

PROTOCOL FOR: Midazolam: Care of the Patient Receiving Continuous Midazolam Infusion

- POLICY:** 1. This drug is to be administered as continuous infusion in a critical care setting only, when the patient is on a cardiac monitor, and is mechanically ventilated.
2. Midazolam must be administered on an infusion pump, using drug guardrails.

INDICATION: Sedation for mechanically ventilated patient in the critical care setting.

DESIRED PATIENT

OUTCOMES: Patient will maintain a constant level of sedation and experience comfort and ease with mechanical ventilation, to aid in recovery.

**CLINICAL
ASSESSMENT AND**

CARE: 1. Prior to starting Infusion:

- a. Patient must be on a ventilator; Oxygen and resuscitative equipment must be immediately available.
- b. Assess patient's mentation, response to ventilator R_x, (i.e., compliance, O₂ sat, peak pressures) and hemodynamic status.
- c. Communicate desired outcome with patient/family.
- d. Administer initial loading dose per MD/LIP order. Usual loading dose is **0.01 - 0.05 mg/kg**, or **0.5 - 4 mg**. Administer loading dose slowly, over 2 minutes and assess patient response.
- e. Infusion should be mixed by Pharmacy. Standard concentration: **100 mg/100 mls D5W or NS = 1mg/ml**.

2. Initiating the infusion:

- a. The continuous infusion requires an order for therapeutic goal (i.e. **RASS score**, or explanation of the desired level of sedation). A usual desired RASS is **0 to -1.**)
- b. Begin the initial infusion per MD/LIP order, **starting at 0.5 mg/hr**, and titrate slowly in **0.5 mg/hr** increments every **10 minutes**, until desired rate / response is achieved.
- c. The usual infusion rate required for a therapeutic response is **0.02-0.1 mg/kg/hr = 1-7 mg/hr.**
- d. Maximum infusion rate is **20 mg/hour** (The MD/LIP may indicate a lower maximum dose for the specific patient - always follow MD/LIP order.)
- e. Administration via a central line is preferred to avoid extravasation. Monitor peripheral IV site for signs of thrombophlebitis.

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3. During the Infusion:

- a. Monitor **BP** and **RR** and **sedation score (RASS)** with each medication adjustment, and **every 1-2 hours** once desired level of sedation is achieved.
- b. Monitor mentation, hemodynamic response, ventilatory response.
- c. Maintain airway (endotracheal tube, tracheostomy) and mechanical ventilation.
- d. Notify MD/LIP if unable to achieve desired level of sedation at the ordered maximum dose.
- e. Monitor patient for adverse effects and notify MD/LIP should they occur. These include:
 1. hypotension
 2. allergic/anaphylactic reaction (hives, rash, pruritus)
 3. nausea/vomiting
 4. extravasation

4. Discontinuing the Infusion:

- a. Discontinue the infusion if the patient experiences any adverse effects - notify MD/LIP; The effects of Midazolam can be reversed with flumazenil (Romazicon), per MD/LIP order, if necessary.
- b. Infusion may be titrated down or discontinued per MD/LIP order in the same manner as initial titration when the decision to wean patient from ventilator is made, or when patient's condition no longer warrants the need for the medication. Transition to an oral Benzodiazepine may be needed to avoid withdrawal symptoms.

PATIENT/FAMILY

TEACHING:

1. Explain to patient/family the rationale for Midazolam Therapy.
2. Reinforce to patient/family that the sedation and drowsiness produced from the medication is part of the desired effect.

REFERENCES:

ICU Standards Committee
Nursing Standards Committee
Pharmacy Department

EFFECTIVE DATE: 6/93

REVISION DATES: 3/00, 10/03, 5/09