

COVID-19

Ketamine Sedation for All Intubated Patients During COVID-19 Pandemic

Please refer to StarPort COVID Page (or <https://medstarhealth.org/covid19resources> off network) for the complete and most current guidance as this information is rapidly changing and updated.

During the COVID-19 pandemic, Ketamine infusions may be ordered as an option for sedation of patients in the critical care area. Some patients may require high doses of Ketamine to achieve therapeutic goals.

In what setting and population will ketamine be ordered for sedation?

- Critical Care Units and Intubated Patients only.

What is Ketamine?

- A dissociative sedative with amnesic, analgesic, and anesthetic effects.

What are the indications for use?

- Sedation Management for goal RASS 0 to -2 or per prescriber order
- Second line option after propofol or dexmedetomidine
- May be co-administered with other sedatives or pain medications

What are the contraindications?

- Allergy to ketamine
- First trimester pregnancy
- Unstable heart disease
- Uncontrolled intracranial pressure or intraocular pressure
- Severe hepatic dysfunction
- Severe hypertension or labile hypertension

How will ketamine for sedation be dosed?

- Dosing of Ketamine for sedation differs significantly from dosing for pain management.
 - Dose ranges for pain: 0.1mg/kg/hr (1.7 mcg/kg/min) to 1mg/kg/hr (16.7 mcg/kg/min) (maximum weight 100kg)
 - Dose ranges for sedation: 0.5mg/kg/hr (8.3 mcg/kg/min) to 3mg/kg/hr (50 mcg/kg/min). Typical dose 1.5-2mg/kg/hr (25 mcg/kg/min – 33.3 mcg/kg/min). Maximum weight 100kg. However, dosage required to achieve goal RASS may be lower with concomitant sedation use (e.g. propofol or dexmedetomidine).
- Administered as a continuous infusion using a *locked* PCA syringe module or IV infusion pump in a *locked box*.
- Physicians and Advanced Practice Providers will calculate and order initial dose and write a new order for each dose change. **Nurses DO NOT TITRATE this medication.**



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- Note: The order may vary depending on how the infusion is administered:
 - PCA syringe module will be dosed in mg/hr
 - IV Infusion pump will be administered in mcg/kg/min
- Ketamine infusion requires a second nurse verification at initiation, dose and rate change, hanging a new medication syringe/bag and change of caregiver.
- The continuous infusion should be tapered down by 0.1 mg/kg/hr (or ~2 mcg/kg/min) increments not more frequently than every 4 hours unless otherwise directed by the provider. This is to prevent an emergence phenomenon.

What is the goal for sedation?

- RASS 0 to -2 (goal should be patient specific as prescribed by provider)

How should I monitor the patient during this infusion?

- Monitor HR and BP at initiation then q 15 x 2 and 1 h x 1 then at minimum every 4 hours while on ketamine infusion.
 - Notify the primary team physician, PA, or NP if BP increases greater than 20 mm/Hg compared to baseline in the first 90 minutes after initiation or dose change.
- Monitor RASS at same frequency of vital signs.

Infusion Considerations

- Infuse through a dedicated line.
- Ketamine is compatible with low dose lidocaine for pain. These infusions should be joined at the IV tubing injection port (Y-site) most proximal to catheter insertion site, infusing with a carrier fluid.
- PCA Infusion Considerations
 - Alaris Adult Drug Library for Ketamine has a Continuous Dose Limit of 100mg/hr.
 - If more than 100 mg/hr is required, choose the Restricted High PCA profile with guardrails to include a Continuous Dose Soft Max of 200 mg/hr and a Continuous Dose Hard Max of 300 mg/hr.
 - To avoid the need for frequent PCA syringe changes related to high dose Ketamine for sedation, contact the pharmacy to change the syringe concentration of Ketamine from 500mg/20 ml (pain concentration), to 1000 mg/40 ml (sedation concentration).
 - PCA infusions require a “carrier fluid” (carrier fluid needs an order).
 - Change PCA syringes every 24 hours or per hospital policy.

What are the possible side effects of using Ketamine for sedation?

- Hallucinations
 - May be treated with lorazepam
- Hypersalivation
 - May be treated with anticholinergics such as glycopyrrolate
- New or worsening hypertension
- New onset or increasingly frequent arrhythmias