CONDITION

Barbiturate intoxication and overdose

Learn how barbiturate intoxication and overdose affect breathing and consciousness, how they are treated, and when to seek emergency help.

WHAT IT IS
Harmful barbiturate intoxication or overdose

BODY SYSTEM
Nervous system

MAIN SYMPTOMS
Extreme sleepiness, slurred speech, poor coordination, slowed breathing

WHAT CAUSES IT
Excess barbiturate use, often with sedatives

HOW IT IS DIAGNOSED
Clinical assessment and blood barbiturate tests

MAIN TREATMENT
Emergency supportive care

CAN IT BE CURED?
Sometimes, supportive care while drug clears

IS IT AN EMERGENCY?
Yes, any suspected barbiturate overdose

LONG-TERM OUTLOOK
Variable, from recovery to brain injury or death

Overview

Barbiturates are medicines that slow activity in the brain and nervous system. Examples include phenobarbital, pentobarbital, secobarbital, and butalbital. Phenobarbital is still used for certain seizure disorders. Butalbital is included in some prescription headache medicines. Other barbiturates may be used for anesthesia or specific hospital procedures.

Barbiturate intoxication means the drug is causing harmful effects, such as poor coordination, extreme sleepiness, or slowed breathing. An overdose occurs when a person takes more than their body can safely handle. This may happen accidentally, through medication misuse, or during an act of self-harm.

Barbiturates can suppress the brain areas that control breathing, blood pressure, and alertness. The difference between a dose that causes sedation and one that causes severe

poisoning can be small, especially when a barbiturate is combined with alcohol, opioids like oxycodone or morphine , benzodiazepines like diazepam or lorazepam , sleep medicines, or other sedatives.

There is no widely available antidote that directly reverses barbiturates. Treatment focuses on supporting breathing and circulation while the body clears the drug. Some long-acting barbiturates remain in the body for an extended time, so monitoring and treatment may need to continue for many hours or longer.

A suspected barbiturate overdose is an emergency, even if the person is still awake. Symptoms can worsen, and a very sleepy person may be unable to protect their airway.

Symptoms

Symptoms depend on the specific barbiturate, the amount taken, whether other substances were involved, and the person's health. Short-acting drugs may cause effects quickly. Long-acting drugs, such as phenobarbital, can cause prolonged symptoms.

Early or less severe signs may resemble alcohol intoxication. They can include:

More severe poisoning may cause:

Call emergency services immediately if an overdose is suspected or if someone has trouble breathing, cannot be awakened, collapses, or has a seizure. Do not wait for every symptom to appear.

In the United States, Poison Help can be reached at 1-800-222-1222 . However, call 911 first for severe sleepiness, breathing problems, collapse, or other life-threatening symptoms. Outside the United States, use the local emergency number or poison center.

Do not make the person vomit. Do not give food, drinks, coffee, or other medicines unless a medical professional tells you to do so. If the person is unconscious but breathing, place them on their side if it is safe. Begin CPR if they are not breathing normally and you are able to do so.

- Unusual sleepiness or difficulty staying awake
- Slurred speech
- Poor balance, stumbling, or loss of coordination
- Confusion or slowed thinking
- Dizziness
- Nausea or vomiting

- Abnormal eye movements
- Poor judgment or unusual behavior
- Very slow, shallow, irregular, or stopped breathing
- Inability to wake or respond normally
- Coma
- Low blood pressure
- A weak or slow pulse
- Low body temperature
- Bluish, gray, or unusually pale lips and skin
- Reduced reflexes
- Blisters or skin injuries after lying in one position
- Seizures, although these are not the most typical feature of barbiturate overdose

Causes and risk factors

An overdose may result from taking too much of a prescribed medicine, taking doses too close together, or using someone else's medication. Because some barbiturates stay in the body for a long time, repeated doses may build up.

Mixing a barbiturate with another substance that slows the nervous system greatly increases the risk of dangerous sedation. Important examples include:

Risk may also be higher in older adults and in people with liver, kidney, breathing, or heart problems. These conditions may affect how the body handles the medicine or how well it tolerates slowed breathing and low blood pressure.

Medication errors are another possible cause. A person may misunderstand instructions, use more than one product containing the same drug, or forget that a dose was already taken. Children may be poisoned after finding medication that was not stored securely.

People who use barbiturates regularly may develop tolerance, meaning they need more of the drug to produce the same effect. Tolerance does not reliably protect against fatal breathing suppression. Risk can also change after a period of reduced use.

Some overdoses occur during a mental health crisis or an act of self-harm. Emergency care should address both the poisoning and the person's immediate emotional safety.

- Alcohol
- Opioids, including prescription pain medicines or illicit opioids
- Benzodiazepines, such as medicines used for anxiety or seizures
- Other sleeping pills or sedatives
- Some muscle relaxants
- Sedating antihistamines like cetirizine or loratadine
- Certain antipsychotic or antidepressant medicines

Diagnosis

Clinicians begin by checking the airway, breathing, circulation, temperature, blood pressure, heart rate, oxygen level, and level of consciousness. Treatment may start before the exact drug or dose is known.

