Cyanide Exposure

Aliases

Blood agent | Cyanide | Hydrogen cyanide

Patient Care Goals

1. Remove patient from toxic environment
2. Assure adequate ventilation, oxygenation, and correction of hypoperfusion

Patient Presentation

Cyanide is a colorless gas or white crystal which binds to the ferric ion in cells, blocking the enzyme cytochrome oxidase, thus preventing the use of oxygen by the cell's mitochondria, leading to cellular hypoxia. While it has a characteristic "bitter almond smell", genetically only 40% of the population can smell it

Inclusion Criteria

1. Depending on its form, cyanide can enter the body through inhalation, ingestion, or absorption through the skin. Cyanide should be suspected in occupational or other smoke exposures (e.g., firefighting), industrial accidents, natural catastrophes, suicide and murder attempts, chemical warfare, and terrorism (whenever there are multiple casualties of an unclear etiology). Non-specific and early signs of cyanide exposure (inhalation, ingestion, or absorption) include the following signs and symptoms: anxiety, vertigo, weakness, headache, tachypnea, nausea, dyspnea, vomiting, and tachycardia
2. High concentrations of cyanide will produce:
   a. Markedly altered level of consciousness, including rapid collapse
   b. Seizures
   c. Respiratory depression or respiratory arrest
   d. Cardiac dysrhythmias (other than sinus tachycardia)
3. The rapidity of onset is related to the severity of exposure (inhalation or ingestion) and may be dramatic with immediate effects that include early hypertension with subsequent hypotension, sudden cardiovascular collapse or seizure/coma, and rapid death

Exclusion Criteria

None noted

Patient Management

Assessment

1. Remove patient from toxic environment
2. Assess ABCDs and, if indicated, expose the patient, and then re-cover the patient to assure retention of body heat
3. Assess vital signs (pulse, blood pressure, respiratory rate, neurologic status assessment) including temperature and pulse oximetry (which may not correlate with tissue oxygenation in cyanide/smoke exposure)
4. Attach a cardiac monitor and examine rhythm strip for arrhythmias
   a. Perform a 12-lead EKG
5. Check blood glucose level