**RADIATION INJURY**

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| --- |
| * Burns and / or blast injury.
* Multiple health issues with lower dose exposures.
 |
| **BLS Treatment** |
| * Position of comfort.
* NPO.
* Assess circulation, airway, breathing, and responsiveness.
* **Oxygen** as indicated.
* Provide Spinal Motion Restriction as indicated or position of comfort as indicated.
* Appropriately splint suspected fractures/instability as indicated.
* Bandage wounds/control bleeding as indicated.
 |
| **ALS Treatment** |
| * For pain, administer **Morphine.**
 |
| **Comments*** Follow facility radiation exposure plan for patient decontamination and disposal of all contaminated waste.
* In the nuclear bomb scenario casualty load will be excessive. Utilize austere care protocol and strict triaging to maximize available resources. Access all available disaster resources.
 |

**CHEMICAL AGENT INJURY**

**NERVE AGENTS (e.g. VX, Sarin, Soman, Tabun)**

|  |
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| * Causes “SLUDGE” (Salivation, Lacrimation, Urination, Diaphoresis/Diarrhea, Gastric hypermotility, Emesis/Eye (small pupils, blurry vision).
* Severe exposures may result in decreased level of consciousness, fasciculation/muscle weakness, paralysis, seizures.
 |
| **BLS Treatment** |
| * Position of comfort.
* NPO.
* Assess circulation, airway, breathing, and responsiveness.
* **Oxygen** as indicated.
* Provide Spinal Motion Restriction as indicated or position of comfort as indicated.
* Appropriately splint suspected fractures/instability as indicated.
* Bandage wounds/control bleeding as indicated.
 |
| **ALS Treatment** |
| * Administer **Atropine** 2-5 mg IVP/IO. Repeat every 2 – 5 minutes until SLUDGE symptoms subside.
* For seizures: administer **Midazolam**.
 |
| **Comments**Nerve agent poisoning can be very toxic. Large amounts of **Atropine/2-PAM** may be needed to treat symptoms. If the patient is initially symptomatic and no response is seen to the initial doses of medication, continue giving until a response is achieved. May need to access pharmaceutical disaster cached called, “CHEMPACK” to have sufficient supply of antidote to treat multiple patients. If available, administer **DuoDote** [**Atropine/Pralidoxime (2-PAM)] Autoinjector** IM in using dosing table below: |

|  |
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| **DuoDote (2-PAM) Dosing Estimator***DuoDote = Atropine 2.1mg / Pralidoxime 600mg* |
| **Do NOT Use** **Atropine/2-PAM Injector** | **Use Between 1 – 3**  **Atropine/2-PAM Injectors IM** | **Use 3** **Atropine/2-PAM Injectors IM** |
| * No signs of life
* Fits non-resuscitation group (expectant) due to other concomitant injury
 | Titrate dose based on 1 or more SLUDGE signs and:* Elderly
* Children appearing under age 14
* Prolonged extrication (may require more than 3 autoinjectors)
 | * Exhibiting 2 or more SLUDGE signs OR
* Non-ambulatory
 |
| Bronchospasm and respiratory secretions are the best acute symptoms to monitor response to **Atropine/2-PAM** therapy:* Decreased bronchospasm and respiratory secretions = getting better.
* No change or increased bronchospasm and respiratory secretions = needs more **2-PAM**.
 |

**MUSTARD (SULFUR MUSTARD)**

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| Blistering agent affecting skin and mucous membranes.  |
| **BLS Treatment** |
| * Position of comfort.
* NPO.
* Assess circulation, airway, breathing, and responsiveness.
* **Oxygen** as indicated.
* Provide Spinal Motion Restriction as indicated or position of comfort as indicated.
* Appropriately splint suspected fractures/instability as indicated.
* Bandage wounds/control bleeding as indicated.
* Preserve body temperature if blistered area is large.
 |
| **ALS Treatment** |
| * Advanced airway if indicated.
 |
| **Comments*** Liquid or vapor mustard penetrates the skin and mucous membranes and damages cells within minutes of exposure, so decontamination must be done immediately after exposure.
* Mustard agent can be very persistent; all surfaces with potential contamination must be carefully cleaned before considered decontaminated.
 |

