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

DEVELOPED BY WATERLOO WELLINGTON
KETAMINE EDUCATION COMMITTEE

**Working group members:**

Carol Kopp, Clinical Educator, Bayshore Home Health
Cathy Joy, Palliative Nurse Consultant, HPC Consultation Services, Waterloo Region
Charlotte Koso, Manager, Clinical Practice and Special Projects, CarePartners
Christine Bigelow, Palliative Nurse Consultant, HPC Consultation Services, Wellington County
Deb Dalton, Clinical Resource Nurse, Hospice Palliative Care Community Team, Waterloo Region
Grace Egberts, Education Coordinator, Lisaard House Hospice
Heather Gross, Supportive Care Coordinator, Grand River Regional Cancer Centre
Heather Vomberg, RN, CarePartners
Stephanie Doran, RN Supervisor, Paramed
Dr. Andrè Moolman, Palliative Care Physician

**Formal review of this protocol to be undertaken in 2 years (2012)**
Reviewed April 2012 with revisions.

**Revision Membership:**

Carol Kopp, Clinical Educator, Bayshore Home Health
Cathy Joy, Palliative Nurse Consultant, HPC Consultation Services, Waterloo Region
Christine Bigelow, Palliative Nurse Consultant, HPC Consultation Services, Wellington County
Deb Dalton, Clinical Resource Nurse, Hospice Palliative Care Community Team, Waterloo Region
Grace Egberts, Education Coordinator, Lisaard House Hospice
Dr. Andrè Moolman, Palliative Care Physician
Nancy Pearce, Clinical Educator, Grand River Hospital
Laura Moore, Palliative Resource Nurse, St. Mary's General Hospital
Marie Johnson, Manager, CarePartners
Michelle DeGloria, Clinical Educator, Professional Practice Medicine, Guelph General Hospital
Sheila Gallinger, Nurse Practitioner, KW Hospice Palliative Care Team

**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**

Printed in Canada, January 2015

# TABLE OF CONTENTS

# 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.
- 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: CADD or other etc.) Each nurse will have verified their competency in managing the pump chosen for the administration of Ketamine (i.e.: Gemstar, CADD, etc.). Additional pump information can be found within the Waterloo Wellington Pain Management Infusion Pump Information at http://www.hpcconnection.ca/painpump.

Each nurse will ensure his/her competency to administer Ketamine by having previously attended an educational session on the administration of Ketamine, demonstrating the knowledge, skill and judgment to do so. Each nurse will review the written P&P prior to caring for a client receiving Ketamine and successfully complete the nursing self-learning package.

## 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-asparate (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[1]

- 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. CADD or other).
- 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

Sub cut: Ketamine is very irritating at the subcutaneous 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

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

1. Comments on Ketamine Delivery Methods:

1a Ketamine is not effective orally for long term use.

1b Ketamine can also be delivered intrathecally/ intraspinally.

1c 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.

## 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:
    - Lorazepam 0.5-1mgm BID p.o. or subcutaneous or S/L
    - Midazolam 5-20mg subcutaneous over 24 hours or
    - Haloperidol 1-2mg BID p.o. or subcutaneous 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.

## References


Champlain District End-of-Life Care Network. (2007). *Champlain District Palliative Care Resource Manual: Ketamine Infusion Guidelines.* Retrieved March 11, 2010 from: http://www.renfrewhosp.com/documents/health_resources/ChamplainHPCManualMarch-07-154pg.pdf

Chung, W.J. & Pharo, G. (2007). Successful use of Ketamine infusion in the treatment of intractable cancer pain in an outpatient. *Journal of Pain and Symptom Management,* 33(1), 2-5.

Friedman, R., Jallo, J. & Young, W. (2001). Oral Ketamine for opioid-resistant acute pain. *The Journal of Pain,* 2(1), 75-76.

McCaffery, M. & Passero, C. (1999). *Pain: Clinical Manual.* (2nd Ed.). St. Louis, MO:Mosby.

Macpherson, N. (2006). Rationale and guidelines for the use of Ketamine in palliative medicine &/or opioid poorly responsive pain (OPRF)

Moolman, A. & Gross, H. (2009). Ketamine in palliative care. *Clinical Manual Grand River Hospital*

Northern Regional Palliative Care Physicians (2008). Guidelines for using Ketamine.

Okon, T. (2007). Ketamine: An introduction for the pain and palliative medicine physician. *Pain Physician,* 10(3), 493-500.

Palliative Drugs Ketamine [Online]. Available at http://www.palliativedrugs.com/book/php?KETAMINE

Vancouver Coastal Health (VGH/UBCH/GFS). (2007). Palliative Care Unit – Ketamine Infusion Orders

Webster, L. & Walker, M. (2006). Safety and efficacy of prolonged outpatient Ketamine infusions for neuropathic pain. *American Journal of Therapeutics* 13(4), 300-305.