CONDITION

Bacitracin overdose

Learn how bacitracin overdose or excessive exposure can happen, which symptoms need urgent care, and how clinicians evaluate and manage it.

WHAT IT IS
Poisoning from unsafe bacitracin exposure

BODY SYSTEM
Digestive system and kidneys

MAIN SYMPTOMS
Nausea, vomiting, diarrhea, reduced urination

WHAT CAUSES IT
Excessive bacitracin exposure

HOW IT IS DIAGNOSED
Exposure assessment, blood and urine tests

MAIN TREATMENT
Supportive care and kidney monitoring

CAN IT BE CURED?
Sometimes - recovery depends on injury severity

IS IT AN EMERGENCY?
Sometimes - trouble breathing or collapse

LONG-TERM OUTLOOK
Most small topical exposures cause no lasting problems

Overview

Bacitracin is an antibiotic like amoxicillin or doxycycline that kills certain bacteria. In the United States, it is most familiar as an ingredient in nonprescription skin ointments used on minor cuts and scrapes. It may be sold alone or combined with antibiotics such as neomycin or polymyxin B.

A bacitracin overdose means that someone swallowed bacitracin, received too much through another route, or used it in a way that could allow an unsafe amount into the body. A small accidental taste of a topical ointment is different from swallowing a large amount, applying it repeatedly to severely damaged skin, or receiving an injectable form.

Bacitracin is absorbed poorly through healthy skin and the digestive tract. For this reason, many small accidental exposures to topical ointment cause no serious harm. They may cause

mild nausea, vomiting, diarrhea, or irritation. However, the amount, product ingredients, route of exposure, and person's health all affect the risk.

Bacitracin was also once available as an injection for certain serious infections. Injected bacitracin can damage the kidneys and cause severe allergic reactions. In 2020, the US Food and Drug Administration requested that manufacturers withdraw bacitracin for injection from the US market because its risks outweighed its benefits. This action did not apply to topical bacitracin products.

If an overdose may have happened, contact a poison center rather than waiting for symptoms. In the United States, Poison Help is available at 1-800-222-1222. Call emergency services immediately for breathing difficulty, collapse, a seizure, or inability to wake the person.

Symptoms

Symptoms depend on how much bacitracin entered the body and whether the product contained other medicines. A person may remain well after a small exposure.

Swallowing topical bacitracin may irritate the digestive system. Possible symptoms include nausea, vomiting, stomach pain, or diarrhea. Because ointments often contain petroleum jelly, they can also cause loose or greasy stools. Repeated vomiting may lead to dehydration, especially in a young child or older adult.

Bacitracin can cause allergic contact dermatitis, which is an itchy, red, swollen, or blistering skin reaction where the medicine was applied. This is an allergy rather than an overdose, and it can happen even when the product is used as directed. Continued use may make the rash worse or prevent the original wound from appearing to heal.

A severe allergic reaction is uncommon but requires emergency care. Warning signs include widespread hives, swelling of the lips or tongue, throat tightness, wheezing, trouble breathing, faintness, or collapse.

Significant bacitracin absorption, particularly after an injection, can injure the kidneys. Possible signs include producing much less urine, swelling in the legs or around the eyes, unusual tiredness, nausea, confusion, or shortness of breath. Kidney injury may initially cause no obvious symptoms and may only be found through blood and urine tests.

Eye exposure can cause burning, redness, watering, and blurred vision. Skin exposure may cause irritation, particularly if the skin is already inflamed or extensively damaged.

Seek emergency help now for:

Contact a poison center promptly for any significant, unknown, or intentional ingestion;

exposure to an injectable product; repeated use over a large area of damaged skin; or symptoms such as persistent vomiting or reduced urination.

- Trouble breathing, facial or throat swelling, fainting, or widespread hives
- A seizure, collapse, severe confusion, or inability to wake the person
- Severe or rapidly worsening symptoms
- An intentional overdose when the person may be in immediate danger

Causes and risk factors

Accidental swallowing is a common way topical bacitracin exposure occurs. A child may open a tube, or an adult may confuse the ointment with another product. The amount remaining in the package can help a poison specialist estimate the possible dose.

Medication errors may involve using the wrong product, using it by the wrong route, or applying much more than the label recommends. Bacitracin should not be placed in the eyes or swallowed unless a specific product was designed and prescribed for that route.

Using topical bacitracin on a large burn, deep wound, or extensively damaged skin may increase absorption. Covering a large treated area with an airtight dressing may also change how the medicine is absorbed. These situations should be managed with clinical guidance rather than by increasing nonprescription ointment use.

Kidney disease can make the effects of absorbed bacitracin more concerning. The kidney risk is much greater with injected bacitracin than with ordinary topical use. Other medicines that can affect the kidneys may add to that risk, although the importance depends on the type and amount of exposure.

Some products contain additional antibiotics or other active ingredients. Symptoms may therefore come from bacitracin, another ingredient, or both. Bringing the exact package or a clear photograph of its label helps clinicians and poison specialists assess the exposure.

