Toxic Exposure AHF Skin

History

- Known skin contacted by HF, vapor, or aqueous solution.
- Concentration of AHF
- Time of exposure

Signs and Symptoms

- Rapidly produces an erythematous area.
- White or gray color at the surface.
- Extreme pain.

Scene Safety / Quantify and Triage Patients / Begin Decontamination

Triage Protocol UP2 as indicated

Flush 5 minutes with copious amounts of water. Remove all clothing.

Age Appropriate Airway Protocol(s) 1, 2, 3, 4, 5, 6

A IV or IO Procedure UP 6 if indicated

P Cardiac Monitor if indicated

Rubber / Acid Resistant gloves MUST be worn when touching patient

B Apply calcium gluconate 2.5% gel on exposed area.
If pain significantly decreases or resolves within 20-30 minutes stop and observe.
OR
Immersion or compress with iced zephiran solution (0.13% benzalkonium chloride).

Exposure Level

Pain is Being Controlled

B If burn is responding to standard treatments (calcium gluconate gel or zephiran soaks) continue until pain subsides.

P Monitor cardiac rhythm closely.

Pain Is Not Controlled

P Inject Calcium Gluconate solution 2.5-5% into, around, and under all injuries.
Do not inject digits, nose flaps, or ear lobes. This will cause necrosis.
Do not use anesthetics which may hide pain perception, which is used to determine the amount of calcium gluconate to inject.
Treat injuries after injection as you would any other open wounds.

If QT interval increase by 50% of become >.50 consider Calcium Gluconate IV.

Rapid Transport to appropriate destination using
Trauma and Burn: EMS Triage and Destination Plan

Notify Destination

Toxin-Environmental Protocol Section

Toxic Exposure AHF Skin

Contact Local Haz-Mat Team / Fire Dept for decontamination.

Patient's exposed to AHF are best served at a Burn Trauma Center

Pearls

- **Recommended Exam: Mental Status, HEENT, Neck, Heart, Lungs, Abdomen, Extremities, Back, and Neuro**
- **RESPONDERS MUST WEAR RUBBER (NEOPRENE OR POLYVINYL CHLORIDE (PVC)) GLOVES WHEN TREATING AHF BURNS.**
- Green, Yellow, and Red In burn severity do not apply to Triage systems.
- Refer to Rule of Nines: Determine the purity of the AHF is possible.
- Do not flush more than 5 minutes the begin Calcium Gluconate Cream treatment. Remove all clothing during decontamination process to avoid residual exposure.
- Treat additional traumatic injuries per appropriate protocol.

Toxic Exposure AHF Eye

History
- Known eye contacted by HF, vapor, or aqueous solution.
- Concentration of AHF.
- Time of exposure.

Signs and Symptoms
- Severe irritation, chemical burns to eyelids and peri-ocular skin.
- Corneal opacities, pitting or ulceration, possible vision loss.
- Extreme pain.

Differential
- Sulfuric acid exposure.
- Phosphoric acid exposure.
- Other caustic exposure.

Scene Safety / Quantify and Triage Patients / Begin Decontamination

Consider Inhalation Injury. facial/head skin exposure

Triage Protocol UP2 as indicated

Flush 5 minutes with copious amounts of water. Remove all clothing.

Age Appropriate Airway Protocol(s) 1, 2, 3, 4, 5, 6

A IV or IO Procedure UP 6 if indicated

P Cardiac Monitor

Morgan Lens Available

No

P
- Irrigate each eye with 1000cc of a 1% calcium gluconate solution (no higher than 1%) for a minimum period of 15 minutes.
- Use standard IV tubing fixed to the forehead if one eye is exposed. For both eyes use a nasal cannula (designed for oxygen delivery) mounted on the nose
- Always obtain specialized medical evaluation & treatment.

Yes

P
- Place two drops of tetracaine in each eye if available. This will simplify the use of the "Morgan lens."
- Insure calcium gluconate solution is flowing before inserting Morgan lens and until removed.
- Irrigate each eye with 1000cc of a 1% calcium gluconate solution (no higher than 1%) for a minimum period of 15 minutes. **If tetracaine is used continue irrigation until evaluated by doctor.**
- Treat only effected eye(s)
- Always obtain specialized medical evaluation & treatment.

During transportation to a medical facility or while waiting for a physician to see the victim, it is extremely important to continue the calcium gluconate irrigation.

P Monitor cardiac rhythm closely.

If QT interval increase by 50% of become >.50 consider Calcium Gluconate IV.

Rapid Transport to appropriate destination using Trauma and Burn: EMS Triage and Destination Plan

Notify Destination

Toxin-Environmental Protocol Section

Toxic Exposure AHF Eye

Pearls

- **Recommended Exam: Mental Status, HEENT, Neck, Heart, Lungs, Abdomen, Extremities, Back, and Neuro.**
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- Green, Yellow, and Red In burn severity do not apply to Triage systems.
- Refer to Rule of Nines: Determine the purity of the AHF is possible.
- If Eye exposure exist consider Skin, Inhalation, and Ingestion and treat as needed.

