

# Ketamine, Magnesium and Lidocaine Infusions - Patient Information

**Do not sign the hospital admission or the informed consent for treatment forms until you have read and fully understand the contents of both documents.**

Having a ketamine and magnesium and/or lidocaine infusion is an important decision. All procedures carry risks, and it is important that you understand the risks and benefits of the proposed infusions. We will discuss the treatment options, the risks and benefits associated with the procedure. If you are unsure of any aspect associated with the proposed procedure it is important that you discuss this with your treating doctor.

## **What is KETAMINE:**

- Ketamine is a special medicine that blocks the NMDA and some other receptors:
- In **High** dose is used as an anaesthetic.
- In **lower** doses, can be used to treat pain that is not controlled by other medicines. Although it doesn't help everyone, pain relief may last months or longer with repeat treatment.
- In **Low** doses behaves as a powerful antidepressant
- Also has emerging evidence that it may reduce the symptoms of post-traumatic stress disorders and obsessive-compulsive behaviours.

## **What is Magnesium:**

Magnesium works by displacing calcium and blocking the NMDA receptor pain channel, preventing activation, signal amplification and central sensitisation that is seen in neuropathic pain.

## **What is Lidocaine (Lignocaine)**

Lidocaine is a local anaesthetic; it works by blocking sodium channels to reduce pain perception and the spread of pain signals along nerves to the spinal cord and brain.

## **What are the indications for a ketamine infusion?**

- To allow examination of patients who are otherwise too sore to be examined properly. Ketamine can reduce pain and tenderness to allow the underlying condition to be properly assessed.
- To relieve Acute, Cancer or Chronic pain not responding to other treatments.
  - Arthritis, chemotherapy induced peripheral neuropathy, complex regional pain syndrome, fibromyalgia, ischaemic limb, multiple sclerosis, painful diabetic neuropathy, polyneuropathy, post herpetic neuralgia, post-surgical, phantom, trigeminal neuralgia, spinal cord injury related pains
- Ketamine reduces opioid withdrawal symptoms, making it easier to wean and stop using analgesics.
- Ketamine often reduces depression, making it easier to cope and function despite pain.
- To provide pain relief to allow patients to move and build physical capacity.
- Ketamine with magnesium or lidocaine work together targeting different pathways to relieve pain.

## **What are the contra-indications to ketamine?**

- Patient refusal and known allergy are absolute contra-indications;
- Known ketamine induced hepatitis;
- Known non-responders to ketamine therapy;
- Past severe, ketamine-induced psychosis;
- Pregnancy and breast feeding
- Known severe heart disease and poorly controlled hypertension.
- Active or unstable psychiatric condition (e.g. Paranoid Schizophrenia or psychosis),
- Active Substance use disorder – Alcohol, Prescription Medication, Illicit or recreational drugs

## **What are the precautions**

- The very young under 3 months of age, very old and very sick
- Polypharmacy, due to increased risk of drug interactions and adverse effects;
- Labile hypertension
- Open eye injuries (Caution, balance benefits to risk)
- Complex Post-traumatic stress disorder (PTSD)
- Acute intermittent porphyria
- Seizure disorder, e.g. epilepsy
- Hyperthyroidism
- Pneumonia/URTI (ketamine increases saliva, risk of gagging and laryngospasm)
- Although ketamine appears safe to use in severe renal and hepatic failure, use cautiously.
- GLP-1 antagonists (semaglutide, tirzepatide) due to risk of aspiration from retained gastric contents

### **What are the possible side effects?**

Serious complications are rare and occur in less than 1% infusions.

Common temporary side-effects include:

- dose dependent amnesia/anaesthesia,
- anxiety, agitation/panic,
- Epigastric pain and abnormal liver function tests are checked alternate days as ketamine infusions may upset the liver and need the infusion to be stopped.
- headache,
- high/low blood pressure or heart rate,
- impaired co-ordination, balance and dizziness, judgment and thinking,
- intoxication related accidents and falls
- injection site irritation/redness,
- nausea & vomiting, salivation,
- numbness, pins and needles,
- labile mood elevation,
- hallucinations, most described as vivid dreams, less than 10% reported as bad dreams or nightmares, often described as a feeling of doom or traveling rapidly through a confined space.
- sedation, slurred speech, blurred vision,
- A temporary effect on memory and judgement that resolves within 72 hours of stopping ketamine.
- Do not enter into legally binding agreements, make life changing decisions or operate machinery while receiving ketamine or for at least 24 hours after the infusion is stopped.

