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## CLINICAL EFFECTIVENESS COMMITTEE GUIDELINE FOR KETAMINE SEDATION IN EMERGENCY DEPARTMENTS

### Introduction

Ketamine is a powerful anaesthetic agent with anxiolytic and analgesic and amnesic properties with a wide safety margin.

This guideline covers its use in analgesic sedation, primarily for children.

The doses advised for analgesic sedation are designed to leave the patient capable of protecting their airway. Consequently there is a significant risk of failure of sedation and the clinician must recognise that the option of general anaesthesia must be discussed with the patient and parents.

Ketamine should be only used by clinicians experienced in its use and capable of managing any complications.

There should be an audit method in place to allow for adequate clinical governance.

### Evidence Levels

- 1 Evidence from at least one systematic review of multiple well designed randomised control trials
- 2 Evidence from at least one published properly designed randomised control trials of appropriate size and setting
- 3 Evidence from well designed trials without randomisation, single group pre/post, cohort, time series or matched case control studies
- 4 Evidence from well designed non experimental studies from more than one centre or research group
- 5 Opinions, respected authority, clinical evidence, descriptive studies or consensus reports

### Indication: (Evidence Levels 2-3)

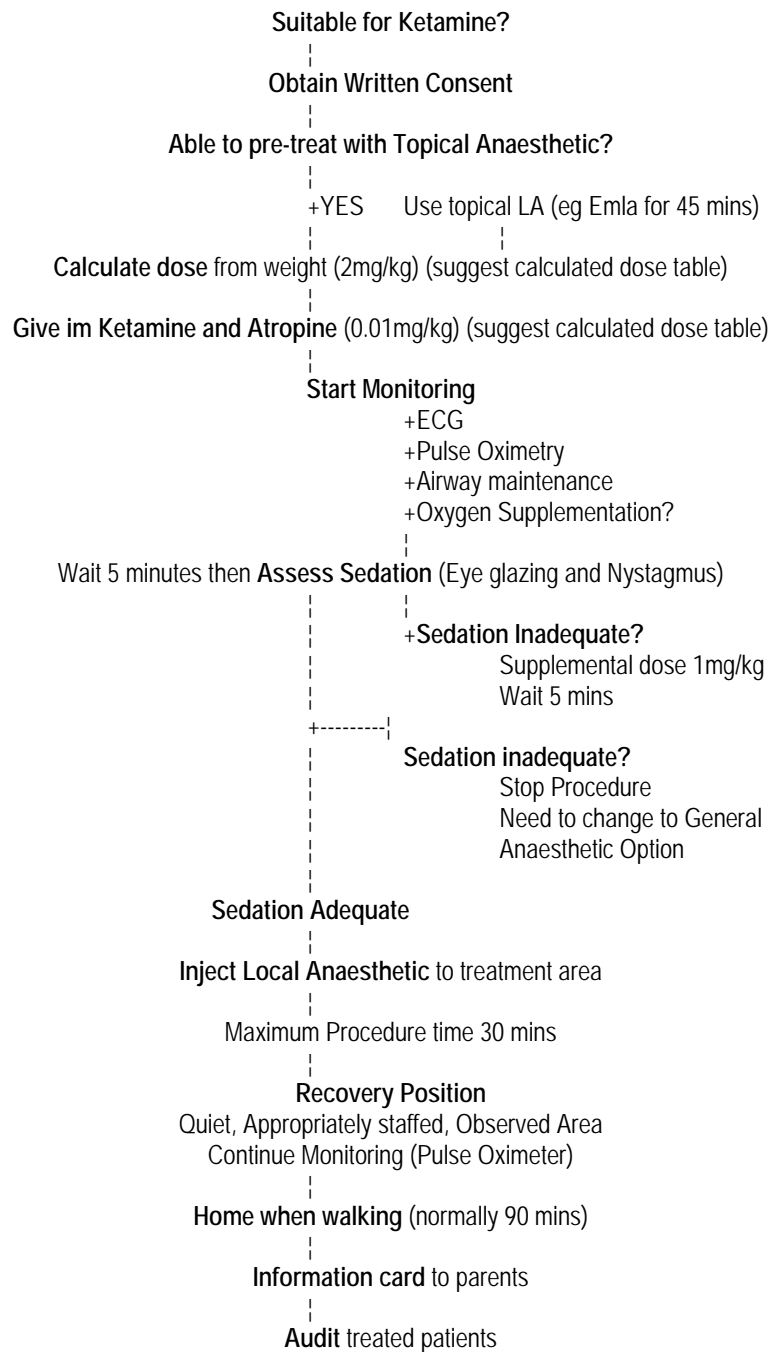
Ketamine has a role in inducing mild protective sedation in children who will need a painful or frightening procedure performing in the course of their emergency care.

