



NERVE AGENTS

Agent Information:

Chemical warfare agents; includes sarin (GB), tabun (GA), soman (GD), cyclohexyl sarin (GF), VX, novichok agents, other organophosphorus compounds including carbamates and pesticides. These compounds have various other chemical names as well. Nerve agents are toxicologically, part of a group of compounds known as cholinergic agents.

Signs and Symptoms:

Signs and symptoms vary depending on the route of exposure and level of the exposure.

Signs of exposure: pinpoint pupils (miosis), bronchoconstriction, respiratory arrest, hyper salivation, increased secretions, diarrhea, decreased memory and concentration and loss of consciousness.

Symptoms from moderate exposure: diffuse muscle cramping, runny nose, difficulty breathing, eye pain, dimming of vision, sweating and muscle tremors.

Symptoms of high exposure: above plus sudden loss of consciousness, seizures and flaccid paralysis (late sign). Onset from aerosols is seconds to minutes; from liquids is minutes to hours.

Route of Exposure:

Inhalation and dermal absorption.

Protective Measures:

Utilize appropriate Level PPE as identified by the Environmental Protection Agency and Hazmat protocols.

Persons whose skin or clothing is contaminated with a nerve agent can contaminate rescuers by direct contact or through off-gassing vapor. Persons whose skin is exposed only to nerve agent vapor pose little risk of secondary contamination; however, clothing can trap vapor. Once patient's clothing is removed, eliminating any trapped gases, the risk of secondary contamination is reduced.

Prophylaxis:

N/A

Treatment:

Supportive care. Administer Mark I kits per Delaware Paramedic, BLS protocol or Atropine (2 mg) IV; repeat every 5 minutes, titrate until effective, average dose 6 to >15 mg – use IM in the field before IV access (establish airway for oxygenation). Pralidoxime chloride (2-PAMCI) 600-1800 mg IM or 1.0 g IV over 20-30 minutes (maximum 2 g IM or IV per hour). Additional doses of Atropine and 2-PAMCI depending on severity. Diazepam or lorazepam to prevent seizures if >4 mg atropine given.

Reporting:

Any suspect cases should be reported immediately to the Division of Public Health, Epidemiology Branch: 1-888-295-5156 (24/7 coverage). For additional information, view the CDC website for Emergency Preparedness and Response at www.bt.cdc.gov.