

Low Dose (subdissociative) Ketamine for Management of Acute Pain

Ketamine possesses **ANALGESIC PROPERTIES** at subdissociative therapeutic doses. At higher doses, ketamine is a “dissociative anesthetic”. For ketamine doses above subdissociative (defined below), refer to the Moderate or Deep Sedation Policies.

Role of Low Dose (subdissociative) Ketamine for Management of Acute Pain:

- Ketamine may be indicated to treat patients with severe pain that is unresponsive or poorly responsive to opioids.
- Ketamine may be used in combination with other analgesics and has been shown to reduce opioid requirements.
- **Age:** Safe in adults and children over age 3 months.

Low Dose (subdissociative) Ketamine → Dosing:

- **Intravenous:**
0.1-0.3 mg/kg (single dose max 25mg)
IV push over 1 minute
- **Intramuscular:**
0.3-0.5 mg/kg IM (single dose max 50mg)
- **May repeat** in 20-30 minutes if pain returns
- **Additional notes on dosing:**
 - Use of ketamine for analgesia is off-label.
 - Comparatively, sub-anesthetic dosing is LESS than half (<50%) the dose utilized to provide the dissociative (procedural sedation) effect. Usual procedural sedation dose is 1-2 mg/kg IV

Low Dose (subdissociative) Ketamine for Management of Acute Pain

- **Use:** adjunct or alternative to opioids in severe pain.
- **Dosing (Low Dose for Acute Pain):**
 - 0.1-0.3mg/kg IVP
 - 0.3-0.5mg/kg IM
- **Monitoring:** same as for IV opioids (see details below)

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- **Pharmacology:** antagonist of the N-methyl-D-aspartate (NMDA) receptor to reduce excitatory nerve activity resulting in analgesia.
 - **Pharmacokinetics:**
 - Onset of Action: 1-2 minutes (IV); 3-8 min (IM)
 - Duration of Action: 5-15 minutes (IV); 12-25 min (IM)
 - **Administration:**
 - All IV doses are administered as slow pushes.
 - Dilute dose with an equal amount SWFI, NS or D5W
 - Administer diluted preparation over 1-2 minutes (IV)
 - **Monitoring Recommendations:**
 - Establish continuous cardiac and oxygen saturation monitoring before and during administration.
 - Obtain baseline vital signs (HR, BP, RR, O₂ sat) within 10 minutes prior to medication administration; repeat vital signs 15-30 minutes after administration.
 - **Adverse Effects:**
 - Notify physician/provider if HR > 110; SBP <90 or >180; RR < 10; or development of altered mental status.
 - Monitor pain scores.
 - **Contraindications & Precautions:**
 - Hypertension (mild elevation)
 - Tachycardia (mild elevation)
 - Nausea & vomiting – may be delayed
 - Sedation
 - Salivation, lacrimation
 - Emergence Reaction (delirium, hallucinations) – treated with reassurance and – if needed – benzodiazepines; occurrence is rare in subdissociative doses used for pain control
 - Laryngeal spasm (very rare)
 - **Contraindications & Precautions:**
 - Hypersensitivity to ketamine or related compound
 - Conditions where significant rise in BP would be serious hazard.
 - Psychosis, PTSD, ETOH intoxication
 - Pregnancy/Breastfeeding
 - Prolonged duration in hepatic disease