



NEONATAL MEDICATION GUIDELINE

Lidocaine (Lignocaine)

Scope (Staff): Nursing, Medical and Pharmacy Staff

Scope (Area): KEMH NICU, PCH NICU, NETS WA

This document should be read in conjunction with the [Disclaimer](#).

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Restrictions

[Formulary: Highly Restricted](#)

Requires Neonatologist or Neurologist approval before commencing

HIGH RISK Medication ⚠️

Incorrect dosing with respect to rate and weight may result in severe cardiovascular complications

Description

Anticonvulsant, antiarrhythmic, local anaesthetic

Presentation

Ampoule: 50mg/5mL (1%)

Storage

Store at room temperature, below 25°C

Dose

Lidocaine blocks both initiation and conduction of nerve impulses by decreasing ionic flux through the neuronal membrane by blocking sodium channels.

Intractable Seizures

Total infusion time will include the loading and maintenance dose

Loading dose: 2mg/kg over 10 minutes followed by continuous infusion

Maintenance dose: *Based on Hypothermic Term Neonate OR Normothermic Neonate*

Hypothermic Term Neonate: Maintenance

Weight: 2kg to < 2.5kg

6 mg/kg/hour for 3.5 hours then,
3 mg/kg/hour for 12 hours then,
1.5 mg/kg/hour for 12 hours then cease

Weight: ≥ 2.5kg

7 mg/kg/hour for 3.5 hours then,
3.5 mg/kg/hour for 12 hours then,
1.75 mg/kg/hour for 12 hours then cease

Normothermic Neonate: Maintenance

Weight: 0.8kg to 2.5kg

5 mg/kg/hour for 4 hours then,
2.5 mg/kg/hour for 6 hours then,
1.25 mg/kg/hr for 12 hours then cease

Weight: >1.5kg to <2kg

6 mg/kg/hour for 4 hours then,
3 mg/kg/hour for 6 hours then,
1.5 mg/kg/hour for 12 hours then cease

Weight: 2kg to <2.5kg

6 mg/kg/hour for 4 hours then,
3 mg/kg/hour for 12 hours then,
1.5 mg/kg/hour for 12 hours then cease

Weight: ≥2.5kg

6 mg/kg/hour for 4 hours then,
3.5 mg/kg/hour for 12 hours then,
1.75 mg/kg/hour for 12 hours then cease

Arrhythmias

Refer to [Arrhythmia Guideline](#)

Loading dose:

1 mg/kg over 10 minutes; may repeat dose if delay between initial bolus and start of infusion is > 15 minutes

Maintenance dose:

1.2 – 3 mg/kg/hour

Intercostal Catheter Insertion

Subcutaneous infiltration: Maximum dose is 3mg/kg or 0.3ml/kg

Dose Adjustment

Dosage adjustment may be required in renal or hepatic dysfunction (90% hepatic metabolism)

Maintenance dose should not exceed 20 microg/kg/minute in patients with shock, congestive heart failure, liver failure or decreased liver blood flow

Preparation**IV**

Available from CIVAS (KEMH & PCH)

Dilution: Withdraw 87.5 mg/kg (8.75 mL/kg) of babies weight and dilute to 50mL with a compatible fluid

This will give the following infusion rate:

Concentration at 1 mL/hour = 1.75 mg/kg/hour

Administration**IV infusion**

Administer via syringe pump

Subcutaneous infiltration

Use a 25G needle. Onset of action for local anaesthesia is 3-5 minutes for full effect.

Compatible Fluids

Glucose 5%, Glucose 10%, Sodium Chloride 0.9%

Y-Site Compatibility

Refer to KEMH Neonatal Medication Guideline: [Y-Site IV Compatibility in Neonates](#)

Side Effects

Common: bradycardia (consider ceasing if worsens), hypotension

Serious: seizures, loss of consciousness, respiratory depression, heart block, cardiovascular collapse

Interactions

Aciclovir, phenobarbitone, phenytoin

Monitoring

Monitor for clinical response and consider monitoring plasma concentration (aiming < 9 microg/mL) if lidocaine accumulation is suspected (e.g. hepatic and renal dysfunction) or failure to control seizure

Continuous monitoring of heart rate, blood pressure and ECG

Monitor LFTs, urea, electrolytes and creatinine

Comments

Congenital heart disease and electrolyte disturbance increases risk of cardiotoxicity

Avoid administering with or subsequent to phenytoin as may have of cardiac complications

Bradycardia is common, consider stopping when bradycardia worsens

Lidocaine **is** compatible with heparin

Related Policies, Procedures & Guidelines

CAHS Clinical Practice Guidelines:

[Arrhythmias](#)

[Arrhythmias and Cardiac Arrest on NICU: Treatment Algorithms](#)

[Medication Administration: Intramuscular, Subcutaneous, Intravascular](#)

[Neonatal Seizures](#)

[Intercostal Catheter \(ICC\) Insertion and Management](#)

WNHS Pharmaceutical and Medicines Management Guidelines:

[Medication Administration](#)

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