

## Ketamine Continuous Infusion Protocol

**Background:** The STICU team would like to implement a new order set in our STICU for rib fracture patients that are not candidates for, or refuse, epidural catheter analgesia. We would be using ketamine in sub-sedative doses for patients that are not intubated, and have multiple rib fractures. Our patient's safety would benefit from having an order set for doses that are determined safe for a predesignated population. Ketamine has been shown to augment the analgesic effects of the narcotics on patients with thoracic wounds. Due to its dissociative effects, patients on Ketamine seem to show better tolerance to pain and have better respiratory function. In our Surgical Trauma Intensive Care Unit we have used ketamine continuous infusion on several occasions for the relief of pain in patients with rib fractures and we have seen anecdotal improvements on their respiratory function.

**General requirements:** The patient population that would safely benefit from this order set would have the following characteristics and inclusion parameters would be:

- Used only in a monitored Intensive Care Unit setting
- multiple rib fractures (>3)
- >50 kg
- >18 yrs old
- not ventilated
- able to communicate
- not confused
- no allergic reactions to Ketamine
- preserved renal function

### **Procedures for ketamine administration before, during and after the recovery phase:**

#### **Before:**

- Incentive spirometer < 500 and/or
- Pain assessment scale >5
- Patient is already on other analgesia medications and this would be adjunctive therapy.

The drip would be started at:

- 5 mcg / kg / min

if this dose fails to augment analgesia then escalate by increments of 2.5 mcg/kg/min up to a maximum dose of 15 mcg/kg/min.

- during administration of ketamine nursing staff or respiratory therapist would check and document incentive spirometer measurements on an hourly basis

- nursing would continue the Pain Assessment Scale on an hourly basis
- nursing staff would document Patient Controlled Analgesia requirements and amounts delivered every shift

Once the patient has achieved satisfactory pain control as demonstrated by improved incentive spirometer effort for 12 hours, the STICU team/physician will decide to discontinue the drip and monitor for deterioration of the respiratory function during the recovery phase.

If the discontinuation of the ketamine drip leads to regression in the respiratory condition then the ketamine drip would be restarted at the initial therapeutic dose.

Management of adverse mental status effects would be done by prompt discontinuation of the ketamine continuous infusion followed by supportive care. These patients would be in the Intensive Care Unit exclusively so ongoing close observation is already being done. Physician would need to be notified immediately.

Nursing protocols for safety: Mental status would be evaluated on hourly basis and Ketamine infusion would be stopped if any of the following occurs, with the physician being notified immediately;

- Respiratory depression
- Changes in GCS
- Confusion
- Signs of hallucination / Delirium
- Hemodynamic instability