please read it carefully and feel free to ask any questions about the information it contains.

### What is Ketamine?

Ketamine is a synthetic pharmaceutical compound, classified as a *dissociative anesthetic*. It is one of the most widely used drugs in modern medicine, and is on the World Health Organization's List of Essential Medicines. It was developed in 1963, FDA approved in 1970, and adopted by many hospitals and medical offices because of its rapid onset, proven safety, and short duration of action.

Ketamine is most commonly used in surgical settings, including pediatric surgery, due to its excellent safety profile, particularly around breathing/airway management. It has also been utilized successfully in managing acute and chronic pain conditions due to its *analgesic* properties.

In the last two decades, ketamine has been increasingly clinically applied at subanesthetic doses as an off-label treatment for various chronic treatment-resistant mental health conditions, such as depression, alcoholism, substance dependencies, post-traumatic stress disorder, obsessive compulsive disorder, and other psychiatric diagnoses.

Non-medical and recreational use of ketamine began in the late 1970s, leading to its cultural reputation as a club/party drug; it was also enthusiastically adopted by the psychedelic community and others who value exploration of altered states.

### How Ketamine Works

As mentioned, ketamine is classified as a dissociative anesthetic, where "dissociation" means a sense of disconnection between mind and body, and from one's ordinary reality and usual sense of self.

The present understanding of ketamine's mode of action is as an NMDA antagonist working through the glutamate neurotransmitter system. (This is a different pathway than that of other psychiatric drugs such as the SSRIs, SNRIs, lamotrigine, antipsychotics, benzodiazepines, etc.)

In depression, the spindly receptors on neurons that facilitate signal transmission may recede, and the amygdala and hippocampus (both which help govern mood) may shrink. Animal research has shown that ketamine can stimulate neural growth within days (and sometimes hours). One hypothesis is that there is similar action in humans.

Another hypothesis is that ketamine affords a reprieve from habitual patterns of thought that underlie mood and behavior, thereby creating an opportunity for learning new and healthier patterns of thought. There is no current consensus on mode of action, and other mechanisms may be found central to ketamine's effects.

### Dosing Strategies and Route of Administration

Ketamine can be administered in a variety of ways, including as an intravenous infusion (IV), intramuscular injection (IM), a subcutaneous injection (SC), intranasally, or sublingually/orally as a dissolving troche or

tablet. Routes vary in the onset, bioavailability and duration of active effects for each person.

Though research has demonstrated an antidepressant response to low doses that are minimally psychoactive or sub-psychedelic, this effect tends to be cumulative, requiring repeated administrations over short periods of time. Some practitioners view the psychedelic and dissociative experiences that occur at higher doses to provide a more robust and longer-lasting outcome.

Though experiences vary greatly, it is generally thought that lower doses provide empathogen-like (heart-opening) responses, while higher doses create dissociative, psychedelic, out-of-body, ego-dissolving peak responses.

At Integrative Psychiatry of the Treasure Coast, Ketamine is primarily administered intravenously.

## **The Ketamine Experience**

The ketamine experience is characterized by the relaxation of ordinary concerns and usual mindset, all while maintaining conscious awareness. This tends to lead to a disruption of negative feelings and preoccupations. Some ketamine providers feel that this interruption--and the exploration of other possible states of consciousness--can lead to significant shifts in overall well-being.

At lower doses, you will most likely experience mild anesthetic, anxiolytic, antidepressant, and psychoactive effects. You might experience increased sensitivity to light and sound, as well as an altered sense of time. Some people experience empathogenic (similar to MDMA) effects in this dose range. This state may also enhance participation in psychotherapy, as defenses are relaxed, yet communication with others is still possible.

These effects typically start 5 to 10 minutes after the I.V. is started and last the duration of the 50-minute treatment session.

You will generally feel "normal" when the I.V. is finished, although some alterations in sensory perception, speech, and motor ability may continue for approximately 5 hours.

Following ketamine administration, clients can return home with another driver. Driving an automobile or engaging in vigorous exercise or hazardous activities should not be undertaken for 24 hours following the treatment.

