Government of Western Australia
North Metropolitan Health Service
Women and Newborn Health Service

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.	

Quick Links

Dose	Preparation & Administration	Side Effects & Interactions	Monitoring

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 (Total infusion time is 27hrs and 40mins)

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 severe renal impairment/oliguria or hepatic dysfunction (90% hepatic metabolism). Data regarding the optimal dose in renal failure is limited. Consider stopping earlier than the usual 24 hours in infants with renal failure and hepatic dysfunction.

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%

Side Effects

Common: bradycardia (consider ceasing if worsens), hypotension

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

Interactions

Aciclovir, phenobarbitone, phenytoin

Monitoring

Monitor for clinical response and signs of toxicity. If toxicity is suspected stop the infusion and consider lipid rescue (see comments).

Continuous monitoring of heart rate, blood pressure and ECG.

Monitor LFTs, urea, electrolytes, creatinine and methaemoglobin in the blood gas.

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 or other arrhythmias develop.

Lidocaine **is** compatible with heparin

TOXICITY

For severe cardiovascular toxicity or cardiac arrest: Intravenous lipid emulsion (Intralipid® 20%):

- Immediately give an IV bolus of 1.5 mL/kg over 2-3 mins
- Start an IV infusion at 15 mL/kg/hour
- **Wait 5 minutes, then if no response**
- A maximum of 2 repeat 1.5mL/kg IV boluses can be given at least 5 mins apart if the patient has cardiovascular instability or is in cardiac arrest (Maximum 3 boluses in total)
- Increase the rate to 30mL/kg/hour if haemodynamic stability is not restored after 5 mins.
- Continue infusion until haemodynamic stability is restored. **Do not exceed the maximum cumulative dose of 12mL/kg**

For ventricular dysrhythmias: Consider administering sodium bicarbonate (refer to neonatal sodium bicarbonate protocol for dosing and administration).

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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