Rare Long-term side-effects:

- *Dose dependent ketamine induced liver, biliary, kidney and bladder problems.*
  - *Patients are advised to report right upper quadrant or epigastric pain, general malaise or persistent nausea and culture negative lower urinary tract symptoms of dysuria or frequency.*

### **Side effects of lidocaine include:**

Dizziness, numbness and tingling around the mouth, a metallic taste

Higher doses above those that cause tingling lips and tongue can cause seizures and irregular heartbeat.

### **Side effects of magnesium include:**

Magnesium is generally considered safe and is often given to pregnant women,

Patients often report feeling very hot inside, a false feeling of wetting themselves and sometimes a mild burning in the forearm with the infusion.

It can cause irregular heartbeat and weak muscles in doses well above what will be administered.

### **Managing Side-effects.**

You will be monitored by a nurse and doctor while having your infusion/s.

If you experience any side-effects, it is very important to tell the nursing team and doctors looking after you in case we need to reduce the amount of drug being delivered or even stop the infusion for a short period.

Once the infusion is stopped side effects usually go away within 1-2 hours

During the infusion you can eat and drink - however, we recommend small amounts early in an infusion to minimise nausea and the risk of vomiting.

### **Financial Considerations**

The direct medical and hospital costs may include out-of-pocket gaps for your planned treatment. In addition, please note the possible extra costs for pathology, radiology, recovery (eg rehabilitation) and bills from other medical specialists to anticipate and prevent unexpected problems for your safety.

The cost of complications are difficult to quantify in terms of financial consequences to patients and families. Severe complications may require surgery/procedures, prolonged hospital stay, more time off work than expected and dependency on family or carers.

As you will be unable to work during the ketamine infusion and for several days after an uncomplicated infusion, this loss of income may affect those who are self-employed or don't have enough sick leave.

Although most adverse events are self-limited and resolve, please consider the impact of a delayed return to work or need for a carer, which may impact on loan repayments and other commitments.

WorkSafe and TAC Patients: You will be notified if your doctor and hospital will charge "out of pocket" (gap), for an approved treatment.

### **Preparation Before Your Ketamine Infusion.**

You will be asked to confirm that you have read this ketamine patient information leaflet.

Sign an Informed Consent Treatment Request and Agreement and the Hospital Consent for Treatment

after discussing your treatment plan, the anticipated benefits, potential side effects, risks and expectations for this infusion with your doctor.

You will also be asked to sign an acknowledgement of informed financial consent for this treatment. Although there is no special preparation needed to have a ketamine infusion, if you smoke or vape, it is a good idea to stop. Ketamine infusions are carried out in hospital over 6-8 hours for day infusions in the Infusion Centre, or over 1 - 10 days as an inpatient, depending on your treatment plan. If you are unwell, please notify your treating doctor to determine the best care option, which may be to reschedule to a later date. Please obtain a medical certificate if you self-cancel on the day of admission.

### **Smoking and Vaping.**

Patients with chronic pain who smoke or vape have worse pain, functional, sleep, psychological and mood outcomes and use more opioids compared to non-smokers. (Khan et al 2019). The relationship is complex, as nicotine has acute analgesic effects and abstinence can increase pain. However, smoking as a coping strategy, increases risk of persistent pain and bad outcomes. So, we strongly encourage you to stop smoking to improve long term pain control. Repeat ketamine infusions will only be offered to smokers in conjunction with a plan to stop smoking.

### **Optimising and Reducing Medications.**

Make a plan with your doctor to optimise your pain medications during the ketamine infusion. This may involve changing, reducing or stopping unhelpful medications.

### **On the day of your infusion.**

- Come to the hospital reception/admission area at the specified day and time.
- You may have a light breakfast before 7 am.
- Please take **all** your regular medications, with a sip of water, except medicines to be stopped.
- Remember to bring a list of your medicines.
- Please bring all your medicines in the original packs needed during your stay.
- Do not drive yourself as you will need to be picked up or escorted home by an adult.
- Please arrange for a responsible adult to be with you overnight after discharge for your safety.
- Remember not to enter into legally binding agreements, make life changing decisions or operate machinery while receiving ketamine or for at least 24 hours after the infusion is stopped

### **WHAT SHOULD I EXPECT during the infusion?**

Ketamine infusions are delivered in controlled doses either through a vein in your arm, or via a needle placed just under your skin in the abdomen.

You will be given a premedication to help manage common side-effects.

The infusion/s will be commenced at a low dose to see how you respond. The dose/s will be slowly increased until pain is relieved or until limited by troublesome side effects.

During the infusion a nurse will monitor your pain, conscious state, breathing, speech, heart rate and blood pressure regularly.