Toxic Exposure AHF Inhalation

History

- Known or suspected inhalation of HF vapor.
- Concentration of AHF
- Time of exposure

Signs and Symptoms

- Coughing
- Shortness of breath
- Mucosal bleeding
- Pulmonary edema
- Labored breathing
- Bronchial spasm
- Upper airway edema
- Cardiac arrhythmia
- Erythema (reddening), swelling of the mouth, nose, and throat

Scene Safety / Quantify and Triage Patients / Begin Decontamination

Rubber / Acid Resistant gloves MUST be worn when touching patient

Triage Protocol UP2 as indicated

No decontamination possible. Exposure to HF vapors, consider skin and eye exposure. Refer to appropriate protocol.

Age Appropriate Airway Protocol(s) 1, 2, 3, 4, 5, 6

A IV or IO Procedure UP 6 if indicated

P Cardiac Monitor if indicated

Exposure Level

Minimal or no systemic effects expected

B
- Administer oxygen by nonrebreather mask at 15 liters per minute.

P
- **Calcium Gluconate Nebulizer 2.5%** in normal saline for 15 to 20 minutes minimum.

Respiratory, skin, eyes, and systemic effects

B
- Administer oxygen by nonrebreather mask @ 15 liters per minute.
- **Albuterol Nebulizer 2.5 - 5 mg** (do not pause calcium gluconate to give)

A
- Consider CPAP.
  Methylprednisolone 125 mg IV / IO

P
- **Calcium Gluconate Nebulizer 2.5%** in normal saline continuously until medically evaluated.

P Should QT interval increase by 50% of become >.50 consider Calcium Gluconate IV.

Rapid Transport to appropriate destination using Trauma and Burn: EMS Triage and Destination Plan

Notify Destination

Toxin-Environmental Protocol Section

Toxic Exposure AHF Inhalation

- Administer oxygen by nonrebreather mask @ 15 liters per minute.
- **Calcium Gluconate Nebulizer 2.5%** in normal saline continuously until medically evaluated.
- **Albuterol Nebulizer 2.5 - 5 mg** (do not pause calcium gluconate to give)

Consider CPAP.

- **Methylprednisolone 125 mg IV / IO**

Pearls

- **Recommended Exam: Mental Status, HEENT, Neck, Heart, Lungs, Abdomen, Extremities, Back, and Neuro.**
- **RESPONDERS MUST WEAR RUBBER (NEOPRENE OR POLYVINYL CHLORIDE (PVC)) GLOVES WHEN TREATING AHF BURNS.**
- Green, Yellow, and Red In burn severity do not apply to Triage systems.
- Refer to Rule of Nines: Determine the purity of the AHF is possible.
- If Inhalation injury has occurred consider Skin, Eye, and Ingestion and treat as needed.

Toxic Exposure AHF Ingestion

History

- Known or suspected HF ingestion.
- Concentration of AHF
- Time of exposure

Signs and Symptom

- Reddening or bleeding of the mouth
- Difficulty swallowing
- Bronchial or pulmonary injury if aspiration if vomiting occurs.
- Systemic toxicity should be expected.
- Cardiac arrhythmia. • Death.

Scene Safety / Quantify and Triage Patients / Begin Decontamination

Triage Protocol UP2 as indicated	
Surrounding areas. Flush 5 minutes with copious amounts of water. Remove all clothing.	
Age Appropriate Airway Protocol(s) 1, 2, 3, 4, 5, 6	
A	IV or IO Procedure UP 6 if indicated
P	Cardiac Monitor if indicated

DO NOT INDUCE VOMITING!
If patient is able to swallow, give oral calcium solutions or calcium based antacids, milk or water.

P

Consider Gastric Tube Insertion Procedure

Gastric lavage with calcium solutions or antacids.

Monitor cardiac rhythm closely.

P Should QT interval increase by 50% of become >.50 consider Calcium Gluconate IV.

Rapid Transport to appropriate destination using
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Toxin-Environmental Protocol Section

Toxic Exposure AHF Ingestion

- **Pearls**
- **Recommended Exam: Mental Status, HEENT, Neck, Heart, Lungs, Abdomen, Extremities, Back, and Neuro.**
- **RESPONDERS MUST WEAR RUBBER (NEOPRENE OR POLYVINYL CHLORIDE (PVC)) GLOVES WHEN TREATING AHF BURNS.**
- Green, Yellow, and Red In burn severity do not apply to Triage systems.
- Refer to Rule of Nines: Determine the purity of the AHF is possible.
- If Ingestion exist consider Skin, Inhalation, and Eye exposure and treat as needed.