

4.26.9 – CYANIDE POISONING

1. Perform general patient management ([SECTION 1](#)).
2. Support life-threatening problems associated with airway, breathing, and circulation.
3. Administer oxygen via non-rebreather mask at 10-15 L/min. as necessary. Support respirations as necessary with a BVM.

Serious signs and symptoms [altered mental status, confusion, disorientation, mydriasis (excessive pupil dilation), seizures, coma and cardiovascular collapse; see drug reference for additional signs and symptoms]

4. Give Cyanokit[®] 5 g of [HYDROXOCOBALAMIN](#) IV, infused over 15 minutes. Note: Pediatric dose is 70 mg/kg.
5. If signs and symptoms persist, a repeat dose can be administered [**Medical Control**]. The infusion rate for second dose is usually between 15 minutes and 2 hours.

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Key Points: CYANIDE POISONING / CYANOKIT[®]

- Signs and symptoms of cyanide poisoning include headache, confusion, dyspnea, chest tightness, nausea, altered mental status, seizures, coma, mydriasis, hypertension (early), hypotension (late), tachypnea (early), bradypnea (late), cardiovascular collapse and vomiting. Each 2.5 g vial of hydroxocobalamin for injection is to be reconstituted with 100 mL of diluent (not provided with Cyanokit[®]) using the supplied sterile transfer spike.
- The recommended diluent is normal saline). D₅W has also been found to be compatible with hydroxocobalamin and may be used if normal saline is not readily available.
- The line on each vial label represents 100 mL volume of diluent.
- Following the addition of diluent to the lyophilized powder, each vial should be repeatedly inverted or rocked, **not shaken**, for at least 30 seconds prior to infusion.
- Hydroxocobalamin solutions should be visually inspected for particulate matter and color prior to administration. If the reconstituted solution is not dark red or if particulate matter is seen after the solution has been appropriately mixed, the solution should be discarded.
- Comprehensive treatment of acute cyanide intoxication requires support of vital functions. Cyanokit[®] should be administered in conjunction with appropriate airway, ventilatory and circulatory support.

Generic Name:	Hydroxocobalamin (hye-drox-oh-koe-bal'-a-min)
Trade Name:	Cyanokit®
Chemical Class:	Vitamin B complex
Therapeutic Class:	Hematinic; vitamin
Actions:	Cyanide is an extremely toxic poison. In the absence of rapid and adequate treatment, exposure to a high dose of cyanide can result in death within minutes due to inhibition of cytochrome oxidase resulting in arrest of cellular respiration. Specifically, cyanide binds rapidly with cytochrome a3, a component of the cytochrome c oxidase complex in mitochondria. Inhibition of cytochrome a3 prevents the cell from using oxygen and forces anaerobic metabolism, resulting in lactate production, cellular hypoxia and metabolic acidosis. The action of Cyanokit® in the treatment of cyanide poisoning is based on its ability to bind cyanide ions to form cyanocobalamin, which is then secreted in the urine.
Pharmacokinetics:	N/A
Indications:	Known or suspected cyanide poisoning.
Contraindications:	Hypersensitivity to hydroxocobalamin or cyanocobalamin
Precautions:	1. Allergic reactions may include anaphylaxis, chest tightness, edema, urticaria, pruritus, dyspnea and rash.
Pregnancy Cat. C	2. Hypertension.
Side Effects:	<i>CNS:</i> headache <i>CV:</i> increased blood pressure <i>GI:</i> transient chromaturia (abnormal coloration of the urine), nausea <i>SKIN:</i> erythema, rash, injection site reactions
Administration:	<i>Adult:</i> Give 5 g IV infused over 15 minutes. If signs and symptoms persist, a repeat dose can be administered [Medical Control] . The infusion rate for second dose is usually between 15 minutes and 2 hours. <i>Pediatric:</i> Give 70 mg/kg, up to 5 g IV infused over 15 minutes. If signs and symptoms persist, a repeat dose can be administered [Medical Control] . The infusion rate for second dose is usually between 15 minutes and 2 hours.
Supply:	Each 2.5 g vial needs to be reconstituted with 100 mL of normal saline. Total volume prior to administration is 200 mL and contains 5 g of drug.
Notes:	<ul style="list-style-type: none"> The drug substance is the hydroxylated active form of vitamin B12. Cyanide poisoning may result from inhalation, ingestion, or dermal exposure to various cyanide-containing compounds, including smoke from closed-space fires. The presence and extent of cyanide poisoning are often initially unknown. There is no widely available, rapid, confirmatory cyanide blood test. Treatment decisions must be made on the basis of clinical history and signs and symptoms of cyanide intoxication. If clinical suspicion of cyanide poisoning is high, Cyanokit® should be administered without delay. Incompatible with diazepam, dobutamine, dopamine, fentanyl, nitroglycerin, pentobarbital, propofol, thiopental, blood products, sodium thiosulfate, sodium nitrite and ascorbic acid. Use separate IV lines.