CONDITION

Cold wave lotion poisoning

Learn how permanent-wave hair chemicals can cause poisoning, what symptoms to watch for, how exposure is treated, and when to seek emergency help.

WHAT IT IS
Chemical poisoning from permanent-wave hair products

BODY SYSTEM
Digestive system, lungs, skin, eyes and kidneys

MAIN SYMPTOMS
Mouth or throat burning, vomiting, breathing difficulty, eye or skin irritation

WHAT CAUSES IT
Exposure to permanent-wave chemicals

HOW IT IS DIAGNOSED
Product identification and clinical assessment

MAIN TREATMENT
Decontamination and supportive care

CAN IT BE CURED?
Sometimes - minor splashes improve after rinsing

IS IT AN EMERGENCY?
Sometimes - trouble breathing, collapse or seizure

LONG-TERM OUTLOOK
Minor splashes often improve, but significant exposure can cause lasting damage

Overview

Cold wave lotion is a chemical product used to create permanent waves or curls in hair without external heat. The term may refer to the waving solution, the neutralizing solution, or a complete permanent-wave kit.

Formulas vary. Waving solutions often contain thioglycolate chemicals, such as ammonium thioglycolate, along with alkaline ingredients that help change the structure of hair. Neutralizers may contain hydrogen peroxide or a bromate chemical. Fragrances, preservatives, and other ingredients may also be present.

Cold wave lotion poisoning occurs when one of these products is swallowed, inhaled in a concentrated form, or left on the skin or in the eyes long enough to cause harm. The chemicals can irritate or burn body tissues. Some ingredients may also affect the lungs, kidneys, nervous

system, or hearing after a significant exposure.

Brief contact does not always cause serious poisoning. Risk depends on the exact product, concentration, amount, route of exposure, and how quickly it is removed. Because formulations differ, the product label or container is important when seeking help.

If someone swallows cold wave lotion, contact a poison center promptly even if symptoms have not started. In the United States, call Poison Help at 1-800-222-1222. Call emergency services for trouble breathing, collapse, seizure, severe confusion, or difficulty waking the person.

Symptoms

Symptoms can begin soon after exposure, but some complications may take hours or longer to appear. A person may have different symptoms depending on whether the product was swallowed, inhaled, or splashed onto the body.

Possible symptoms include:

Vomiting may expose the throat and mouth to the chemical a second time. It can also allow liquid to enter the lungs, a problem called aspiration. This is why vomiting should not be induced unless a poison specialist specifically directs it.

Severe poisoning may cause airway swelling, low blood pressure, abnormal heart rhythm, kidney injury, seizure, or loss of consciousness. These effects are uncommon after minor contact but require emergency treatment when present.

Seek emergency help now for severe breathing difficulty, blue or gray lips, collapse, seizure, inability to swallow, repeated vomiting, severe chest or abdominal pain, or rapidly worsening drowsiness. Ongoing eye pain or vision changes after rinsing also need urgent medical assessment.

- Burning or pain in the mouth, throat, chest, or abdomen
- Drooling, gagging, or trouble swallowing
- Nausea, vomiting, or diarrhea
- Coughing, choking, wheezing, or shortness of breath
- Red, painful, or watery eyes
- Blurred vision or sensitivity to light
- Skin redness, burning, blistering, or swelling

- Headache, dizziness, weakness, or unusual sleepiness
- Reduced urination or dark urine after a serious exposure
- Ringing in the ears or hearing loss, particularly with some bromate-containing products

Causes and risk factors

The most serious exposures usually happen when the product is swallowed. This may occur if a child gains access to an open container, if the chemical is transferred into a drink bottle, or if someone mistakes one product for another. Intentional ingestion is also a medical emergency and should be met with both medical and emotional support.

Eye exposure can occur when a bottle is squeezed, spilled, or opened near the face. Chemicals trapped under contact lenses may remain against the eye and increase injury.

Skin injury is more likely when concentrated lotion is left in place, used incorrectly, or applied to damaged skin. Gloves can leak or tear. Rings, watches, clothing, and hair coverings may hold the liquid against the body.

Breathing problems may result from vapors, sprays, or fumes in a poorly ventilated area. Mixing a permanent-wave product with another cleaner or chemical can create additional hazards and should be avoided.

Factors that may increase the chance or severity of harm include:

People who work regularly with permanent-wave products may also develop repeated skin irritation or an allergic skin reaction. That is different from a single acute poisoning, although both require attention to chemical handling and protective equipment.

- Using a product without following its label
- Keeping chemicals in unlabeled or food-and-drink containers
- Working in a small space with limited ventilation
- Having open cuts, eczema, or another damaged skin barrier
- Delaying rinsing after an eye or skin splash
- Swallowing a concentrated or unknown amount
- Exposure to more than one salon or household chemical

Diagnosis

There is no single test that confirms every case of cold wave lotion poisoning. Diagnosis begins with identifying the product and understanding how the exposure happened.

