Ketamine
Palliative Care Shared Care Guideline

Introduction

Ketamine is a short acting anaesthetic with analgesic properties at low doses. It is used particularly for neuropathic pain, ischaemic limb pain and refractory cancer pain and as an adjunct to opioid therapy. Ketamine may be given orally or by continuous subcutaneous infusion via syringe driver either as a sole agent or in combination with other agents. Ketamine for these indications is unlicensed and should only be initiated by a Palliative Medicine Specialist.

**Ketamine is a schedule 4 (part 1) controlled drug**

**Adult dosage and administration:** Dose recommendation varies depending on oral or subcutaneous use and clinical response.

**Oral Ketamine:** Start at low doses such as 10-25mg three to four times daily. The dose and frequency can normally be increased in steps of 10-25mg up to a dose of 50mg four times daily. (Higher doses may be used with specialist guidance)

**Subcutaneous Ketamine:** Start with 50-100mg over 24 hours using a syringe driver and increase by 50mg increments every 24 hours until benefit is achieved. It is unusual to require doses greater than 600mg per day. When given via a syringe driver it can be irritant to the subcutaneous tissue. Dilute with sodium chloride 0.9% to the largest possible volume.

The dose of opioid may need to be reduced when the ketamine is initiated.

**Suitability in a Syringe Driver**
Ketamine normally mixes well depending on concentration with diamorphine or morphine or oxycodone or haloperidol or metoclopramide or levomepromazine or midazolam in a syringe driver. Ketamine is incompatible with cyclizine. Ketamine is generally incompatible with dexamethasone but doses of 1mg dexamethasone or less may be added to syringe driver to prevent site irritation. If more than two drugs are to be mixed in the same syringe please refer to the current Palliative Care Formulary or www.palliativedrugs.com or seek further specialist advice.

**Preparations available:**

**Subcutaneous Ketamine:**
Ketamine vials are available as 10mg/ml (20ml vial), 50mg/ml (10ml vial) and 100mg/ml (10ml vial). The nominated community pharmacist needs to register with Pfizer as an “approved pharmacy” Tel 013 0464 5262 fax 013 0465 5885. Orders should be made by contacting Customer Services at Pfizer or through Unichem/Sangers Belfast (028 9056 7111) once registered with Pfizer. The pharmacy order should contain the following information: patient’s name, prescribing doctor, pharmacist’s name, strength and quantity of ketamine vials and details of account with wholesaler. Supply is usually three working days after request.

**Oral Ketamine Solution**
This is prepared on request, Ketamine 50mg/5ml is the standard strength that must be used and is available to community pharmacists from Martindale Pharmaceuticals (0800 137627) and Sangers NI (028 9040 1111) it takes up to 7 working days for delivery. It comes in two flavours natural (aniseed) and peppermint, and in various sizes including 250ml and 500ml. Note this preparation has no preservative and expires 28 days from opening. Please issue an oral syringe and adapter bung when dispensing. Use caution when calculating volume for administration.
Palliative Medicine Specialist Responsibilities

- Assess patient pain with regard to appropriateness of ketamine use, considering any contraindications.
- Initiate and titrate the dosage regimen for ketamine.
- Assess response and side effects.
- Arrange shared care with GP when patient is managed on a stable regimen. Include baseline monitoring (ensure copy of shared care guideline is sent to GP).
- Provide patient/carer with relevant written information on use, side effects and need for monitoring of medication.
- Notify Hospital/Hospice Pharmacist to send details to the community pharmacist nominated by the patient.
- Notify community and specialist nurses.
- Ensure prescription written for the patient with at least 7 days supply to ensure continuity of supply in the community.
- **Strength of vial must be stated on the prescription. Strength of oral solution must be 50mg/5ml.**
- Review the patient’s response and continuing appropriateness of ketamine at specified intervals, sending a written summary to the GP. This may be facilitated by community specialist palliative care team.
- Provide any other advice or information for the GP if required.
- Stop the treatment when no longer considered to be appropriate.

GP Responsibilities

- Prescribe ketamine and arrange ongoing monitoring as agreed with the specialist.
- Refer to specialist when symptoms fail to respond to the management of analgesia or when change of administration route may be indicated.
- Review of the patient at regular agreed intervals to monitor control of symptoms.
- Identify adverse drug reactions and report to Specialist and CSM.
- **Strength of vial must be stated on the prescription. Strength of oral solution must be 50mg/5ml.**
- Liaise with community and specialist nurses.
- Monitor patient’s blood pressure on dosage increase in liaison with Palliative Medicine Specialist.

Adverse Effects, Precautions and Contraindications

Intracranial hypertension and seizures are absolute contraindications. Hypertension, cardiac failure, previous cardiovascular events and CVA are relative contraindications. Vivid dreams, hallucinations, excessive salivation/secretions, and sedation are the most commonly reported problems. Hypertension and tachycardia can also occur. Rarely the patient can develop a psychosis. If the patient experiences dysphoria or hallucinations, the dose of ketamine should be reduced. If necessary midazolam or haloperidol should be prescribed as an interim measure e.g. 2.5-5mg midazolam subcutaneously or 1.5-5mg haloperidol orally or subcutaneously.

The Palliative Medicine Specialist should then be contacted to agree dose reductions and to arrange review.

Common Drug Interactions

Plasma concentrations of ketamine may be increased by diazepam. Ketamine may affect hepatic metabolism of warfarin, carbamazepine, phenytoin and theophylline.

Communication

For any queries relating to this patient’s treatment with ketamine, please contact the specialist named at the top of this document.

This information is not inclusive of all prescribing information and potential adverse effects. Please refer to the full prescribing data SPC, the BNF and the current Palliative Care Formulary. Information is also available at [www.palliativedrugs.com](http://www.palliativedrugs.com)

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