

Protocol for: Ketamine IV: Administration for Pediatric Conscious Sedation in the Emergency Department

- POLICY:
1. Ketamine is administered intravenously for conscious sedation of pediatric patients in the E.D
 2. Ketamine will be administered in the E.D. only by credentialed Emergency Department attending physicians.
 3. The E.D. attending physician will inform the parent/guardian and obtain consent for the sedation procedure.
 4. Patients receiving Ketamine IV in the E.D. must be placed on cardiac and oxygen saturation monitors.
 5. The E.D. attending physician is responsible for the decision to discharge the patient.

DESIRED PATIENT
OUTCOME:

1. Patient will have effective pain control and relaxation for procedure with safe return to full consciousness.
2. Patient will not suffer negative side effects of ketamine.

INDICATIONS:

Ketamine IV is used for conscious sedation procedures in pediatric patients to include but not be limited to laceration repair, burn debridement, foreign body removal, abscess incision and drainage, and orthopedic procedures.

ABSOLUTE

CONTRAINDICATIONS:

1. Patients with hypersensitivity to Ketamine or its components.
2. Age less than 3 months.
3. History of tracheal instability/tracheal surgery/tracheal stenosis.
4. Arrhythmias.
5. Pregnancy.
6. Psychosis.

RELATIVE

CONTRAINDICATIONS:

1. Procedures involving stimulation of the posterior pharynx.
2. Head injury associated with loss of consciousness or altered mental status.
3. CNS lesions/hydrocephalus or other conditions associated with increased intracranial pressure.
4. Glaucoma/acute globe injury.
5. Thyroid disorder or medication.
6. History of seizures.
7. Porphyria.
8. Active pulmonary infection or disease.
9. Lactating mothers.

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DOSE: Ketamine 1-2 mg/kg IV of total body weight, given IV push over 2-3 minutes. (Effective in 30-60 sec with duration of 5-10 min). If repeat dose is necessary, the combined dose should not exceed 6 mg/kg. Dilute to 10 mg/ml in SW, D5W, or NS.

OPTIONAL/
RECOMMENDED:

Atropine 0.01 mg/kg (min = 0.2 mg, max = 0.4 mg)
Midazolam 0.05 - 0.1 mg/kg (max = 5 mg). Midazolam may not be necessary in patients under the age of 7.

CLINICAL
ASSESSMENT
AND CARE:

1. Obtain history of allergies and past medication reactions, present medications, and medical/surgical history (including conscious sedation history).
2. Perform and record baseline vital signs, LOC, and oxygen saturation prior to administration.
3. Obtain weight.
4. Check that all necessary emergency equipment is available.
5. Assure IV site is functional with a running IV of D5 ½ NS or NS.
6. When E.D. attending physician is present and ready to perform procedure, an RN may administer atropine and/or midazolam. These meds are preferably given 5 minutes prior to Ketamine administration.
7. The E.D. attending physician will administer ketamine IV following dose and rate of administration guidelines, and will titrate medication to level of effect. Optimal dose is patient dependent and requires the attending's clinical judgment.
8. Position patient to facilitate procedure and assure airway patency.
9. The physician shall discontinue bolus injection for the following:
 - a. desired sedation is attained
 - b. hemodynamic instability
 - c. airway compromise/decreasing oxygen saturation
10. During procedure and until procedure is complete and patient is awake, obtain and record vital signs, oxygen saturation and level of consciousness every 5 minutes,

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then every 15 minutes in recovery period. The physician should be available but need not be at the bedside during recovery.

11. Provide an environment with decreased stimulation, low lights and decreased noise levels, if possible, to counteract emergence reaction.

REPORTABLE
CONDITIONS:

Notify Emergency Department attending physician of the following:

1. Significant change in vital signs
2. Respiratory depression or decreased oxygen saturation <93%
3. Any significant findings on follow-up call to parent or guardian the next day

TREATMENT
OF ADVERSE
REACTIONS:

1. Hypersalivation - atropine 0.01mg/kg (min 0.2mg - max 0.4mg)
2. Emergence reaction - midazolam
3. Respiratory depression/Oxygen desaturation/Laryngospasm - O₂, bagging, intubation
4. Cardiovascular effects - midazolam, supportive care

POTENTIAL
COMPLICATIONS:

1. Oxygen desaturation 1.1%
2. Macular rash/flushing 11.8%
3. Agitation 2.9%
4. Vomiting 2.9%
5. Sleep disturbances 2.9%
6. Emergence reaction 10%
7. Hypersalivation 10%
8. Hypertension/tachycardia (blunted by midazolam)
9. Laryngospasm <1%

DISCHARGE CRITERIA:

Pediatric patients should meet post-procedure discharge criteria per Conscious Sedation/Analgesia Flow Sheet

PATIENT TEACHING:

Review Emergency Department discharge instruction sheet with the patient/guardian.

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DOCUMENTATION: E.D. Record and Conscious Sedation/Analgesia Flow Sheet

ASSOCIATED STANDARD: HAM: Conscious Sedation #08-013

APPROVAL: Nursing Standards Committee
ED Nurse Manager / Medical Director
Pharmacy and Therapeutics Committee

EFFECTIVE DATE: 6/05

REVISION DATE:

REVIEW DATE: 2/06, 11/08