

## ***Waterloo-Wellington Palliative Care Community Protocol for Ketamine Administration***

Developed by Waterloo Wellington Ketamine Education Committee

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***Formal review of this protocol to be undertaken in 2 years (2012)***

***Reviewed April 2012 with revisions.***

***Revision Membership:***

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***Pilot initiative to include 5 case studies for review/evaluation purposes prior to adoption of final draft***

➤ ***Only 1 home case: full evaluation incomplete as of May 16, 2012***

## ***Ketamine Protocol***

### **Overriding Expectation and Understanding**

- Ketamine will be initiated, titrated and stabilized in hospital prior to client being discharged into the community with a Ketamine infusion
- The preferred route of administration is via central intravenous (IV) access, however, subcutaneous (subcut) port delivery may be considered on a case by case basis
- The concurrent opioid dose will also be established in hospital
- The client must have 24/7 access to Palliative Care Services, including coverage by a Pain & Symptom management MD, when clients are receiving Ketamine. The client receiving Ketamine in the community for palliative care purposes is considered to be prone to unstable symptoms requiring diligent assessment and adjustment of medications ongoing.
- Community agencies require a minimum of 48 hours notice prior to sending client home on Ketamine

### **Educational Requirement**

Each nurse will have verified their competency in managing the pump chosen for the administration of Ketamine (ie: Gemstar, CADD, etc.) Pump Information, risks, ISMP [hyperlink]

Each nurse will ensure his/her competency to administer Ketamine by having previously completed the WW Ketamine Nursing Self Learning package on the administration of Ketamine Each nurse will review the written P&P prior to caring for a client receiving Ketamine and successfully complete the WW Nursing Self-Learning Package (hyperlink).

### **Purpose**

Ketamine is used in low doses (sub-dissociative anaesthetic dose) as a co-analgesic for pain in palliative care. Ketamine is a potent non-competitive N-methyl D-aspartate (NMDA) receptor antagonist. Hyperactivity of the NMDA receptors may be involved in the induction and maintenance of certain pain states such as neuropathic pain and hyperalgesia.

There is evidence to support the use of Ketamine in the following pain types/syndromes:

- Neuropathic pain
- Phantom pain
- Complex pain syndrome
- Tenesmus – defined as especially long-continued, ineffectual and painful straining, at stool or urination
- Any pain syndrome with the triad of:
  - ▶ Allodynia
  - ▶ Hyperalgesia
  - ▶ Prolongation of pain response
- Ischemic pain (including peripheral vascular disease)

## Indications for Use

1. Opioid Intolerance
2. Opioid Toxicity
3. Pain poorly responsive to opioids
4. Pain crisis

## Contraindications

### Absolute:

Patients under 18

Allergy to Ketamine

Uncontrolled seizures

Symptomatic raised intracranial pressure (ICP) – for example clinical signs of uncontrolled headaches with nausea & vomiting

Not-contraindicated in uncomplicated intracranial metastases

### Relative:

Uncontrolled hypertension – systolic > 160mmhg

Severe Cardiac Failure

Previous Cerebral Vascular Accident (CVA) / Severe Neurological Impairment

## Special Considerations for Administration of Ketamine<sup>1</sup>

- Ketamine will always be initiated in hospital
- At this time Ketamine will only be administered IV or subcut via pump
- Pumps must be clearly labeled; preferably using a different type of pump than the one used for the opioid. (e.g. Gemstar and CADD)
- Ketamine is always given concurrently with an opioid. A breakthrough dose for the opioid must also be available.

Routes of Administration:

**IV:** preferred route for Waterloo Wellington at this time

**Subcutaneously:** Ketamine is very irritating at the subcut site, therefore requiring frequent site changes

**Orally:** When taken orally, Ketamine has a very bitter taste, which can be masked by mixing in fruit juice or carbonated cola.

## Drug Precautions

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<sup>1</sup> Comments on Ketamine Delivery Methods:

1. Ketamine is not effective orally for long term use.
2. Ketamine can also be delivered delivered intrathecally/ intraspinaly.
3. Ketamine can be delivered with an opioid either by using 2 pumps or give opioid and ketamine in the same pump, or give the opioid orally. This is decided on a case by case basis.

Ketamine may decrease or even reverse opioid tolerance due to blocking of NMDA receptors. This improved response to opioids may lead to increased opioid side effects such as sedation and respiratory depression, if the opioid dose is not adjusted appropriately. Since Ketamine enhances the effectiveness of the prescribed opioid, titration of the opioid as well as Ketamine must be managed very carefully.

### **Potential Side Effects:**

#### Psychomimetic: Emergence Phenomena

- characterized by vivid dreams
- de-personalization
- hallucinations
- delirium
- agitation
- excessive sedation

#### Sympathomimetic: Actions

- increased blood pressure
- tachycardia
- increased cardiac output
- Hyper-salivation
- Increase in intracranial pressure
- Vision changes: Diplopia, Nystagmus, eye pain
- Nausea
- Skeletal muscle hyperactivity
- Rash & itching

### **Prophylaxis Management of Psychomimetic Side Effects**

- This protocol may have been initiated in hospital and should continue in the community
- Patients may have started either a Benzodiazepine or Haloperidol **before or with** Ketamine
- recommended medications include:
  - o Lorazepam 0.5-1mgm BID p.o. or subcutaneously or sublingually
  - o Midazolam 5-20mg subcut over 24 hours **or**
  - o Haloperidol 1-2mg BID p.o. or subcut dependant on individual
- These medications may be used concurrently in the management of psychomimetic side effects.
- **Note:** Benzodiazepines increase the bio-availability of Ketamine, thus may potentiate respiratory depression

### **NOTE:**

**It is important to monitor closely for side effects and report changes in condition to the Palliative MD**

### **Ketamine Infusion Monitoring in Community**

- BID nursing visits X 48 hours & following each Ketamine or opioid dose adjustment
- Monitor VS - Blood Pressure, Pulse and Respirations q. visit
- Assess pain q. visit – perform a thorough pain assessment

- Assess level of sedation q. visit
- Monitor for side effects listed above and report all changes to Palliative physician providing care

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