NOR-CAL EMS	05-0418	Bioterrorism - Nerve Agent Exposure
Nor-Cal EMS Policy & Procedure Manual		Name of the Section
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Approval: Jeffrey Kepple MD – MEDICAL DIRECTOR		SIGNATURE ON FILE

Authority

Health and Safety Code Division 2.5, California Code of Regulations, Title 22, Division 9.

Introduction

Nerve Agents (Tabun (GA), Sarin (GB), Soman (GD), GF, and VX) can be utilized in the form of a gas, aerosol or liquid. They are extremely toxic, and have a very rapid effect. Routes of exposure include: skin absorption, eye contact, inhalation, and ingestion. Poisoning may also occur through consumption of contaminated liquids or foods. Respiratory exposure generally produces the fastest effects. This policy is to be used in conjunction with policy #16-0102 HAZMAT WMD Incident.

Policy

1. **INDICATIONS**: Nerve Agent Exposure, includes exposures to organophosphate compounds that produce the SLUDGEM signs and symptoms.
2. **RELATIVE CONTRAINDICATIONS**: Nerve Agent exposure without symptoms. Treatment is NOT TO BE GIVEN PROPHYLACTICALLY.
3. **IMPLEMENTATION**: Providers carrying MARK I kits on their rigs shall assure that the Nerve Agent Training has been provided for all prehospital personnel.
4. **SCENE SAFETY**: ALL prehospital providers will ensure personal safety by assuring adequate decontamination of victims and using appropriate personal protective equipment. ONLY appropriately trained prehospital personnel wearing appropriate Chemical Protective Clothing (CPC) shall perform TX within the "HOT" and "WARM" zones.
5. **MARK I Kit**: Contains one (1) each: 2 mg. Atropine auto-injector, and 600 mg 2-Pam CL (Pralidoxime Chloride) auto- injectors. The MARK I kit is for use in adult patients only. ***For the purposes of this protocol only, the effective pediatric age is 40KG/9 years of age or younger***.
6. **Pralidoxime Chloride (2-Pam Cl)**:
   A. *Pediatric patients shall NOT receive 2-Pam CL Administration*.
   B. *DO **NOT** GIVE MORE THAN THREE (3) Auto-injectors of 2-Pam CL to any patient; the MAX dose us 1.8 Gms*.
7. **Atropine**: the **End Point** of treatment is drying of secretions and resolution of other symptoms.
   A. Atropine may be administered to pediatric patients.
   B. Atropine may be administered IM/IV/ET in situations where MARK I Nerve Agent Antidote kits are not available.
8. **PRECAUTIONS AND SPECIAL CONSIDERATIONS**:
   A. Auto-injectors may be used on EMS personnel if they become exposed and have S & SX of nerve agent exposure.
   B. It is important that the auto-injectors are given into a large muscle area. If the pt. is thinly built, and has insufficient muscle mass in the outer thigh area, then the injections should be administered into the upper outer quadrant of the buttocks to avoid injury to the femur.
   C. Accidental injections into the hand WILL NOT deliver an effective dose of the antidote, especially if the needle goes through the hand.
   D. Squat, DO NOT kneel, when administering nerve agent antidotes to patients. Kneeling may force the chemical agent into or through your protective clothing.
   E. Dispose of discharged auto-injector in similar fashion as all used sharps.
9. **POTENTIAL COMPLICATIONS**: Over Atropination, accidental injection, localized trauma at injection site from injection.
10. **MNEMONIC**: **S**alivation, **L**acrimation, **U**rination, **D**efecation (diarrhea), **G**astrointestinal pain, **E**mesis, **M**iosis (pinpont pupils).
11. **DOCUMENTATION**: Record on the Triage Tag and/or PCR report, the number of Atropine and 2-Pam Auto-injectors or if a pediatric patient, the amount of Atropine administered.

