



Ketamine

Not recommended for use without specialist supervision

Ketamine is an NMDA receptor antagonist (NMDA receptor activation reduces opioid sensitivity). Acts in medial thalamic nuclei and dorsal horn of the spinal cord to modify nociceptive pain pathways. It is licensed as a general anaesthetic, and is used beyond licence for the following indications:

Indications

1. Neuropathic pain
2. Hyperalgesia
3. Inflammatory + ischaemic pain

Contra-indications

- Raised intracranial pressure – Ketamine causes intracranial hypertension
- Epilepsy

Caution

- Hypertension, cardiac failure, previous cerebrovascular accidents

Preparations

Injections 10 mg/ml – 20ml vial
Injection 50mg/ml – 10ml vial
Injection 100mg/ml – 10ml vial

Oral solution 50mg/5ml

Administration

Ketamine is often started in a low dose PO. Side effects are less with oral or CSCI use than with bolus SC injections

1. Oral

- An oral solution is available in peppermint, lemon and regular flavours.
- Ketamine for injection can be used direct from vial or dilute for convenience to 50 mg / 5 mls (bitter taste).
- Starting dose 10–20 mg tds PO
- Increase dose in steps of 10mg up to 50mg qds
- Maximum reported dose 200 mgs qds
- Give smaller doses more frequently if psychotomimetic phenomena or drowsiness occur
- Dose of opioid should be reduced if patient becomes drowsy

2. Continuous SC infusion

- Starting dose 1-2.5mg/kg/24hrs (typically 100–200 mg / 24 hrs)
- To minimise side effects add haloperidol 2.5mg or midazolam 2.5 mg to syringe driver.
- Increase by 50-100mg/24 hr
- Maximum recommended dose is 2.4 g / 24hrs
- Ketamine is irritant \dilute to largest volume possible with 0.9% saline



Alternatively can be given as short term 'burst' therapy:

Starting dose 100mg/24hrs SC

Increase after 24h to 300mg/24h SC if not effective

Increase after further 24h to 500mg/24h SC if not effective

Stop 3 days after last dose increment

Ketamine is compatible with: Diamorphine, Haloperidol, Levomepromazine, Metoclopramide, Midazolam, low dose Dexamethasone

Inflammation at infusion site–Dilute 1 mg Dexamethasone in 5 mls 0.9% saline and then add Ketamine

To minimise risk of psychotomimetic effects consider prophylactic treatment with diazepam, haloperidol or midazolam

Side effects (see manufacturers SPC for full list)

Psychotomimetic phenomena, tachycardia, hypertension, diplopia, blurred vision, nystagmus, altered hearing.

If a patient experiences dysphoria or hallucinations the dose of ketamine should be reduced and a low dose of benzodiazepine or neuroleptic prescribed.

Diazepam 2-5mg PO nocte or

Midazolam 5mg SC stat + 5-10mg/24hr CSCI or

Haloperidol 2-5mg PO stat, 2-5mg SC stat, 2.5-5mg/24hr CSCI

Obtaining Ketamine in the community

Ketamine may be difficult to obtain in the community. (available by special order) It is issued from hospital pharmacies on receipt of a hospital prescription. Arrangements can be made for the prescription to be delivered to the GP surgery or local dispensing pharmacy if the patient is unable to collect it.

References

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