

## **Sub-dissociative Dose Ketamine for Analgesia in the Adult ED**

Ketamine is NMDA receptor antagonist and potent analgesic with a mechanism of action that is different from opioids. Ketamine has a long history of use in the ED – particularly in the pediatric context for procedural sedation.

However, there is now preliminary data on the use of "sub-dissociative" ketamine dosing that suggests efficacy that is similar to opioids. Ketamine may provide benefit in patients who have pain that is refractory to standard narcotic pain medications or in patients with relative contraindications to standard therapies. Moreover, the evidence suggests a side effect profile that is similar to opioids in appropriately selected patient populations.

To be clear, the data overall is early and have not been proven any significant benefit over opioids. In addition, ketamine does not provide long-term pain control, and cannot be prescribed on discharge. It is important to distinguish between patients who are refractory to opioids and/ or require an alternative analgesic approach, and those patients who are under-going painful procedures and should receive moderate or deep sedation via our procedural sedation policy. If your patient is undergoing procedural sedation, the use of standard dissociative dosing for adequate analgesia is strongly recommended.

**JHED Summary: Use of sub-dissociative ketamine must be carefully considered for the appropriate patient (see contraindications below) in the right clinical context.**

### **Dosing and administration:**

- 0.3 mg/kg IV over 3-5 min (range 0.2-0.3 mg/kg)
- Must be approved by attending physician and administered by prescriber and RN must be made aware so they can procure the medication from pyxis (RN may not administer)
- Provider will administer the medication via slow IV push. Once administration is complete, the provider does not need to stay in the room with the patient as this is not dissociative dose ketamine
- A single dose may be repeated x 1 in 60 minutes (Maximum of 2 doses per patient)
- No dilution required

### **Monitoring:**

- RN will document BP, HR, RR, O2 sat, pain score prior to administration, 15 min after administration, and 60 min after administration
- Patients who receive ketamine in the ED cannot drive home

### **Absolute Contraindications:**

- History of schizophrenia (even if well controlled)
- Pregnancy/Breastfeeding

### **Relative Contraindications:**

- Altered Mental status
- Severe hepatic impairment
- Active pulmonary infection or disease, including URI or asthma (higher risk of laryngospasm)
- Known or suspected cardiac disease (history of MI, stents, bypass, CHF)
- History of airway instability, tracheal stenosis or tracheal surgery (presumed higher risk of airway compromise)
- Unstable vital signs (SBP <90mmHg or >180mmHg, HR<50 or >150 bpm, RR <10 or >30)
- Acute head injury (elevated ICP)
- CNS masses or hydrocephalus
- Glaucoma or acute globe injury (increased intraocular pressure)
- Major procedures stimulating the oropharynx (endoscopy)

### **Adverse Effects**

- Dizziness
- Light-headedness
- Disorientation/confusion
- Mood Changes
- Nausea
- Cardiac arrhythmias

Please do not hesitate to contact the following for any additional questions or concerns:

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### **References:**

Motov S, et al. Intravenous sub-dissociative dose ketamine versus morphine for analgesia in the emergency department: a randomized controlled trial. *Ann Emerg Med.* 2015;66:222-229

Beaudoin FL, et al. Low-dose ketamine improves pain relief in patients receiving intravenous opioids for acute pain in the emergency department: results of a randomized, double-blind, clinical trial. *Academic Emergency Medicine* 2014;21:1194-1202.

Bowers KJ et al. Ketamine as an adjunct to opiates for acute pain in the emergency department. Abstract American College of Emergency Physicians 2015 Research Forum October 26-27, 2015 Boston, MA.

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