## **The Treatment Process**

When you arrive we will orient you to the treatment room, take vital signs, and our RN will start your I.V.

Intravenous access is typically not a problem as we are able to use a small needle and any accessible vein in your arm. We will give you an eye mask as the treatment is best administered without visual input from the environment. The 50-minute I.V. treatment will begin and your provider will typically conduct psychotherapy, which means engage in conversation similar to that which occurs in your regular appointments. Often people have new insights or see things from a new perspective during the treatment. If this dose does not occur, however, it does not mean that the treatment is not "working." Some individuals prefer to not engage in psychotherapy during their ketamine session. If we identify that you are one of those people we will arrange for therapeutic music and/or guided meditation. You will feel slightly dizzy but otherwise back to your normal self within 30 minutes following the treatment session.

It is not common, but some individuals experience nausea and/or anxiety during the treatment. If this occurs we are able to treat you with anti-nausea and/or anti-anxiety medication through your IV.

If you feel uncomfortable for any reason and wish to stop the infusion, we are able to safely discontinue it at any time, and you will feel back to your normal self within 10-20 minutes.

## **When Will I See Positive Effects, and How Long Will They Last?**

Ketamine treatment can result in a number of benefits, and there are now many studies demonstrating its efficacy; however, it is still a relatively new and experimental psychiatric intervention, and there are no guarantees of your outcome.

Ketamine is distinguished from other psychotropic medications by its rapid onset, often producing relief in as soon as a few hours. The literature indicates a 70% initial response rate to ketamine, as well as a remission rate (return of symptoms) for people with treatment-resistant depression of 40-50%.

Durable improvement generally occurs with more than one administration, and is most robust when part of an overall treatment program. It may not permanently relieve your condition. If your symptoms respond to ketamine, you may still elect to be treated with other medications and ongoing psychotherapy to reduce the possibility of relapse. Over time, you may also need additional ketamine booster administrations or other therapies to maintain your remission.

If you do not respond to ketamine after the first administration, repeated treatment will be offered. If you do not respond after a series of 6 doses, additional ketamine will not be offered. Studies have shown it is not effective to keep repeating ketamine in those who do not respond to the first doses.

Although a course of ketamine treatment typically provides only three to six months of benefit, repeated treatments have been shown to have a cumulative effect, prolonging mood improvements, and current research is focused on how to sustain these benefits with an optimal dosing schedule and integration of psychotherapy.

This is an effective medicine, and it is even more so when you work with it to create positive changes in your life that can sustain your recovery.

### **Medical and Psychiatric Eligibility**

Before participating, you will be carefully interviewed to determine if you are a good candidate for ketamine treatment.

You are required to be under the care of a primary care physician to evaluate your overall health, and in particular your respiratory and cardiovascular status.

Some medical and psychiatric conditions need to be treated before you can safely take ketamine. These conditions include hallucinations, untreated mania, unstable angina (chest pain/heart disease), uncontrolled hyperthyroidism, increased intracranial pressure, or evidence of liver disease.

An EKG may be required for those with a history of arrhythmia or a history of cardiovascular issues. Untreated or uncontrolled hypertension is a contraindication to ketamine use as the substance causes a rise in blood pressure. This increase is typically comparable to normal increases in blood pressure that occur with heavy exercise.

Pregnant women and nursing mothers are not eligible because of undetermined potential effects on the fetus or nursing child.

Those with a history of cystitis or other bladder issues may need to be cleared by urological consultation, due to the rare but potentially significant adverse effect of cystitis.

Those with a primary psychotic or dissociative disorder or who are currently in a manic or mixed episode are not eligible for treatment with ketamine. Please consult your treating clinician if you are taking anxiety medications such as benzodiazepines, pregabalin, or gabapentin as they may blunt the antidepressant effects of ketamine. Opiates cannot be taken concurrently with ketamine therapy.

Information on ketamine's interaction with other medicines is only partially available; any possible interactions will be assessed to help determine your eligibility for ketamine treatment.

## Potential Risks of Ketamine

Ketamine has an extensive record of safety and has been used at much higher doses for surgical anesthesia, without respiratory depression. As with any other medication, there are also some potential risks and side effects to be informed of and consider.

