Fundamentals of First Aid – Chemical Burns and Liquid Gas Burns

Safety Talk

What's at Stake?

Chemicals can cause burns to eyes, skin, and internally if swallowed or inhaled. Chemical burns can be deceiving with some chemicals causing damage deep within body tissue. The amount of damage a chemical can cause depends on many factors including the chemical, its strength, whether it was inhaled or swallowed and the time it was in contact with body tissues.

A liquid gas burn is a cold contact or a cryogenic burn, that damages the skin and underlying tissues, by freezing them rather than overheating them. This is commonly known as frostbite.

Most liquid gases are colorless and/or odorless and stored in a pressurized environment. This increases the chances of leaking gas getting into your eyes, mouth and throat as well as on the skin. There is also a high chance of damage to underlying structures such as nerve, muscle and bone.

What's the Danger?

The biggest danger of treating a chemical or liquid gas burn is using the wrong first aid approach. Prompt action to reduce the effect of the burn is also crucial. However, what this action is, depends on the chemical or gas and the route of exposure. In many cases, the person will be experiencing both internal and external damage. For this reason, most exposures to chemical or liquid gas do need medical help. First aid responders also run the risk of being exposed to the chemical or gas at the scene. It can be particularly dangerous because these hazards may not be obvious,

visible, or detectable by smell.

How to Protect Yourself

First aid for chemical burns and liquid gas

1. Keep yourself safe

    - Call 911.
    - Put on gloves to avoid touching the chemical or gas.
    - Check the container the chemical or gas was in for first aid advice.

2. General burn care

    - **FOR ALL CHEMICAL OR LIQUID GAS BURNS – CALL 911 UNLESS:**
        - The chemical or liquid gas has touched only a small area of skin that is not the eyes, hands, feet, face, or genitals.
        - The chemical or gas has been quickly removed.
    - If the person does not need medical help after providing first aid:
        - Don’t break the blisters and cover the area with a sterile dressing.
        - Don’t apply butters or ointments – these may cause infections.
        - A tetanus shot may be needed; booster shots are recommended every 10 years.

3. Signs and symptoms of chemical burns include the following:

    - Redness, irritation, or burning where the chemical is in contact.
    - Pain or numbness at the site.
    - Blisters or black dead skin at the contact site.
    - Vision changes.
    - Cough or shortness of breath.
    - Vomiting

In severe cases, or cases of hypersensitivity to the chemical, a person may develop any of the following symptoms:

- Low blood pressure
- Faintness, weakness, dizziness
- Shortness of breath or severe cough
- Headache
- Muscle twitching or seizures
- Cardiac arrest or irregular heartbeat

4. Treating a chemical burn

    - Check the chemical container for first aid instructions.
    - Brush off excess chemical if it reacts with water e.g.
        - Dry lime
        - Phenols
        - Elemental metals, e.g.
            - Sodium
            - Potassium
            - Calcium oxide
            - Magnesium
            - Phosphorous
        - Move the person away from chemicals if safe to do so.
        - Remove any contaminated clothing.
        - Flood area with cool (not cold) water for at least 20 minutes.
        - Do not let the water flow onto another part of the person's body or onto you.
        - Don't use a strong stream of water.
        - Remove any jewelry **while** you are rinsing the area – not before as this could spread the chemical.
        - Do not give the person liquid to drink, unless you are told to do so by the 911 operative.

5. Treating a liquid gas burn/cryogenic burn

    - Remove the person from the area if it is safe to do so.
    - Remove clothing from affected area.
    - **DO NO**T rinse the area with cool or cold water.
    - Immerse the area in a bowl or tub of warm water.
    - Keep the person warm with a blanket or similar.
    - If eyes are affected, rinse under a warm running tap, with the eyelid open for at least 15 minutes.

- Do not give the person liquid to drink, unless you are told to do so by the 911 operative.

Final Word

Chemical and liquid gas burns may make only a small mark on the skin; however, they are very serious. The type of first aid given will depend on the type of chemical or gas involved and the extent of the injury.