Information from family members, witnesses, emergency responders, medication bottles, or pharmacy records can be valuable. Helpful details include what was taken, the possible amount, the time of exposure, and whether alcohol or other drugs may also have been used. Do not delay emergency care while trying to collect this information.

Tests may include:

A urine drug screen may detect barbiturates, but it does not reliably show how much was taken or how severe the poisoning is. Some tests may miss particular drugs or remain positive after the immediate effects have passed. Clinicians therefore base treatment mainly on symptoms, examination findings, and vital signs rather than a urine result alone.

A chest X-ray may be needed if aspiration is suspected. Aspiration occurs when vomit, saliva, or stomach contents enter the lungs. Brain imaging may be considered if the cause of unconsciousness is uncertain or there could be a head injury, stroke, or another neurological problem.

- Blood glucose, because low blood sugar can also cause confusion or unconsciousness
- Kidney and liver function tests
- Electrolyte levels
- A blood gas test to assess breathing and acid balance
- An electrocardiogram, or ECG, to examine heart rhythm
- Blood tests for phenobarbital or other measurable barbiturates

- Tests for common co-ingestants, such as acetaminophen or salicylates
- A pregnancy test when medically relevant

Treatment and management

Treatment takes place in an emergency department and, for severe poisoning, often in an intensive care unit. The first priority is maintaining breathing and circulation.

A person who cannot protect their airway may need a breathing tube and mechanical ventilation. Oxygen, intravenous fluids, warming measures, and medicines to support blood pressure may also be used. Continuous monitoring helps clinicians detect changes in breathing, oxygen level, heart rhythm, temperature, and alertness.

Activated charcoal may sometimes be given to reduce absorption of a recently swallowed barbiturate. It is not appropriate in every case. A very sleepy person can inhale charcoal into the lungs unless the airway is protected, so it should only be used under professional direction.

Naloxone reverses opioids, not barbiturates. Emergency clinicians may still give it when opioid exposure is possible because people may take more than one substance and the history may be unclear. Flumazenil, a medicine that acts on benzodiazepines, does not reverse barbiturate poisoning.

For severe poisoning from certain long-acting barbiturates, especially phenobarbital, clinicians may use sodium bicarbonate to make the urine more alkaline. This can help the kidneys remove the drug. Blood acidity, electrolytes, fluid balance, and urine output require close monitoring during this treatment.

Hemodialysis or another extracorporeal treatment may be considered in selected cases of severe long-acting barbiturate poisoning. Hemodialysis filters blood through a machine. It may be used when there is prolonged coma, shock, severe breathing failure, very high drug levels, or impaired ability to clear the medicine. This decision is made by specialists based on the complete clinical picture.

There is no safe home treatment for a suspected overdose. A person who seems to improve may become sleepy again, particularly after exposure to a long-acting drug or more than one sedative.

Complications

The main immediate danger is respiratory failure, meaning breathing becomes too slow or

ineffective to supply enough oxygen. Prolonged low oxygen can injure the brain, heart, kidneys, and other organs.

Vomiting while unconscious may lead to aspiration. This can cause airway blockage, lung inflammation, or aspiration pneumonia. Pneumonia symptoms may develop after the person initially becomes more alert.

Other possible complications include:

Risk depends on the amount and type of drug, treatment delays, co-ingested substances, and the person's underlying health. Prompt supportive care can reduce the chance of lasting harm.

- Very low blood pressure or shock
- Abnormal heart rhythms
- Low body temperature
- Kidney injury
- Muscle breakdown, called rhabdomyolysis
- Pressure injuries from lying still for a long time
- Skin blisters associated with severe sedative poisoning
- Blood clots related to prolonged immobility
- Brain injury from lack of oxygen
- Death

Follow up

After emergency treatment, the care team decides how long observation should continue. This depends on the barbiturate involved, symptom duration, blood test results, and whether other substances were taken. A person should not leave care simply because they feel less sleepy.

Routine follow-up may include a review of all prescription and nonprescription medicines. The goal is to identify dosing confusion, duplicate medicines, unsafe combinations, or storage problems. A pharmacist can help explain labels and organize a safer medication plan.

People who take barbiturates regularly should not suddenly stop them without medical guidance. Abrupt withdrawal can cause anxiety, shaking, confusion, hallucinations, or seizures and may be dangerous. A clinician can determine whether gradual reduction or specialist care is appropriate.

After an intentional overdose, a mental health assessment is an important part of care.

Follow-up may include counseling, safety planning, treatment for depression or another mental health condition, and support for substance use. These services are intended to promote safety and recovery, not to punish or blame.

Arrange routine medical follow-up for ongoing fatigue, memory difficulty, weakness, medication concerns, or skin injuries. Contact a clinician promptly if a new cough, fever, chest discomfort, or shortness of breath develops, because these may be signs of aspiration-related lung problems.

Call emergency services for renewed difficulty waking, slow or irregular breathing, fainting, blue or gray lips, severe confusion, or a seizure. Until a clinician says it is safe, avoid driving, operating machinery, alcohol, and any nonprescribed sedating substance.

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