The most common physical side effect is a short-term spike in blood pressure, pulse, or heart rate, which may be a risk to those with heart disease, and can be misinterpreted as a symptom of anxiety.

Other possibilities for side effects include dizziness/lightheadedness, sedation, impaired balance and coordination, slurred speech, mental confusion, excitability, diminished ability to see things that are actually present, diminished ability to hear or to feel objects accurately including one's own body, headache, anxiety, nausea, vomiting, and diminished awareness of physical functions such as respiration. These effects are transient and resolve as the active phase of the medication ends (generally within 4 hours).

Repeated, high dose, chronic use of ketamine has caused urinary tract symptoms and even permanent bladder dysfunction or cystitis in individuals abusing the drug. These adverse effects are much less likely in medically supervised ketamine treatment populations, but might include more frequent, painful, or difficult urination. Please inform your providers immediately if you notice any of these side effects.

In terms of psychological risk, ketamine has been shown to worsen certain psychotic symptoms in people who suffer from schizophrenia or other serious mental disorders. It may also worsen underlying psychological problems in people with severe personality disorders and dissociative disorders.

## Management of Adverse Effects

It is very important to abstain from eating or drinking in the 4 hours prior to your treatment so as to avoid nausea or vomiting. Additionally, due to possible blurred and altered vision, as well as impaired balance and coordination, you will be advised to lie still and keep your eyes closed or use the eye mask provided (as long as you are comfortable doing so) until the main effects have worn off.

Driving an automobile or engaging in hazardous activities should not be undertaken on the day of the administration, and not until all effects have stopped. You will be assessed for safety prior to leaving the office premises, and will be required to arrange for a responsible person drive you home from the administrations.

Your vital signs will be monitored before and after the administration. We will additionally reassure you prior to administration that the increase in heart rate is transient and due only to the effects of the medication, and not to anxiety or panic, nor any serious health condition.

## Potential for Ketamine Abuse and Physical Dependence

Ketamine is a controlled substance and is subject to Schedule III rules under the Controlled Substance Act of 1970. Medical evidence regarding the issue of drug abuse and dependence suggests that ketamine's abuse potential is equivalent to that of phencyclidine and other hallucinogenic substances.

Phencyclidine and other hallucinogenic compounds do not meet criteria for chemical dependence, since they do not cause tolerance and withdrawal symptoms. However, cravings have been reported by individuals with the history of heavy use of psychedelic drugs. In addition, ketamine can have effects on mood (feelings), cognition (thinking), and perception (imagery) that may make some people want to use it repeatedly.

Therefore, ketamine should never be used except under the direct supervision of a licensed physician. We have not had clients become dependent on ketamine.

## Alternative Procedures and Treatments

Psychotherapy without ketamine is available and can be effective. Major Depression (MDD), PTSD and Bipolar Disorders are usually treated with antidepressant medications, tranquilizers, mood stabilizers and psychotherapy. PTSD is often also treated with Eye Movement Desensitization and Reprocessing (EMDR). Electroconvulsive therapy (ECT), and the recently introduced Transcranial Magnetic Stimulation (TMS) are also in use for treatment-resistant-depression.

### **Voluntary Nature of Participation**

Your decision to undertake treatment with Ketamine is completely voluntary. Once you indicate that you have understood the benefits and risks of this treatment, you will be asked to sign the Informed Consent Agreement at your first visit in order to participate.

You may ask any questions you may have concerning the procedure or effects of ketamine at any time. Your consent to receive ketamine may be withdrawn by you, and you may discontinue your participation, at any time.

### **Cost**

Cost may vary depending on your needs, but typically each intravenous session is \$600 which includes the cost of nursing staff, medication, IV supplies, and 1 hour of psychotherapy during the session. In some cases cost may vary

Generally 6 weekly sessions are recommended to start, and booster sessions may be needed (anywhere from once a month to once every 6 months). In some cases just one session may be recommended, for example, in the treatment of addiction. Every patient has different needs and the number of sessions recommended will be discussed with your provider.

**Thank you for taking the time to read this important information!**