A clinician or poison specialist may ask for the product name, ingredient list, concentration, amount involved, time of exposure, and symptoms. They may also ask whether the product was a waving solution or neutralizer. Keep the container or take a clear photograph of its label, but do not delay urgent care to find it.

The medical examination focuses on the mouth, throat, breathing, circulation, skin, eyes, and level of alertness. Oxygen level, heart rate, blood pressure, and temperature may be monitored.

Testing depends on the exposure. Blood and urine tests may be used to assess kidney function, body salts, and acid-base balance. An electrocardiogram, or ECG, records the heart's electrical activity. A chest X-ray may be needed if the person has coughing, breathing difficulty, or possible aspiration.

After a concerning ingestion, clinicians may consider endoscopy. This procedure uses a flexible camera to look for burns in the esophagus and stomach. It is not needed after every exposure, and its timing depends on symptoms and specialist assessment.

Eye exposure may require repeated checks of the eye's acidity and a detailed examination for damage to the cornea, the clear front surface of the eye.

Treatment and management

Immediate first aid can limit injury. Contact a poison center for instructions tailored to the exact product and route of exposure.

For an eye splash, remove contact lenses if they come out easily and rinse the eye with plenty of room-temperature running water. Continue rinsing for 15 to 20 minutes while arranging poison-center or medical advice. Do not put drops, creams, or neutralizing chemicals in the eye unless a clinician directs you to do so.

For skin exposure, remove contaminated clothing and jewelry. Rinse the affected skin with running water for at least 15 minutes. Do not scrub hard or apply another chemical in an attempt to neutralize the product.

After inhalation, move to fresh air if this can be done safely. Do not enter an enclosed contaminated area without appropriate protection. Coughing, wheezing, chest tightness, or shortness of breath needs prompt medical advice.

If the product was swallowed, rinse the mouth gently. Do not induce vomiting. Do not give

baking soda, vinegar, lemon juice, activated charcoal, or another home remedy. Do not force food or fluids. A poison specialist can advise whether small sips are appropriate based on the product and the person's condition.

Hospital treatment is based on the symptoms and ingredients involved. It may include continued eye or skin irrigation, oxygen, medicines to support breathing, intravenous fluids, pain control, and close monitoring. A breathing tube may be needed if there is major airway swelling or respiratory failure.

There is no single antidote for all cold wave lotion products. Clinicians treat chemical burns and support the affected organs. If a bromate-containing product causes serious kidney injury, kidney specialists may become involved, and dialysis may be considered in selected cases. Eye specialists, burn specialists, gastroenterologists, or medical toxicologists may also help guide care.

Complications

Many minor splashes improve after prompt rinsing. More significant exposures can cause lasting problems, especially when treatment is delayed or a concentrated product is swallowed.

Chemical burns in the mouth, esophagus, or stomach may lead to bleeding or, rarely, a hole in the digestive tract. Healing can produce scar tissue that narrows the esophagus. This narrowing, called a stricture, may later cause food to stick or make swallowing difficult.

Liquid entering the lungs can cause chemical inflammation or pneumonia. Airway swelling may worsen during the first hours after exposure, even if the person initially seems stable.

Severe eye exposure can injure the cornea and affect vision. Deep skin burns may heal with discoloration or scarring. Repeated occupational contact can contribute to chronic dermatitis, meaning persistent inflamed or cracked skin.

Certain bromate neutralizers have been associated with kidney failure and permanent hearing loss after substantial ingestion. The ingredients of modern products vary, so these complications do not apply to every cold wave lotion.

Follow up

Follow the poison center's or treating clinician's instructions about observation and follow-up. A person managed at home should not be left alone if new symptoms could interfere with their ability to seek help.

Seek urgent reassessment if pain is increasing, vomiting continues, breathing becomes difficult, urine output falls, hearing changes, or eye symptoms do not settle after rinsing. New trouble swallowing, painful swallowing, coughing during meals, or a feeling that food is sticking should also be assessed promptly.

After hospital treatment, follow-up may include checks of kidney function, hearing, vision, breathing, or swallowing. The type and timing depend on the ingredient and the injuries found during the initial assessment.

Routine follow-up is appropriate for a mild skin rash, lingering irritation, or concerns about safe product use when symptoms are stable and improving. People with repeated workplace exposure can discuss ventilation, gloves, eye protection, and safer handling practices with an occupational health professional.

Store permanent-wave products in their original containers, tightly closed and away from children. Keep them separate from food, drinks, medicines, and household cleaners. Discard products according to the label and local waste rules.

Sources

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