



NEONATAL MEDICATION GUIDELINE

Adrenaline (Epinephrine) – Circulatory Support

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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Requires Neonatologist or relevant specialist review within 24 hours of initiation.

HIGH RISK Medication

There are 2 presentations of adrenaline ampoules. Incorrect administration can cause dosing errors

- adrenaline (epinephrine) **1 in 1000** (1mg/1mL) **1 mL**
- adrenaline (epinephrine) **1 in 10,000** (1mg/10mL) **10mL**

Extravasation may cause tissue necrosis, monitor access site and peripheral perfusion.

Description

Nonselective adrenergic agonist. Positive inotrope and chronotrope; vasodilator at low dose; vasoconstrictor at high dose. Bronchial smooth muscle relaxant.

Presentation

Ampoule: 1 in 1000 (1mg/1mL) **1 mL**

Storage

Store at room temperature, below 25°C

Precautions



Use extreme caution when titrating dosage and changing lines/fluids as sudden changes to rates can result in blood pressure fluctuations.

Dose

Hypotension & low cardiac output

IV Infusion:

Initially 0.1 microgram/ kg/ minute then titrate according to response.

Maximum of 1 microgram/ kg/ minute

Preparation

IV Infusion: Available from CIVAS (KEMH/PCH)

If unavailable prepare the below solution:

Dilution

Dilute 0.3 mg (0.3 mL of adrenaline 1:1000) of adrenaline per kg of baby's weight to 50 mL with a compatible fluid.

Concentration:

0.2 mL/hour = 0.02 microgram/ kg / minute

1 mL/hour = 0.1 microgram/ kg / minute

Administration

Continuous intravenous infusion

Administer via syringe driver

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: tachycardia, tremor, hyperglycaemia

Serious: peripheral ischaemia and necrosis at infusion site, overdose or rapid administration can lead to excessive increase in blood pressure, cerebral haemorrhage, renal vascular ischemia, pulmonary oedema.

Monitoring

- ECG monitoring
- Continuous cardiac monitoring
- Intra-arterial blood pressure
- Observe intravenous site for signs of extravasation, and necrosis
- Peripheral perfusion/blanching
- Urinary output
- Acid base balance (can cause metabolic acidosis with prolonged use)

Comments

Adrenaline is sensitive to light and air, protection from light is recommended.

Correct acidosis prior to administration to enhance effectiveness.

Contraindicated in arrhythmia, pheochromocytoma, thyrotoxicosis, glaucoma.

Related Policies, Procedures & Guidelines

CAHS Clinical Practice Guidelines:

[Congenital Diaphragmatic Hernia \(CDH\)](#)

[Cardiac: Neonatal Circulation Changes / Unbalanced Circulation](#)

[Cardiac: Routine Post-Operative Care](#)

[Hypoxic Ischaemic Encephalopathy \(HIE\) and Therapeutic Hypothermia](#)









[Sepsis: Neonatal](#)

References

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. 27th ed. Hudson (Ohio): Lexicomp; 2021. p878

Truven Health Analytics. Epinephrine. In: NeoFax [Internet]. Greenwood Village (CO): Truven Health Analytics; 2022 [cited 2022 Jun 13]. Available from: <https://neofax.micromedexsolutions.com/>

Australian Medicines Handbook. Adrenaline. In: Australian Medicines Handbook [Internet]. Adelaide (South Australia): Australian Medicines Handbook; 2022 [cited 2022 Jun 13]. Available from: <https://amhonline.amh.net.au/>

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