



## CLINICAL GUIDELINE

# Ketamine infusion in the management of uncontrolled post-operative pain, Queen Elizabeth University Hospital

A guideline is intended to assist healthcare professionals in the choice of disease-specific treatments.

Clinical judgement should be exercised on the applicability of any guideline, influenced by individual patient characteristics. Clinicians should be mindful of the potential for harmful polypharmacy and increased susceptibility to adverse drug reactions in patients with multiple morbidities or frailty.

If, after discussion with the patient or carer, there are good reasons for not following a guideline, it is good practice to record these and communicate them to others involved in the care of the patient.

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### Important Note:

The Intranet version of this document is the only version that is maintained. Any printed copies should therefore be viewed as 'Uncontrolled' and as such, may not necessarily contain the latest updates and amendments.

# Guidelines for the use of Ketamine infusion in management of uncontrolled post-operative pain

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## Scope

Guideline for the use of intravenous or subcutaneous Ketamine in the following areas of QEUH only:

- High Dependency Unit
- Theatre Recovery
- ***Ketamine should only be initiated , prescribed, titrated and discontinued by a Consultant Anaesthetist or Acute Pain team***
- This guideline does not cover the administration of ketamine as an anaesthetic agent or for the relief of procedural pain in areas such as Accident and Emergency. It does not cover the use of ketamine in palliative care.

The use of Ketamine is unlicensed for this indication and so the responsibility lies with the prescriber when used in this manner.

Ketamine is an anaesthetic agent with significant analgesic properties. It can be used at sub-anaesthetic doses as an adjuvant to opioids in the treatment of acute post-operative pain.

The aim of acute pain management is not only to relieve immediate pain, but to prevent the development of chronic and persistent pain

## Indications

- Acute pain management ,when multimodal analgesia is ineffective
- Opioid tolerant patients (e.g. Chronic Pain, IVDA)
- Patients intolerant of opioid side effects (eg. sedation, nausea)
- Mixed acute and neuropathic pain – post amputation or phantom pain, complex trauma
- Predominantly neuropathic symptoms- allodynia or hyperalgesia

## Contra-Indications

- Allergy to ketamine
- Previous history of ketamine abuse
- Raised intracranial pressure or head trauma
- Hypertension, preeclampsia
- Severe cardiac disease

- Cerebrovascular accident

### **Cautions**

- Ischaemic heart disease
- Psychiatric illness
- Caution needed in end stage hepatic or renal failure
- Pregnant or breastfeeding
- Epilepsy

### **Dose & preparation:**

Ketamine hydrochloride is available in various concentrations (either 10mg/ml or 50mg/ml), check concentration of ampoule before using drug.

Prepare 250mg of ketamine solution in sodium chloride 0.9% to make a total volume of 50ml and **a final concentration of 250mg/50ml = 5mg/ml**. The solution expires after 24 hours. Administer via syringe pump.

The dose range is 1ml- 3ml/hour (5mg-15mg/hour).

The dose can be titrated at the discretion of the Acute Pain team or Anaesthetist. Max dose is 3ml/hour (15mg/hour) and max duration of treatment is 72 hours.

Ketamine can be given intravenously or subcutaneously. The subcutaneous site should be changed every 24 hours.

### **Observations**

Routine patient observations including pain and sedation scoring; these should be undertaken hourly or more frequently if the patient's condition requires it.

As with all drug infusions, the infusion and the pump must be checked hourly and a standard infusion/prescription chart completed.

### **Side Effects**

- Sedation
- Delirium -
- Hallucinations
- Cardiac stimulation resulting in hypertension and tachycardia

All of these side effects should be minimal at the lowest doses but may limit the patient's ability to tolerate higher infusion rates. If psychological adverse effects develop a benzodiazepine such as diazepam or lorazepam could be considered.

### **Discontinuation**

Ketamine should be discontinued prior to the patient's discharge from the critical care and alternative analgesia should be prescribed, if required. Ketamine can be stopped abruptly, but in practice is normally stepped down gradually.

### **Storage Requirements**

Ketamine is as a Schedule 2 controlled drug. It must be stored in the controlled drug cupboard and requires a two person signature for administration. See trust policy for safe and secure handling of medicines for more information

### **References**

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