Sodium Nitroprusside

Neonatal

FORM

Single pack with one Vial containing 50mg powder for reconstitution (as a lyophilised powder) and one 5ml ampoule of glucose 5%.

INDICATION

Requirement for systemic vasodilation (ie. hypertension, poor cardiac output)

DOSE RANGE

AGE	DOSE	FREQUENCY	ROUTE
0-6 months	0.5 - 8 micrograms/kg/min (see below) *	Continuous Infusion	IV

*** Due to the potential risk of cyanide toxicity, a maximum dose of 2micrograms/kg/min is recommended for infusion duration >24hrs. A dose of 4 micrograms/kg/ min may be used for several hours whilst alternative therapies are initiated. Maximum doses up to 8 micrograms/kg/min can be used for brief periods (10 – 20 minutes) in emergency situations.**

PRESCRIPTION OF CONTINUOUS INFUSION

3mg/kg in 50ml infusion fluid
This gives:-

- 1 microgram/kg/minute at 1ml/hour

RECONSTITUTION

Reconstitute the dry powder in the vial with 5ml of the provided diluent. Displacement is insignificant. Check to ensure all powder crystals are dissolved before withdrawing.

DILUTION

0.3 x wt (kg) is the number of ml of the reconstituted sodium nitroprusside 10mg/ml to be diluted up to 50ml total with infusion fluid (equivalent to **3mg/kg in 50ml**)

METHOD OF ADMINISTRATION

By continuous intravenous infusion, flow rate adjusted according to the baby's response (see prescription section for details).

For concentrations > 15mg in 50ml (300microgram/ml) CENTRAL ADMINISTRATION is necessary.
Sodium nitroprusside is highly sensitive to light. It should always be prepared in an opaque syringe and administered through an opaque line. Failure to do so increases the risk of cyanide toxicity.

COMPATIBILITY

Solution compatibility	Glucose 5%.
Solution incompatibility	Sodium chloride 0.45%, Sodium chloride 0.9%.
IV Line compatibility	Adrenaline, Amiodarone, Clonidine, Dopamine, Dobutamine, Fentanyl, Furosemide, Heparin, Insulin, Labetalol, Magnesium, Sulphate, Midazolam, Milrinone, Morphine, NorAdrenaline, Potassium Chloride, Vecuronium.
IV Line incompatibility	No info

THIS LIST IS NOT EXHAUSTIVE PLEASE CONTACT PHARMACY FOR FURTHER INFORMATION ON COMPATIBILITY WITH ANY MEDICINES NOT INCLUDED

CAUTIONS, CONTRA-INDICATIONS AND SIDE EFFECTS

Cautions:

- **Thiocyanate toxicity (cyanide poisoning)**
  Thiocyanate levels increase with higher doses and/or treatment durations >72hr. Monitor for signs of cyanide toxicity – increasing lactate, metabolic acidocis, agitation and seizures. If clinically suspected stop infusion immediately. Thiocyanate levels can be requested from biochemistry but take time and should not guide acute management.
- **Methaemoglobinaemia**
  Methaemoglobin is a normal by product of sodium nitroprusside and increased levels are to be expected. However levels >10% are associated with clinical toxicity.
- **Renal imparment**
  Sodium nitroprusside is metabolised to a thiocyanate derivative which is renally excreted. Caution in renal impairment.
- Hepatic impairment
- Hypothyroidism
- Hyponatraemia

Contra-indications:

- Severe Vitamin B12 Deficiency
- Compensatory hypertension (eg Coarctation of the aorta)

Adverse Effects

- Hypotension
- Thiocyanide toxicity (see cautions and additional information)
- Methaemoglobinaemia (see cautions)
- Thrombocytopenia

Also see Summary of Product Characteristics and most recent edition of BNF for Children (links below)

SPECIAL MONITORING REQUIREMENTS

Invasive blood pressure monitoring, including mean arterial blood pressure.
Heart rate and rhythm
Blood gases – lactate, oxygen saturations, hydrogen ions and methaemoglobin levels
Renal and hepatic function

FURTHER INFORMATION

SNP has a very rapid onset of action and a very short half life dissipating in 1-2 minutes. However if significant cyanide toxicity is suspected after discontinuing infusion, discuss with a consultant and seek advice from Poisons Information Centre.
Management options include;

i) Treatment of acidosis with sodium bicarbonate
ii) High oxygen concentrations and ventilation
iii) Sodium Nitrite and Sodium Thiosulfate infusions

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LICENSED STATUS

Unlicensed import

LINKS

BNF for Children / Electronic Medicines Compendium:

APPLICABLE POLICIES

West of Scotland Neonatal Guidelines:
Consult local policy if applicable

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Administer reconstituted solutions immediately.
All vials, ampoules and infusion bags are for single use only unless otherwise stated.
Dose may vary depending on indication, age, renal function, hepatic function, and concomitant medications.
This monograph should be used in conjunction with the package insert, BNF for Children, and Summary of Product Characteristics. For further advice contact your clinical pharmacist or pharmacy department.