Your infusion will be supervised and you will be seen regularly by a doctor from Frankston Pain Management. You will not be confined to bed, you can wear comfy clothes, but you will be asked to stay on the ward for monitoring.

### **KETAMINE INFUSIONS BY NUMBERS**

There is no magic dose of ketamine. Each infusion is tailored for each patient at each admission. Patients are cared for and managed by an experienced team of doctors and nurses. They will adjust your infusion/s by clinical need, which may differ from patient request and be different to previous admissions.

### **FOLLOWING THE INFUSION**

You may experience the following temporary side effects for 12 - 72 hours

- You may feel tired and 'hung over' the following day
- Dizziness or feeling faint may occur when moving, sitting or standing up quickly.
- Nausea and vomiting can occur at any time, especially with movement and when travelling home. Please ask for medication and/or sick bag if needed before leaving the hospital
- Please get a friend or relative to take you home and stay with you for at least 24 hours.

### **WHAT SHOULD I DO WHEN I GET HOME?**

1. Gradually increase range of normal activity as tolerated.
2. You may eat and drink as desired.
3. Apply ice to any painful Injection sites for 15-30 minutes every four hours for 24-48 hours as needed.
4. DO NOT drive, operate machinery, drink alcohol or make important decisions for at least 24 hours.
5. Avoid using sedating medications for several days, unless absolutely necessary or instructed by a doctor.

6. Book a post-review appointment in 2-4 weeks with your doctor.

### **HOW SOON CAN I EXPECT RESULTS?**

Different people respond differently; some may benefit within a few hours, others can take a few days before there is any reduction in pain or improvement. Some people may not get any benefit.

### **HOW LONG WITH PAIN RELIEF LAST?**

The duration of benefit varies between people. Pain relief may last days, weeks, several months or longer, while some patients may obtain no improvement at all.

The doses of other pain killers may be reduced or stopped during the infusion depending upon your treatment goal. Specific medication instructions will be given to you.

### **KETAMINE & MOOD - A WARNING.**

You may feel brighter and happier for some weeks or months after a Ketamine Infusion, and then have feelings of lowered mood or worrying thoughts. This may mean the treatment is wearing off. Speak to your doctor, as another infusion may be needed.

### **HOSPITAL ADMISSION EXPECTATIONS.**

- No smoking during ketamine infusions. Please discuss and make a plan to stop smoking.
- All prescribed and over the counter medications must be handed to staff on admission.
- All medications will be administered and recorded in your medication chart by a registered nurse.
- The consumption or possession of alcohol, illicit substances or other non-prescribed drugs is not allowed and may result in immediate discharge.
- Bag and Room searches may be carried out on admission and at discretion of staff.
- Random breathalyser, urine or serum drug screens may be done at staff discretion.
- **Privacy.** All patients, visitors and staff have a right to privacy in the hospital. This means that photography, filming or audio recording is strictly prohibited, unless written consent has been obtained from the hospital executive and everyone involved. All clients have a right to personal space and privacy, please respect this and do not enter another patient's room or personal space without asking and receiving permission.
- **Feeling Safe.** All patients, visitors and staff have a right to feel safe and to be treated with respect while in the hospital. This means that inappropriate or offensive language or behaviour will not be tolerated. The hospital workforce is made up of staff with a diverse mixture of gender, age, ethnicity, race, culture, religion and sexuality. Discrimination, bullying or harassment of a staff member of any kind by anyone will not be tolerated.

### **TREATMENT AGREEMENT CONTRACT**

You will be asked to sign the following confirmation in the Informed Consent Treatment Request:

1. that you have read and accept the ketamine infusion information, conditions and instructions and agree to follow these during my stay in Hospital. I understand that failure to comply with these conditions may result in discharge from the hospital.
2. That I won't drive, use dangerous equipment, sign a contract or make important decisions for 24 hours after a ketamine infusion.
3. That you have been advised that people often report feeling brighter and happier for some weeks or months after a ketamine treatment. You may then have feelings of increasing depression or worrying thoughts as the effects of ketamine wear off, which may indicate the need for another treatment. You have been advised to get help from my doctor(s), LifeLine or Beyond Blue if needed.
4. That you understand and accept late cancellations and non-attendance fees will apply without a medical certificate, as this prevents and delays the treatment of other patients.
5. That your doctor and you have discussed a plan to optimise your pain medications during your ketamine infusion, which may involve changing, reducing or stopping unhelpful medications.
6. Acknowledge that patients who request and agree to a ketamine and magnesium and/or lidocaine infusion, understand that there is a small risk of severe complications that may potentially impact on financial stability including loan and mortgage repayments, the need for ongoing treatment, interventions or surgery, and prolonged recovery in physical and mental health.