



NEONATAL Medication Monograph

LIDOCAINE (Lignocaine)

This document should be read in conjunction with this [DISCLAIMER](#)

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

Presentation	Ampoule: 50mg in 5mL (1%)
Classification	Anticonvulsant, antiarrhythmic, local anaesthetic.
Indication	<p>Lidocaine blocks both initiation and conduction of nerve impulses by decreasing ionic flux through the neuronal membrane by blocking sodium channels.</p> <ul style="list-style-type: none"> Intractable seizures: Severe recurrent or prolonged seizure not responding to first line therapies Ventricular arrhythmias
Dose	<p><u>Intractable Seizures</u></p> <p>Total infusion time will include with loading and maintenance dose</p> <p>Loading Dose: 2mg/kg over 10 minutes followed by Continuous Infusions</p> <p>Maintenance Dose:</p> <p><i>Based on Hypothermic Term Neonate OR Normothermic Neonate</i></p> <p>Hypothermic Term Neonate: Maintenance</p> <p><u>Weight: 2kg to < 2.5kg</u></p> <p>6 mg/kg/hour for 3.5 hours then, 3 mg/kg/hour for 12 hours then, 1.5 mg/kg/hr for 12 hours then cease</p> <p><u>Weight: ≥2.5kg</u></p> <p>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.</p>

	<p>Normothermic Neonate: Maintenance</p> <p><u>Weight: 0.8kg to 2.5kg</u></p> <p>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</p> <p><u>Weight: >1.5kg to <2kg</u></p> <p>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.</p> <p><u>Weight: 2kg to <2.5kg</u></p> <p>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.</p> <p><u>Weight: ≥2.5kg</u></p> <p>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.</p> <p><u>Arrhythmias</u></p> <p>Refer to Arrhythmia Guideline</p> <p>Loading Dose: 1mg/kg over 10 minutes; may repeat dose if delay between initial bolus and start of infusion is >15mins</p> <p>Maintenance Dose: 1.2 to 3 mg/kg/ hour</p>
Monitoring	<p>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.</p> <p>Continuous monitoring of heart rate, blood pressure and ECG</p> <p>Monitor LFTs, urea, electrolytes and creatinine.</p>
Dose Adjustment	<p>Dosage adjustment may be required in renal or hepatic dysfunction (90% hepatic metabolism).</p> <p>Maintenance dose should not exceed 20mcg/kg/min in patients with shock, congestive heart failure, liver failure or decreased liver blood flow.</p>

Compatible Fluids	Sodium Chloride 0.9%, Glucose 5% and Glucose 10%
Preparation	<p>IV: Available from CIVAS (KEMH & PCH)</p> <p>Dilution Withdraw 87.5mg /kg (8.75mL/kg) of babies weight and dilute to 50mL with compatible fluid This will give the following infusion rate:</p> <p>Concentration at 1 mL/hour = 1.75 mg/kg/hour</p>
Administration	IV Infusion : administer via syringe pump
Adverse Reactions	<p>Common: Bradycardia (consider ceasing if worsens), hypotension</p> <p>Rare: Seizures, loss of consciousness, respiratory depression, heart block, cardiovascular collapse</p>
Storage	Store at Room temperature below 25°C
Interactions	Aciclovir, phenobarbitone, phenytoin
Notes	<p>Congenital heart disease and electrolyte disturbance increase risk of cardiotoxicity.</p> <p>Avoid administering with or subsequent to phenytoin as may have cardiac complications.</p> <p>Bradycardia is common, consider stopping when bradycardia worsens.</p> <p>Lidocaine is compatible with heparin</p>
Guidelines & Resources	<p>Seizures: Neonatal</p> <p>Arrhythmias</p>
References	<p>Ainsworth SB. Neonatal formulary 7: drug use in pregnancy and the first year of life. Seventh ed. Chichester (West Sussex): John Wiley & Sons Inc.; 2015. 631 p.296</p> <p>Takemoto CK, Hodding JH, Kraus DM. Pediatric & neonatal dosage handbook with international trade names index : a universal resource for clinicians treating pediatric and neonatal patients. 24th ed. Hudson (Ohio): Lexicomp; 2401. 2, p1193</p>

	<p>Phelps SJ, Hageman TM, Lee KR, Thompson AJ. Pediatric injectable drugs : the teddy bear book. Eleventh ed [Internet]. Bethesda (Maryland): American Society of Health-System Pharmacists; 2016 [cited 2020 Feb 24]. Available from: https://ebookcentral-proquest-com.kelibresources.health.wa.gov.au</p> <p>Truven Health Analytics. Lidocaine. In: NeoFax [Internet]. Greenwood Village (CO): Truven Health Analytics; 2020 [cited 2020 Feb 24]. Available from: https://neofax.micromedexsolutions.com/</p> <p>Society of Hospital Pharmacists of Australia. Lidocaine (lignocaine) hydrochloride. In: Australian Injectable Drugs Handbook [Internet]. [St Leonards, New South Wales]: Health Communication Network; 2020 [cited 2020 Feb 24]. Available from: http://aidh.hcn.com.au</p> <p>Van den Broek MP, Rademaker CM, van Straaten HL, et al. Anticonvulsant treatment of asphyxiated newborns under hypothermia with lignocaine: efficacy, safety and dosing. Arch Dis Child Fetal Neonatal Ed 2013;98:F341- 345 Clinical Pharmacology</p>
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