

Sedation for Paediatric Procedures CED only - Summary of the Clinical Guideline Derby Only

Reference No: CH CLIN C24

Summary Guideline

This is a clinical guideline for management of sedation for painful procedures in the emergency department.

Detail on dosing, patient selection, consent and aftercare in the main body of the guideline

Indications

- Simple procedures lasting < 45 minutes
- Suturing
- Foreign body removal
- Fracture reduction/manipulation
- Joint relocation
- Abscess incision and drainage
- Burn management
- Tube thoracostomy placement
- Wound irrigation/exploration

Contraindications to ketamine

- Pulmonary hypertension
- Age <12months due to increased risk of laryngospasm and airway complications
- High risk of laryngospasm (active resp infection, active asthma)
- Unstable or abnormal airway
- Active upper or lower resp tract infection
- Proposed procedure within mouth or pharynx
- Patients with severe psychological problems such as cognitive, motor delay, or severe behavioural problems
- Significant cardiac disease (e.g. angina, heart failure, malignant hypertension)
- Intracranial hypertension with CSF obstruction
- Intra-ocular pathology (glaucoma, penetrating injury)
- Previous psychotictic illness
- Uncontrolled epilepsy
- Hyperthyroidism or thyroid medication
- Porphyria
- Prior adverse reaction to ketamine
- Altered conscious level due to acute illness or injury
- Drug/alcohol intoxication

Drugs to be prescribed on procedural sedation pathway proforma.

Drug	Pharmacokinetics	Common Side Effects/ Adverse Reactions	Dose Range
Midazolam	IV onset of action within 1-5 minutes Need to titrate dose »Short acting »Anxiolytic/Sedative »CNS depressant »No analgesic properties	»Cardiac depression »Apnoea and respiratory depression »Paradoxical Reaction »Emergence delirium »Midazolam will potentiate the effects of other sedative drugs e.g. Opioids.	Initially 25-50micrograms/kg over 2-3min, 5-10mins prior to procedure Maximum dose 6mg (1month-5yrs) or 7.5mg (age 6+) Do not exceed maximum dose.
Morphine	Iv peak onset of action 15-30 minutes Need to titrate dose »Analgesic »Mild sedative »No amnesic properties	»Nausea »Respiratory Depression »Bronchospasm due to Histamine release	IV dose 0.1mg/kg/dose (maximum dose 10mg)
Ketamine	Iv onset of action in 1 minute, duration of action 10-15 minutes. »Analgesic »Dissociative agent »Sedative »Preserves airway reflexes »Minimal effect on respiratory drive	»Emergence phenomena (1.6% if age <10yrs; affects 1in3 adults) »Hypersalivation and lacrimation (<10%) (co-administration with anticholinergics are not necessary) »Laryngospasm (0.3%) »Nystagmus »Ataxia (5%) »Mild agitation (20%) »Vomiting (5-10%) »Transient rash (10%)	IV dose 1mg/kg as a single dose by slow injection Supplemental doses of 0.5mg/kg by slow IV injection as recommended in CEM guidance Max 2mg/kg IV
Reversal Agents	Pharmacokinetics	Common Side Effects/ Adverse Reactions	Dose Range

Flumazenil	Benzodiazepine antagonist Onset of action 2 minutes Short acting may need repeat dose		Child 1 month–12 years 10 micrograms/kg (max. single dose 200 micrograms), repeated at 1 minute intervals if required; max. total dose of 50 micrograms/kg (1mg) Child 12–18 years 200 micrograms, repeated at 1 minute intervals if required; max. total dose 1 mg
Naloxone	Onset of action 2 minutes		Child 1 month–11 years

	Short acting may need repeat dose		5–10 micrograms/kg; if response inadequate, give a subsequent dose of 100 micrograms/kg (max. 2 mg) Child 12–18 years 1.5–3 micrograms/kg; if response inadequate, give subsequent doses of 100 micrograms every 2 minutes
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Post Procedure

Once stable post procedure can move to the paediatric observation unit till meets dischargecriteria or be discharged if meets criteria in department.

Discharge Criteria

1. Airway patent and stable unsupported
2. Easily rousable
3. Oxygen saturation >95% in air
4. Haemodynamically stable
5. Hydration adequate, no bleeding, passed urine
6. Returned to normal level of responsiveness and orientation for age and mentalstatus, can walk unaided (if appropriate)
7. No nausea or vomiting
8. Pain controlled
9. Nystagmus resolved

Disclaimer

See full guideline for further information.