It can be used instead of formal anaesthesia for minor and moderate procedures in combination with local anaesthetic techniques.

It potentially replaces physical restraint of the child.

Trials suggest 90% efficacy for parenteral Ketamine.

## Algorithm:



### Contraindications: (Evidence levels 4 and 5)

- A full meal within 3 hours
- A high risk of laryngospasm (active respiratory infection, active asthma, age less than 3 months)
- Patients with severe psychological problems such as cognitive or motor delay or severe behavioural problems.
- Significant cardiac disease (angina, heart failure, malignant hypertension)
- Intracranial hypertension with CSF obstruction.
- Intra-ocular pathology (glaucoma, penetrating injury)
- Previous psychotic illness
- Hyperthyroidism or Thyroid medication
- Porphyria
- Prior adverse reaction to Ketamine

**Procedure: Induction:** (evidence levels 2, 3, 4 and 5)

- Have and use monitoring. The minimum required is pulse oximetry.
- Have a procedure sheet capable of recording; Staff involved, pre-sedation assessment, drug dosage and timing, sequential heart rate and saturation as well as a measure of sedation e.g. GCS
- Obtain written consent from parents.
- In children, the intra-muscular route is preferred.
- If time is available, prepare the injection site with 45 mins pre-treatment with local anaesthetic cream (emla, ametop)
- Use an initial dose of 2mg per Kg body weight. . (Evidence level 3)
- A supplementary dose of 1mg per Kg may be given. (Evidence level 3)
- Atropine 0.01mg/kg (dose range 0.1 to 0.5mg) reduces the salivation reaction to ketamine. (Evidence level 3)
- It is suggested that a Weight - Dose chart be pre-calculated and used.
- There is **no** evidence of improved emergence phenomena if midazolam is used as a supplement (Evidence level 2)

**Procedure: Management:** (evidence level 4 and 5)

- After 5 minutes, the patient will be sedated which will be diagnosed by glazed eyes and nystagmus.
- This condition will last for approximately 30 mins
- Apply local anaesthetic to the area to be treated (Level 4)
- Continue recording observations during the procedure

**Procedure: Recovery:** (evidence level 4 and 5)

- 30 minutes after induction the patient should be taken to a dedicated quiet monitoring area where minimal stimulation (including from monitoring) should be allowed so as to prevent emergence phenomena. Consequently monitoring should use pulse oximetry but not blood pressure monitoring unless indicated.
- The child should be monitored by staff trained in the management of sedated children
- Observations should be continued and recorded until recovery is deemed complete.
- Recovery should be complete within 90 minutes. (Evidence level 4)
- Allow home with carer when able to walk.
- Written discharge information should be issued containing details of possible problems to be expected and their management.

**Potential Complications:** (evidence level 2, 3, 4)

Airway:

- Noisy breathing is usually due to airway mal-position and occurs at an incidence of <1%. This can normally be corrected by routine airway position management.
- In rare cases mild laryngospasm may occur (0.3%). The reported incidence of intubation for laryngospasm is 0.02%.

Vomiting: up to 10% incidence

Lacrimation and salivation: <10% and can be reduced with atropine premedication

Transient rash 10%

Transient clonic movements <5%

Emergence Phenomena <20%

2004  
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Appendix 2

Example:

EMERGENCY DEPARTMENT SEDATION RECORD

Date: A&E No: Patients Name: DOB:

Details of procedure to be performed:

Reason for sedation:

Personnel present (and roles):

Details of sedation technique planned:

Isolated Sedation only	yes/no	Sedation with block/L.A	yes/no
Conscious Sedation Analgesia	yes/no	Block/Analgesia	yes/no
Sedation/Inhalational	yes/no	Other (specify)	

Checklist:

ASA Status: (circle status)

Consent	yes/no (written yes/no)	ASA 1 (Fit & healthy no systemic disease)
Procedure explained	yes/no	ASA 2* (Mild systemic disease, not debilitating)
Check last meal/drink	yes/no when:	ASA 3* (Significant systemic disease, limiting)
Check equipment	yes/no	ASA 4* (Will not survive without operation)
Monitoring used	yes/no	ASA 5* (Resuscitation simultaneous with surgery)
Carer on discharge	yes/no * = Details:	

Baseline observations:

Pulse: Resp Rate: SaO2: GCS:

Details of Sedation Procedure:

Drug:	Route:	Initial Dose:	Subsequent Doses:
1.			
2.			
3.			
4.			

I.V Access gained: yes/no Details:  
 Oxygen given: yes/no  
 Entonox/N2O: yes/no

Details of complications & further interventions during/following sedation/recovery:

Nausea/vomiting	yes/no
Delayed recovery	yes/no
Recovery Agitation	yes/no
Distress Score:	

Recovery Observations:

Pulse: Resp Rate: SaO2: GCS:

Time Sedation given: Time recovered: Time Discharged: