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Chemical Weapons Elimination

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Emergency Room Procedures in Chemical Hazard Emergencies: A Job Aid

Preparations

- 1. Try to determine agent identity.
- 2. Break out personal protection equipment, decon supplies, antidotes, etc.
- 3. Is chemical hazard certain or very likely?

YES:

- Put on personal protective equipment.
 - · Set up hot line.
- 4. Clear and secure all areas which could become contaminated.
- 5. Prepare to or secure hospital entrances and grounds.
- 6. Notify local emergency management authorities if needed.
- 7. If chemical is a military agent and Army has not been informed, call them.
- 8. If an organophosphate is involved, notify hospital pharmacy that large amounts of atropine and 2-PAM may be needed.

When victim arrives

(Note: A contaminated patient may present at an emergency

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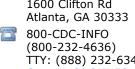
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room without prior warning.)

- 9. Does chemical hazard exist?
 - Known release/exposure (including late notification)
 - · Liquid on victim's skin or clothing
 - Symptoms in victim, EMTs, others
 - Odor (H, L, phosgene, chlorine)
 - M-8 paper, if appropriate

YES: Go to 10.

NO: Handle victim routinely.

- 10. Hold victim outside until preparations are completed (put on personal protective equipment to assist EMTs as necessary).
- 11. If patient is grossly contaminated (liquid on skin, positive M-8 paper) OR if there is any suspicion of contamination, decontaminate patient before entry into building.

Initial Treatment and Identification of the Chemical Agent

- 1. Establish airway if necessary.
- 2. Give artificial respiration if not breathing.
- 3. Control bleeding if hemorrhaging.
- 4. Symptoms of cholinesterase poisoning?
 - Pinpoint pupils
 - Difficulty breathing (wheezing, gasping, etc)
 - Local or generalized sweating
 - Fasciculations
 - Copious secretions
 - Nausea, vomiting, diarrhea
 - Convulsions
 - Coma

YES: Go to Nerve Agent Protocol

5. History of chlorine poisoning?

YES: Go to Chlorine Protocol

6. Burns that began within minutes of poisoning?

YES: Go to 7.

NO: Go to 8.

7. Thermal burn?

YES: Go to 9.

NO: Go to Lewisite Protocol

8. Burns or eye irritation beginning 2-12 hours after exposure?

YES: Go to Mustard Protocol

NO: Go to 9.

9. Is phosgene exposure possible?

- · Known exposure to phosgene
- Known exposure to hot chlorinated hydrocarbons
- Respiratory discomfort beginning a few hours after exposure

YES: Go to Phosgene Protocol

- 10. Check other possible chemical exposures:
 - Known exposure
 - Decreased level of consciousness without head trauma.
 - · Odor on clothes or breath
 - Specific signs or symptoms

PHOSGENE PROTOCOL

1. Restrict fluids, chest x-ray, blood gases

Results consistent with phosgene poisoning?

YES: Go to # 4

2. Dyspnea?

YES: OXYGEN, positive endexpiratory pressure

- 3. Observe closely for at least 6 hours.
 - IF SEVERE DYSPNEA develops, go to 4.
 - IF MILD DYSPNEA develops after several hours, go to 1.
- Severe dyspnea develops or x-ray or blood gases consistent with phosgene poisoning:
 - Admit
 - Give oxygen under positive end-expiratory pressure
 - Restrict fluids
 - Take chest x-ray
 - Get blood gases
 - Put on seriously ill list

MUSTARD PROTOCOL

- Airway obstruction?
 YES: Tracheostomy
- 2. If there are large burns:
 - Establish IV line do not push fluids as for thermal burns.
 - Drain vesicles unroof large blisters and irrigate area with tropical antibiotics.
- 3. Treat other symptoms appropriately:
 - Antibiotic eye ointment
 - Sterile precautions prn
 - Morphine prn
 (generally not needed
 in emergency
 treatment; might be
 appropriate for in patient treatment.)

LEWISITE PROTOCOL

- 1. Survey extent of injury.
- 2. Treat affected skin with British Anti-Lewisite (BAL) ointment (if

CHLORINE PROTOCOL

- 1. Dyspnea?
 - Try bronchodilators
 - Admit

available).

- 3. Treat affected eyes with BAL ophthalmic ointment (if available).
- 4. Treat pulmonary/severe effects
 - BAL in oil, 0.5 ml/25 lbs body wt. deep IM to max of 4.0 ml. Repeat q 4 h x 3 (at 4, 8, and 12 hours).
 - Morphine prn
- 5. Severe poisoning? **YES:** Shorten interval for BAL injections to q 2 h.

- Give oxygen by mask
- Take chest X-ray
- 2. Treat other problems and reevaluate (consider phosgene).
- 3. Respiratory system OK? YES: Go to 5.
- 4. Is phosgene poisoning possible?

YES: Go to Phosgene **Protocol**

5. Give supportive therapy; treat other problems or discharge.

NERVE AGENT PROTOCOL

1. Severe respiratory distress?

YES:

- Intubate and ventilate
- ATROPINE Adults: 6 mg IM or IV Inf/ped: 0.05 mg/kg IV
- 2-PAM C1 Adults: 600-1000 mg IM or slow IV Inf/ped: 15 mg/kg slow IV
- 2. Major secondary symptoms? **NO**: Go to 6.

YES:

- ATROPINE Adults: 4 mg IM or IV Inf/ped: 0.02 - 0.05 mg/kg IV
- 2-PAM C1 Adults: 600-1000 mg IM or slow IV Inf/ped: 15 mg/kg
- OPEN IV LINE

3. Repeat atropine as needed until secretions decrease and breathing easier

Adults: 2 mg IV or IM Inf/ped: 0.02 - 0.05 mg/kg IV

4. Repeat 2-PAM C1 as needed

Adults: 1.0 gm IV over 20-30 min

Repeat q lh x 3 prn Inf/ped: 15 mg/kg slow

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5. Convulsions?

NO: Go to 6.

YES: DIAZEPAM 10 mg slow IV

Inf/ped: 0.2 mg/kg IV

6. Reevaluate q 3-5 min. IF SIGNS WORSEN, repeat from 3.

Note: Warn the hospital pharmacy that unusual amounts of atropine and 2-PAM may be needed

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