NEONATAL Medication Monograph

SODIUM NITROPRUSSIDE (SNP)

This document should be read in conjunction with this **DISCLAIMER**

Highly Restricted: Requires Neonatologist/Cardiologist approval before commencing

⚠ **HIGH RISK Medication**

Presentation	**Vial:** 50mg/2mL *(Available at PCH only – contact pharmacy if required at KEMH)*
Description	Short acting hypotensive agent/Vasodilator Blood pressure reduction by SNP is a temporary measure and longer acting hypotensive agents should be commenced as soon as possible while blood pressure is controlled.
Indications	Hypertensive emergencies (irrespective of aetiology)
Contraindications	Compensatory hypertension (e.g. atriovenous shunt, coarctation of the aorta). Acute heart failure. Concomitant use with a PDE-5 inhibitor (e.g. sildenafil). Congenital (Leber's) optic atrophy. Inadequate cerebral circulation or in moribund patients requiring surgery. Tobacco amblyopia. Severe vitamin B12 deficiency.
Precautions	Hepatic dysfunction: predisposes patient to cyanide toxicity. Increased intracranial pressure, encephalopathy- may be aggravated Hypothyroidism- thiocyanate (degradation product of SNP) inhibits uptake and binding of iodine Hypothermia: may be aggravated Pulmonary impairment – may worsen hypoxaemia Avoid abrupt withdrawal- may cause rebound hypertension, reduce rate over at least 10-30 minutes.

Dose	Initially 0.5 microgram/kg/minute, titrate according to response every few minutes. Maximum 4microgram/kg/minute if used longer than 24 hours Maximum 10microgram/kg/minute if used for no longer than 10 minutes
Dose Adjustment	***CrCL <30mL/min:*** Limit average infusion rate to less than 3microgram/kg/minute ***Anuria:*** Limit average infusion rate to less than 1microgram/kg/minute
Adverse Reactions	**Common:** severe hypotension, tachycardia, dyspnoea, dizziness, vomiting, sweating, flushing
	Serious: cyanide toxicity (***cyanide ions are metabolites of sodium nitroprusside and can reach toxic, potentially lethal levels***) absent reflexes, dilated pupils, pink colouring of skin, shallow respiration, ataxia, metabolic acidosis, coma, imperceptible pulse Anaphylactic shock is not commonly seen in the neonates
Interactions	Other medications that increase the risk of hypotension. Topical local anaesthetics – may increase risk of methaemoglobinaemia.
Compatible Fluids	Glucose 5% *Y-site only:* sodium chloride 0.9%, potassium chloride 20mmol/L
Preparation	**IV:** Dilute 1.5mg (0.06mL) per kilogram of baby's weight to a final volume of to 50mL with a compatible fluid. Concentration =1mL/hour = 0.5microgram/kg/minute ***Maximum concentration (e.g. if fluid restricted):* 1mg/mL *on consultant advice***
Administration	**Continuous IV Infusion:** **Administer in a syringe using a dedicated syringe driver**. Rate determined by continuous monitoring of blood pressure. Use extreme caution when titrating dosage and handling syringe driver. Even small, transient increase in the infusion rate can result in excessive hypotension. Terminate infusion slowly over 15-30 minutes to avoid any rebound effects.

Monitoring	Continuous BP and HR monitoring Blood cyanide and thiocyanate levels must be monitored in patients receiving high doses (more than 3microg/kg/minute) for more than 3 days. Renal and hepatic function (impairment increases risk of cyanide toxicity). Blood pH (risk of metabolic acidosis).
Storage	Store at room temperature, below 25°C. SNP infusion must be light protected – wrap syringe or infusion bag with aluminium foil or black outer packaging from pharmacy (**not necessary to cover tubing**): • Infusion is stable for 24 hours if protected from light.
Notes	When diluted nitroprusside solution should be very faintly brownish in colour. Discard if the infusion solution shows any blue, green or red discolouration or particulate matter.
Related clinical guidelines	Cardiac: Complications Management Following Surgery Cardiac: Abbreviations
References	British National Formulary. BNF for Children 2018-2019. London, UK: BMJ Group and Pharmaceutical Press; 2018. p. 118-119. Kemp AC, McDowell JM. Paediatric Pharmacopoeia. 13th edition. Parkville, IVC: Royal Children's Hospital Pharmacy Department; 2002. p. 188-189. Plover C, Porrello E. Paediatric injectable guidelines 2019 ed. Flemington (Victoria): The Royal Children's Hospital Melbourne; 2019. p. 84 Society of Hospital Pharmacists of Australia. Sodium Nitroprusside. In: Australian Injectable Drugs Handbook [Internet]. [St Leonards, New South Wales]: Health Communication Network; 2020 [cited 2020 Aug 10]. Available from: http://aidh.hcn.com.au 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; 2019. p1815. Truven Health Analytics. Sodium Nitroprusside. In: NeoFax [Internet]. Greenwood Village (CO): Truven Health Analytics; 2020 [cited 2020 Aug 07]. Available from: https://neofax.micromedexsolutions.com/

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