

Class

Antidote, Cyanide Poisoning Adjunct

Pharmacologic Properties

The action of hydroxocobalamin in the treatment of cyanide poisoning is based on its ability to bind to cyanide ions. Each hydroxocobalamin molecule can bind one cyanide ion by substituting it for the hydroxo ligand linked to the trivalent cobalt ion, thereby forming cyanocobalamin, which is then excreted renally. Cyanide poisoning may result from inhalation, ingestion, or dermal exposure to various cyanide-containing compounds, including smoke from closed-space fires. Sources of cyanide poisoning include hydrogen cyanide and its salts, cyanogenic plants, aliphatic nitriles, and prolonged exposure to sodium nitro-prusside.

Indications

- Known or suspected cyanide poisoning [Protocol 25](#).
- Patients showing signs of shock secondary to smoke inhalation [Protocol 37](#).
 - Signs/symptoms may include:
 - Patients trapped in a compartmentalized fire for extended periods of time
 - Severe respiratory distress/depression
 - Altered mental status/unconsciousness
 - Hypotension
 - Obvious cyanosis
 - ETCO₂ < 29mmHg
 - Cardiac Arrest

Contraindications

- Known Hypersensitivity

Side Effects/Adverse Reactions

- Red-colored urine, Red-colored skin and mucous membranes, acne-like rash
- Nausea, vomiting, diarrhea, bloody stools, trouble swallowing, stomach pain
- Headache, dizziness, memory problems, restlessness
- Infusion site reaction
- Eye swelling, irritation, or redness
- Swelling of feet and ankles
- Irregular heartbeat, increased heart rate
- Fluid in Lungs

Dosage and Administration

Adult

- 5 gm IV infusion over 15 minutes at a rate of 15 mL/min (approximately 4 gtt/sec) with vented tubing
 - Mix 200 mL of NS into the vial with 5 gm using the transfer spike to yield a concentration of 25 mg/mL, filling up to the line and mix well by repeatedly inverting or rocking (do NOT shake) the vial for at least 60 seconds to reconstitute medication and hang with supplied vented IV tubing.

Pediatric

- 70 mg/kg IV, recommended infusion - run at 1 gtt/sec, no more than 1 min/kg.
 - Mix 200 mL of NS into the vial with 5 gm using the transfer spike to yield a concentration of 25 mg/mL, filling up to the line and mix well by repeatedly inverting or rocking (do NOT shake) the vial for at least 60 seconds to reconstitute medication and hang with supplied vented IV tubing.
 - Administration example
 - 10 kg patient – $70 \text{ mg/kg} \times 10 \text{ kg} = 700 \text{ mg}$
 - Recommend rate of administration $1 \text{ min/kg} \times 10 \text{ kg} = \text{MAX of 10 minute administration at 1 gtt/sec}$