## METHYLENE DIPHENYL ISOCYANATE (MDI), METHYLENE DIISOCYANATE, AND METHYL ISOCYANATE (MIC)

|  |
| --- |
| * Strong eye, skin and respiratory tract irritant.
* High concentrations may result in severe respiratory distress and pulmonary edema.
 |
| **BLS Treatment** |
| * Eyes or skin irritation: flush with copious amounts of water as feasible.
* Position of comfort.
* NPO.
* Assess circulation, airway, breathing, and responsiveness.
* **Oxygen** as indicated.
* Provide Spinal Motion Restriction as indicated or position of comfort as indicated.
* Appropriately splint suspected fractures/instability as indicated.
* Bandage wounds/control bleeding as indicated.
 |
| **ALS Treatment** |
| * Advanced airway as indicated.
* Consider needle cricothyroidotomy for laryngospasm if unable to maintain airway with BLS maneuvers or advanced airway procedures.
* IV/IO of **Normal Saline** TKO.
* **Albuterol**
* For patients with severe refractory bronchospasm who are less than 50 years old and NO history of coronary artery disease or hypertension: administerIM **Epinephrine** (1:1,000)
* If no response to IM Epinephrine or patient is in extremis: administer IV **Epinephrine** (1:10,000)
 |
| **Comments*** All patients who have had a moderate or high level of exposure (respiratory, GI or Cardiovascular signs or symptoms upon exam by EMS personnel) should be referred to a medical facility for examination and treatment.
* If utilized, the ETT’s placement and patency must be maintained at all times.
 |

**CHLORINE**

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| --- |
| * Strong eye, skin and respiratory tract irritant.
* High concentrations may result in severe respiratory distress and pulmonary edema.
* Symptoms:
* **Low dose**—cough, eye irritation & lacrimation, choking sensation
* **High dose**—hoarseness, wheezing, severe cough, sudden collapse due to laryngospasm
 |
| **BLS Treatment** |
| * Eyes: Flush with copious amounts of water.
* Skin: Flush with copious amounts of water.
* Position of comfort.
* NPO.
* Assess circulation, airway, breathing, and responsiveness.
* Oxygen as indicated.
* Provide Spinal Motion Restriction as indicated or position of comfort as indicated.
* Appropriately splint suspected fractures/instability as indicated.
* Bandage wounds/control bleeding as indicated.
 |
| **ALS Treatment** |
| * Establish IV/IO of **Normal Saline** TKO.
* **Albuterol**
* For patients with severe refractory bronchospasm who are less than 50 years old and NO history of coronary artery disease or hypertension: administer IM **Epinephrine** (1:1,000)
* If no response to IM Epinephrine or patient is in extremis: administer IV **Epinephrine** (1:10,000)
* Advanced airway as indicated.
* Consider needle cricothyroidotomy for laryngospasm if unable to maintain airway with BLS maneuvers or intubation.
 |
| **Comments*** All patients who have had a moderate or high level of exposure (respiratory distress or airway symptoms upon exam by EMS personnel) should be referred to a medical facility for examination and treatment.
 |

**KEY ASSESMENT FINDINGS**

* History: Exposure to a greenish-yellow gas with a pungent, acrid odor.

**Cyanide**

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| Blocks O2 use in cell causing cellular asphyxia and death.  |
|  **BLS Treatment** |
| * Position of comfort.
* NPO.
* Assess circulation, airway, breathing, and responsiveness.
* **Oxygen** as indicated.
* Provide Spinal Motion Restriction as indicated or position of comfort as indicated.
* Appropriately splint suspected fractures/instability as indicated.
* Bandage wounds/control bleeding as indicated.
 |
| **ALS Treatment** |
| * Advanced airway as indicated.
* If SBP < 90 mmH, administer IV/IO of **Normal Saline** fluid bolus.
* **Sodium Thiosulfate** if available.
 |
| **Comments*** Patients from enclosed space fires are at risk of cyanide poisoning.
* Notify hospital about possible cyanide poisoning and need for Cyanokit antidote.
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