Chloral Hydrate

Alert
High alert medication: risk of causing significant patient harm when used in error. Chloral hydrate should not be given by non-medical personnel in non-medical environment. Osmolality is 3285 mOsm/kg of water.

Indication
Sedation for painless procedure (e.g. neuroimaging). Sedative/hypnotic for short-term use.

Action
Exact mechanism of sedation is not yet known. Trichloroethanol (TCE) is considered to produce the sedative effect associated with this drug.

Drug Type
Sedative and hypnotic drug with barbiturate-like features.

Trade Name
Chloral Hydrate Mixture 1 g/10 mL, (100 mg/mL) manufacturer: Perrigo Australia

Presentation
Chloral Hydrate Mixture 1 g/10 mL (100 mg/mL) oral liquid, 200 mL

Dosage/Interval
Sedation for painless procedure:  
Term infants: 50 mg/kg/dose (25–75 mg/kg/dose).  
Preterm infants: 25 mg/kg/dose (25–75 mg/kg/dose).  
Give the dose 45 minutes before procedure. Repeated doses up to maximum of 100 mg/kg may be used with respiratory monitoring.

Short-term sedation:  
8 mg/kg/dose q6–8 hourly.

Route
Oral  
Note: Rectal administration is erratically absorbed and therefore not recommended.

Maximum Daily Dose
100 mg/kg

Preparation/Dilution
Syrup – 100 mg/mL (osmolality is 3285 mOsm/kg of water)

Administration
Oral preparation should be diluted 1:3 with water or administered after feeding to reduce gastric irritation.

Monitoring
Chloral hydrate is well tolerated by most patients with single dose or short-term use. Most common reported adverse effect is mild respiratory depression and bradycardia in former preterm infants.\(^1\,\,^2\) Observe for respiratory depression, blood pressure and level of sedation.

Contraindications
Do not use in patients with significant hepatic and/or renal disease. Obstructive sleep apnoea.

Precautions
Reduce dose in hepatic and renal impairment.  
Avoid prolonged use and abrupt withdrawal thereafter.  
Administration with other CNS depressants such as opioids, benzodiazepines or barbiturates may produce excessive sedation.  
Indirect hyperbilirubinaemia may occur after prolong use because TCE and bilirubin compete for hepatic conjugation.  
Use cautiously in preterm infants because of the risk of respiratory depression.

Drug Interactions
Chloral hydrate may have an additive effect with opioids, barbiturates, benzodiazepines leading to respiratory depression.  
Chloral hydrate may produce a transient increase in response to warfarin due to displacement of warfarin from its protein binding site.  
Intravenous furosemide administration after chloral hydrate has been reported to produce diaphoresis, flushing, changes in blood pressure and tachycardia in adults and older children.  
Chloral hydrate may displace phenytoin from protein binding sites and reduce its rate of elimination.

Adverse Reactions
Mild respiratory depression — ensure adequate monitoring.  
Gastric irritation with nausea and vomiting.  
In former premature infants, episodes of bradycardia may occur for up to 24 hours after a dose.  
Paradoxical excitement may occur.  
Prolonged administration or acute overdose can cause neurologic, respiratory and myocardial depression; cardiac arrhythmia and bladder atony.  
Serious adverse events including death/permanent neurologic injury have been reported in
Chloral Hydrate

<table>
<thead>
<tr>
<th>Compatibility</th>
<th>Not applicable.</th>
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<tbody>
<tr>
<td>Incompatibility</td>
<td>Not applicable.</td>
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<tr>
<td>Stability</td>
<td>Not applicable.</td>
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<tr>
<td>Storage</td>
<td>Store at room temperature (5–25°C). Preparation is light sensitive; store in a dark container.</td>
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### Special Comments
- Onset of action is approximately 15 minutes with reported half-life of 9 hours.\(^9\)
- Chloral hydrate has no analgesic properties, excitement may occur in patients with pain. Despite being restricted in some countries (e.g. France) as a result of potential carcinogenicity, the American Academy of Pediatrics has judged the evidence insufficient to avoid single doses of chloral hydrate for this reason alone.\(^3\)

### Evidence summary
As per NMF Consensus Group. Refer to reference manual or electronic version.

### References
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**Original version Date:** 24/08/2016  **Author:** Neonatal Medicines Formulary Consensus Group

**Current Version number:** 1  **Version Date:** 24/08/2016

**Risk Rating:** Medium  **Due for Review:** 24/08/2019

**Approved by:** JHCH CQ&PCC  **Approval Date:** 22/08/2017