CONDITION

Brompheniramine overdose

Learn how brompheniramine overdose can affect the brain, heart, breathing, and body temperature, and when to contact Poison Control or seek emergency care.

WHAT IT IS
Antihistamine poisoning from excess brompheniramine

BODY SYSTEM
Nervous system, heart and circulation, breathing, temperature control

MAIN SYMPTOMS
Sleepiness, confusion, fast heartbeat, seizures

WHAT CAUSES IT
Accidental or intentional excess brompheniramine

HOW IT IS DIAGNOSED
Exposure history, examination, vital signs, ECG

MAIN TREATMENT
Supportive hospital care

CAN IT BE CURED?
Yes, many recover with prompt care

IS IT AN EMERGENCY?
Sometimes, with seizures or severe breathing trouble

LONG-TERM OUTLOOK
Many recover fully, but severe poisoning can cause organ damage

Overview

Brompheniramine is an antihistamine like cetirizine or loratadine used to relieve allergy and cold symptoms such as sneezing, a runny nose, and itchy or watery eyes. It is available in some prescription and over-the-counter products, often combined with other medicines.

An overdose happens when someone takes more brompheniramine than the body can safely process. This may occur from a single large amount, repeated doses taken too close together, or accidental use of multiple products containing the same ingredient. The safe amount depends on factors such as the exact product, the person's age and size, and what else was taken.

Brompheniramine is a first-generation antihistamine. These medicines can enter the brain and cause sleepiness. In larger amounts, they can block acetylcholine, a chemical that helps control

attention, sweating, urination, digestion, heart rate, and other functions. This is called an anticholinergic effect .

A serious overdose can cause severe confusion, seizures, dangerous changes in heart rhythm, overheating, coma, or breathing problems. Symptoms may also come from other ingredients in a combination cold medicine. For example, some products contain dextromethorphan, pseudoephedrine, or acetaminophen, each of which has different overdose risks.

If someone may have taken too much brompheniramine, do not wait for symptoms. In the United States, call Poison Control at 1-800-222-1222 for immediate, case-specific guidance. The service is free and available 24 hours a day. People outside the United States should contact their local poison center or emergency medical service.

Symptoms

Symptoms depend on the amount taken, the time since exposure, the person's health, and whether other substances were involved. A person may initially seem unusually sleepy or, instead, restless and agitated. Symptoms can change as the medicine is absorbed.

Possible effects include:

Severe poisoning can interfere with electrical signaling in the heart and brain. This may lead to an abnormal heart rhythm, very low blood pressure, seizures, loss of consciousness, or coma. A person may also become dangerously hot because anticholinergic medicines reduce sweating while agitation increases heat production.

Children do not always respond in the same way as adults. Instead of becoming sleepy, a child may become unusually active, distressed, confused, or unsteady. Any suspected overdose in a child should be discussed with Poison Control promptly, even if the child appears well.

Call emergency services immediately if the person:

Do not drive a severely affected person to the hospital if doing so would delay emergency care or make it difficult to monitor breathing and consciousness.

- Marked sleepiness or difficulty staying awake
- Agitation, irritability, or unusual behavior
- Confusion or disorientation
- Hallucinations, meaning seeing or hearing things that are not present
- Dry mouth and intense thirst
- Enlarged pupils and blurred vision

- Warm, flushed, or dry skin
- Fast heartbeat
- Trouble urinating
- Reduced bowel movement
- Poor coordination, tremor, or muscle twitching
- Nausea or vomiting
- Has a seizure
- Collapses or loses consciousness
- Cannot be awakened
- Has severe trouble breathing
- Develops extreme agitation that cannot be managed safely
- Has a very fast or irregular heartbeat with fainting, chest discomfort, or severe weakness

Causes and risk factors

An overdose may be accidental or intentional. Accidental exposures often occur when several cold, allergy, or sleep products are used together. Brand names can differ even when products contain similar active ingredients, so reading only the front label may not reveal duplication.

Liquid medicines may be measured incorrectly if a household spoon is used instead of the supplied measuring device. A caregiver may also give a second dose without realizing that someone else already gave the medicine. Young children can be exposed when medicines are left within reach.

Other situations that can increase risk include:

Older adults may be especially sensitive to anticholinergic effects such as confusion, blurred vision, constipation, and difficulty urinating. People with heart rhythm problems or other significant medical conditions may also require closer assessment after an overdose. However, serious toxicity can occur in someone without known health problems.

The amount that causes severe poisoning is not the same for everyone. Online dose calculations cannot reliably determine whether it is safe to remain at home. A poison specialist can assess the exact product, amount, timing, age, body size, symptoms, and other exposures.

- Taking doses closer together than directed

- Confusing adult and children's formulations
- Using more than one antihistamine at the same time
- Taking a cough or cold product without checking all active ingredients
- Combining brompheniramine with alcohol, sedatives, sleep medicines, opioids like oxycodone or morphine , or other substances that reduce alertness
- Taking a combination product that contains additional medicines
- Using the medicine during a period of severe illness, dehydration, or overheating
- Intentional self-harm

Diagnosis

Brompheniramine overdose is diagnosed from the history, symptoms, physical examination, and testing when needed. Clinicians will try to identify the exact product because combination medicines can change both the symptoms and treatment.

Helpful information includes the product container, ingredient list, concentration, approximate amount missing, time of exposure, and whether alcohol or other medicines were taken. Bring the container or a clear photograph of its label to the emergency department if possible. Do not delay calling for help while trying to collect every detail.