An allergic reaction may be mistaken for an infection or overdose. Previous exposure to bacitracin may increase the chance of becoming sensitive to it, but an allergy can appear without a known earlier reaction.

Diagnosis

Assessment usually begins with details about the exposure. A poison specialist or clinician may ask for the person's age and approximate weight, the exact product name, its ingredients and

strength, the amount involved, the time of exposure, and any symptoms. They may also ask whether the exposure was swallowed, injected, placed in the eye, or applied to damaged skin.

Do not delay calling if some details are unknown. Keep the container nearby, but do not rely only on estimating how much is missing.

A small accidental taste of topical ointment may be evaluated by telephone and observed at home under poison-center guidance. A larger, intentional, injectable, or symptomatic exposure may require an emergency department assessment.

In a medical setting, clinicians check breathing, heart rate, blood pressure, temperature, alertness, hydration, and urine output. They examine the skin, mouth, eyes, and lungs as appropriate.

Blood tests may be used to evaluate kidney function and levels of salts such as potassium. A urine test can look for signs of kidney injury. Other tests, including an electrocardiogram, may be ordered based on the symptoms or other ingredients in the product. Measuring a blood bacitracin level is not a routine part of most evaluations.

When a rash is the main concern, the clinician considers contact allergy, irritation, and infection. Formal patch testing by an allergy or dermatology specialist may sometimes help confirm allergic contact dermatitis, but it is not usually part of immediate overdose care.

Treatment and management

There is no specific antidote that reverses bacitracin toxicity. Management focuses on limiting further exposure, treating symptoms, and monitoring kidney function when needed.

After a swallowed exposure, do not make the person vomit. Do not give charcoal, salt water, or another home remedy unless a poison specialist or clinician specifically directs it. Vomiting can lead to choking or allow oily ointment to enter the lungs.

For skin exposure, remove excess ointment and wash the area gently with soap and water. If bacitracin gets into an eye, remove contact lenses when easy to do and rinse the eye with clean, room-temperature water for 15 to 20 minutes. A poison center can advise whether further evaluation is needed.

Hospital treatment depends on the route and severity of exposure. It may include observation, treatment for nausea, intravenous fluids, and repeated checks of kidney function and urine output. Activated charcoal is not routinely needed for a small topical-product ingestion. Clinicians may consider it only in selected circumstances after evaluating the timing, amount, ingredients, and risk of choking.

If kidney injury develops, clinicians adjust fluids and avoid additional substances that could strain the kidneys when possible. Severe kidney failure may require treatment such as dialysis to support the body's fluid and chemical balance. This decision is based on the kidney complications, not on a home attempt to remove bacitracin.

A serious allergic reaction is treated as a medical emergency. Treatment may include epinephrine and support for breathing and blood pressure. A local allergic rash usually improves after bacitracin is stopped, although a clinician may recommend treatment for the inflammation.

If the exposure was intentional, care also includes a respectful mental health and safety assessment. Emergency services or a crisis service can help if there is an immediate risk of self-harm.

Complications

Most small accidental exposures to topical bacitracin do not cause lasting problems. The outlook depends on the product, route, amount, symptoms, and how quickly appropriate advice is obtained.

Possible complications include dehydration after repeated vomiting or diarrhea. Oily ointment entering the lungs during choking or forceful vomiting may cause coughing and breathing problems.

Kidney injury is the main serious toxic effect associated with systemic bacitracin, especially the historical injectable form. Severe kidney injury can disturb fluid levels, blood pressure, and the balance of minerals needed for normal heart and muscle function. Recovery depends on the extent of injury and the person's underlying health.

Allergic contact dermatitis can become extensive or be confused with a worsening wound infection. A severe immediate allergic reaction can affect breathing and circulation. These allergic effects are not related reliably to the amount used.

Eye irritation usually improves after prompt rinsing, but ongoing pain, vision changes, marked redness, or light sensitivity needs medical evaluation.

Follow up

Follow the monitoring instructions provided by the poison center or treating clinician. After a minor exposure, this may mean watching for vomiting, diarrhea, rash, unusual sleepiness, breathing problems, or changes in urination for a specified period.

Routine follow-up may be appropriate if a local rash continues after the product is stopped, the wound is not healing, or there are questions about a safer alternative. Do not restart bacitracin after a suspected allergy unless a clinician confirms that it is appropriate. Tell healthcare professionals about the reaction so it can be recorded accurately.

People treated for a significant exposure may need repeat blood or urine tests to confirm that kidney function is stable or improving. Keep these appointments even if symptoms have eased, because early kidney injury does not always cause noticeable symptoms.

Seek urgent reassessment for persistent vomiting, inability to keep fluids down, much less urine than usual, increasing swelling, worsening weakness, or new confusion. Call emergency services for breathing difficulty, facial or throat swelling, fainting, a seizure, or inability to wake the person.

Store ointments and other medicines in their original containers, secured away from children. Read the active-ingredient label because products marketed as "antibiotic ointment" may contain several medicines.

Sources

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