

PROTOCOL FOR: Nitroprusside, Sodium (Nipride): IV Administration

POLICY: This drug is to be administered only in critical care areas where patient is on a cardiac monitor, and must be administered on an infusion pump, using drug guardrails.

INDICATION: Hypertensive crisis (afterload reduction), pulmonary HTN, Intracranial Hemorrhage

DESIRED PATIENT

- OUTCOMES:**
1. Patient will achieve adequate reduction of blood pressure.
 2. Patient will not suffer negative side effects of Sodium Nitroprusside administration.

**CLINICAL
ASSESSMENT AND**

CARE: A. Prior to Starting Infusion:

1. Obtain access for frequent BP monitoring. Continuous blood pressure monitoring via a-line is preferable, otherwise, non-invasive blood pressure monitoring may be used.
2. Administer per MD/LIP order. Suggested solution concentration:

Single: 50 mg/250 ml D₅W = 200 mcg/ml

Double: 100/250 ml D₅W = 400 mcg/ml

Note: med is incompatible with NS.

3. Sodium Nitroprusside is sensitive to light, heat and moisture and should be protected from light by wrapping the container with opaque material. Refer to dosage in **mcg/kg/min** only.
4. Perform baseline assessment:
 - a) LOC
 - b) VS (BP, heart rate, respirations)
 - c) Heart rhythm
5. Position patient supine with HOB limited to about 30 degrees to avoid S/S precipitated by hypotension with position higher than 30 degrees.

B. Beginning the Infusion:

1. Begin infusion at a low dose (i.e., **0.3 mcg/kg/min**) to assess initial effect.
2. Titrate in accord with MD/LIP orders. Usual titration to increase by **0.3 mcg/kg/min** every **5 minutes** until desired effect is obtained. Average dose is 3 mcg/kg/min, with a range from 0.5 to a maximum dose of **5 mcg/kg/min**. Dosage varies with each individual.

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3. In extreme hypertensive emergency, doses up to 10 mcg/kg/min can be administered, per MD/LIP order, for < 10 min.
4. Stay at bedside with patient for initial 15 minutes of infusion.

C. Care During Infusion:

1. Titrate medication per MD/LIP orders, to patient response, i.e., decreased blood pressure into desired range and improved cardiac performance. (Usual parameter is SBP 100-120 or MAP > 60). Once SBP lowers < 135, consider slower titration or maintain the infusion, to prevent hypotension.
2. Once desired response is achieved, and BP has stabilized, VS assessment intervals may be decreased to every hour or as ordered by MD/LIP.
3. Notify MD/LIP if desirable response (adequate reduction in BP, per indicated parameters) is not achieved at maximum dose of 5 mcg/kg/min.
4. Assess for potential complications and notify MD/LIP as appropriate:
 - a) Hypotension (according to MD/LIP's parameters):
 - 1) Place patient flat, or knee gatch elevated if unable to tolerate lying flat - avoid trendelenburg.
 - 2) Decrease infusion rate to previous level.
 - 3) Stay with patient and continue decreasing rate until BP stabilizes.
 - 4) If hypotension is severe, stop infusion and notify physician.
 - b) Nausea/Vomiting:
 - 1) Slow rate of infusion.
 - 2) If continues, notify MD/LIP (may need order for antiemetic)
 - c) Cyanide (cyanide radical) toxicity may be evidenced by severe hypotension, metabolic acidosis, dyspnea, headache, vomiting, or loss of consciousness. Occurrence is usually associated with moderate to high doses of 5mcg/Kg/min or greater for > 3 days. If suspected:
 - 1) Monitor acid base balance.
 - 2) Discontinue use of drug if ordered.
 - 3) Monitor thiocyanate levels if prolonged therapy (should be < 10 mg/dl.

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- 4) Administer nitrites/antidote as ordered.
5. Notify physician if an adequate reduction in BP is not obtained with IV infusion at maximum dose of 5 mcg/kg/min (i.e., if systolic BP remains > 170 or parameter specified by MD).

APPROVAL: ICU Standards Committee
Emergency Department Unit Review
Nursing Standards Committee

EFFECTIVE DATE: 4/90

REVISION DATES: 6/93, 1/95, 3/96, 5/97, 10/99, 10/03, 3/08, 5/09

REVIEWED DATES: 9/08