A medical evaluation may include repeated checks of temperature, blood pressure, breathing, alertness, and heart rate. An electrocardiogram, or ECG, records the heart's electrical activity and can identify rhythm or conduction problems caused by severe antihistamine poisoning.

Blood tests are selected according to the circumstances. Clinicians may check blood sugar, electrolytes, kidney function, acid-base balance, or evidence of muscle injury. If the product may contain acetaminophen, a blood acetaminophen level may be needed because early acetaminophen poisoning can cause few or no symptoms. Pregnancy testing or testing for other substances may be appropriate in some situations.

There is no routine blood test that simply confirms the severity of brompheniramine poisoning. Treatment decisions are usually based on symptoms, vital signs, ECG findings, the product involved, and the course over time.

Treatment and management

Treatment begins with contacting Poison Control or obtaining emergency medical care. Do not

make the person vomit. Vomiting can lead to choking, particularly if the person becomes drowsy or has a seizure.

Do not give activated charcoal, food, drinks, or home remedies unless a poison specialist or clinician specifically recommends them. Activated charcoal can bind some medicine in the digestive tract, but it is only appropriate in selected situations. It can enter the lungs if given to someone who is sleepy, vomiting, agitated, or unable to protect their airway.

In a hospital, treatment is mainly supportive. This means maintaining breathing and circulation while the body clears the medicine. Care may include:

Benzodiazepines like diazepam or lorazepam , a group of sedating medicines used in monitored medical settings, are commonly used for seizures and severe agitation caused by poisoning. If an ECG shows certain dangerous conduction changes, clinicians may give intravenous sodium bicarbonate to reduce the risk of serious heart rhythm complications.

Physostigmine is a medicine that can sometimes reverse severe anticholinergic delirium. It is not a routine home or first-line treatment. It may be unsafe in some mixed overdoses or when the ECG is abnormal, so its use requires careful evaluation and monitoring by clinicians experienced in toxicology.

The required observation period varies. Someone without symptoms after a small accidental exposure may receive different advice from someone with confusion, abnormal vital signs, an intentional ingestion, or exposure to a combination product. Poison Control and the treating medical team determine when monitoring can safely end.

If the overdose was intentional or occurred during a mental health crisis, treatment should also include a compassionate safety assessment. This is part of medical care, not a punishment.

- Continuous monitoring of heart rhythm, oxygen level, temperature, and alertness
- Oxygen or breathing support when needed
- Intravenous fluids for low blood pressure or dehydration
- External cooling for significant overheating
- Medicines to control seizures or severe agitation
- Treatment directed at abnormal heart electrical conduction
- Management of effects caused by other ingredients

Complications

Many people recover fully with prompt assessment and supportive care. The risk of

complications rises with severe symptoms, delayed treatment, or exposure to multiple medicines.

Possible complications include aspiration, which occurs when vomit or other material enters the lungs; injuries from falls or seizures; muscle breakdown after prolonged agitation; kidney injury; and organ damage related to very high body temperature. Severe heart rhythm disturbances may reduce blood flow to the brain and other organs.

Prolonged confusion can also lead to unsafe behavior or accidental injury. Complications from another ingredient may appear on a different timeline. Acetaminophen-related liver injury, for example, may not cause clear early symptoms, which is why identifying all ingredients is important.

Follow up

Follow-up depends on the severity and cause of the exposure. After emergency treatment, follow the discharge instructions about activity, hydration, medicines, and returning to work, school, or driving. Do not restart brompheniramine or another sedating antihistamine until the treating clinician says it is appropriate.

Arrange routine follow-up if symptoms such as mild tiredness, dry mouth, or concentration problems persist after discharge. A clinician or pharmacist can also review the person's medication list and help identify products with overlapping ingredients.

Seek urgent reassessment for worsening confusion, repeated vomiting, inability to urinate, persistent rapid heartbeat, increasing weakness, or a fever with hot, dry skin. Call emergency services for a seizure, fainting, severe breathing difficulty, inability to awaken, or sudden severe agitation.

After an accidental exposure, prevention may include storing medicines in locked or elevated locations, keeping them in their original containers, and using the supplied measuring device for liquids. Check the "active ingredients" panel before combining cold, allergy, or sleep products.

If the exposure was intentional, follow-up should include mental health care and a practical safety plan. If there is an immediate risk of further self-harm, contact emergency services or a local crisis service rather than waiting for a routine appointment.

Sources

- U.S. National Library of Medicine. Brompheniramine overdose . MedlinePlus Medical Encyclopedia . National Institutes of Health.
- Borowy CS, Mukherji P. Antihistamine Toxicity . StatPearls . StatPearls Publishing; updated 2023.
- Royal Children's Hospital Melbourne. Clinical Practice Guidelines: Antihistamine poisoning . Department of Paediatrics, University of Melbourne.
- U.S. National Library of Medicine. Bromfed DM-brompheniramine maleate, pseudoephedrine hydrochloride, and dextromethorphan hydrobromide syrup: Prescribing information . DailyMed .
- Chyka PA, Seger D, Krenzelok EP, Vale JA. Position paper: Single-dose activated charcoal . Clinical Toxicology . 2005;43(2):61-87.
- Lavonas EJ, Akpunonu PD, Arens AM, et al. 2023 American Heart Association focused update on the management of patients with cardiac arrest or life-threatening toxicity due to poisoning . Circulation . 2023;148(16):e149-e184.