Key BLS Points	ALS

1. Soon as scene is identified as Haz Mat scene, Isolate and Deny entry, activate Haz Mat Team and notify BH.
2. Decontamination - ONLY appropriately trained prehospital personnel wearing appropriate CPC shall perform TX within the "HOT" and "WARM" zones. Proper decontamination includes removing the clothing (vapor emits from soaked clothes) and flushing the affected areas with large amounts of water, and then cover. Only when the pt. is decontaminated, shall transport providers assume care. When receiving patient, ascertain how much 2-Pam CL/Atropine the pt. has received prior to receiving care and document total amount of each drug given.
   A. Patients triaged as RED Tag may be treated simultaneously with decontamination (Hot Zone).
   B. Patients triaged as YELLOW Tag shall be treated as soon as possible following decontamination (Warm Zone).
   C. Patients triaged as GREEN Tag (asymptomatic) will be decontaminated and receive close observation.
3. PPE/Universal Precautions, including eye protection shall be worn. Avoid patient's sweat, vomit, urination and stool.
4. Position the patient on side (recovery position).
5. Monitor Respiratory status closely. Airway adjuncts prn, Administer High Flow O2 NRM and ventilate prn.

- Unexplained runny nose
- Tightness in the chest
- Difficulty breathing
- Bronchospasm
- Pinpoint pupils resulting in blurred vision.
- Drooling
- Excessive sweating
- Nausea and/or vomiting
- Abdominal cramps
- Involuntary urination/defecation
- Jerking, twitching and staggering
- Headache
- Drowsiness
- Coma
- Convulsions
- Apnea

6. Administer MARK I Kit and/or Atropine as outlined below.
7. Advanced airway, prn with frequent suctioning.
8. Establish IV, NS. Titrate to maintain Systolic Bp of greater than 90 mm Hg.
9. Seizure: After Atropine administration:
   A. Valium, titrate 2.5 - 10 mg slow IV push to effect. IM Administration: 10 mg given deep IM (slowly). If recurrent or persistent seizure, MR X 1 IV/IM to a MAXIMUM of 20 mg with BHPO; OR,
   B. Versed, titrate 2.0 mg slow IV push over 2 minutes, with 2 minute breaks between increments until seizure stops or to a MAXIMUM of 10 mg/dose. Do not give whole dose if seizure stops during IVP administration. IM administration 0.2 mg/kg IM, to a MAXIMUM of 10 mg/dose. If recurrent or persistent seizures, MR X 1 IV/IM to a MAXIMUM of 20 mg with BHPO.
   C. Seizures in Pediatric pts, see policy #05-0809 Pediatric Altered Neurological Function - Non Traumatic.

Exposure: S & SX	Onset	Triage Tag	TREATMENT	
			ATROPINE (2 Mg Auto-injector)	2-PAM Cl (600 Mg Auto-injector)
"Exposed," but Asymptomatic:	N/A	***GREEN***	**NONE** Monitor every 15 minutes	**NONE** Monitor every 15 minutes
MILD (Vapor): • Pinpoint pupils • Runny nose • Mild SOB	Seconds	***YELLOW***	**Adult: One (1)** Auto-injector, (2 mg) IM. **Peds:** 0.02 mg/kg, min. dose 0.1 mg. *MR q 3-5 min. prn.*	**Adult: One (1)** Auto-injector, (600 mg) IM, one time only, **prn. <u>If</u>** S & SX continue 5 min. after administering Atropine, administer 2-Pam Cl. **Peds: N/A, DO NOT Administer.**
MILD (Liquid): • Sweating • Twitching • N/V	Minutes to Hours			
MODERATE: • SLUDGEM • SOB • Weakness	Seconds to Hours		**Adult: Two (2)** Auto-injectors, (4mg) IM. **Peds:** 0.02 mg/kg, min. dose 0.1 mg. *MR q 3-5 min. prn.*	**Adult: One (1)** Auto-injector, (600 mg) IM. MR X1 in 5-10 min. prn. **Peds: N/A, DO NOT Administer.**
SEVERE: • SLUDGEM • Severe SOB • Seizing	Seconds to Hours	***RED*** ***BLACK***	**Three (3)** Auto-injectors (6 mg) IM. *If Bp unobtainable*, consider administering MARK I Kit(s).	**Adult: Three (3)** Auto-injectors, (1.8 Gms) IM, MAX dose. *Do NOT repeat.* **Peds: N/A, DO NOT Administer.**