Appendix K - Nerve Agent (Pediatric)

Objectives:

- Early recognition and appropriate intervention of patients poisoned with nerve agents.
- Protect responders from secondary exposure to nerve agents during patient care

General Information:

- **Signs/Symptoms of Acute Nerve Agent Exposure**
  a) VAPOR - Initial effects following a mild vapor exposure include miosis, rhinorrhea, and dyspnea. Victims may have one of these effects or all three. A large concentration of vapor will cause sudden loss of consciousness and seizures followed by apnea and flaccid paralysis. The severe casualties will have miosis, copious secretions from the nose and mouth, and, unless they are paralyzed, will have fasciculations. "SLUDGE" will occur (salivation, lacrimation, urination, defecation, and gastric emesis). Effects begin within seconds to minutes
  b) DERMAL - A very small drop on the skin may cause sweating and twitching at the site, while a small drop on skin may cause nausea, vomiting and diarrhea. A larger drop on the skin may cause loss of consciousness, seizures, apnea, and flaccid paralysis. Effects begin within 30 minutes (large amount) to 18 hours (small amount)
- **Variations of Nerve Agents**
  a) Military grade (i.e. Sarin, Somen, Tabun, VX, etc.)
  b) Industrial pesticides
    i Organophosphates (i.e. Azinphos-methyl, Malathion, Methyl parathion, etc.)
    ii Carbamates (Aldicarb, Sevin, Bendiocarb, etc.)
- **Pediatric Variations in Signs and Symptoms**
  a) Little experience with nerve agents is available to distinguish clinical effects in children from those in adults, although two cases of antichlolinesterase pesticide poisonings in children suggest a disproportionate degree of depressed level of consciousness and muscle weakness. Thus, children may manifest primarily central and/or neuromuscular effects after nerve agent exposur.
- **Pediatric Treatment Concept**
  a) Each Mark-1 kit contains two autoinjectors (0.8 inch needle insertion depth), one each of atropine 2 mg(0.7 mL) and pralidoxime 600 mg (2 mL), to be administered in two separate intramuscular sites. DuoDote provides the same medications, atropine 2.1 mg (0.7 mL) and pralidoxime 600 mg (2 mL), but as a single Autoinjector with the need for only one intramuscular injection; **while not approved for pediatric use, they should be used as initial treatment in circumstances for children with severe, life-threatening nerve agent toxicity for whom IV treatment is not possible or available or for whom more precise IM (mg/kg) dosing would be logistically impossible (especially pre-hospital)**

Warnings/Alerts:

- Victims whose skin or clothing is contaminated with liquid nerve agent can contaminate rescuers by direct contact or through off-gassing vapor
- Victims who have ingested nerve agents may off-gas dangerous levels of vapor, even after skin decontamination. All health care professionals should wear respiratory protection that protects against nerve agents, including Self-Contained Breathing Apparatus (SCBA) and chemical protective clothing to avoid contact with emesis

OMD Notes:

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References:

- Pediatric Emergency Preparedness for Natural Disasters, Terrorism and Public Health Emergencies, A National Consensus Conference, National Center for Disaster Preparedness, Mailman School of Public Health. March, 2007
- Pediatric Terrorism and Disaster Preparedness: A Resource for Pediatricians**,** Agency for Healthcare Research and Quality**,** U.S. Department of Health and Human Services, October, 2006

Performance Indicators:

Signs and Symptoms indicating exposure Vital Signs Treatment and Response to Treatment

CBRNE – Nerve Agents - Pediatric