CONDITION

Corticosteroids overdose

Corticosteroid overdose is harm caused by taking too much steroid medicine at once or over time.

WHAT IT IS
Harm from excessive corticosteroid exposure

BODY SYSTEM
Whole body, especially hormones, immunity, metabolism, and circulation

MAIN SYMPTOMS
Mood changes, high blood sugar, swelling, muscle weakness

WHAT CAUSES IT
Excess dose, prolonged use, or medicine interactions

HOW IT IS DIAGNOSED
Medication history, examination, blood glucose and electrolyte tests

MAIN TREATMENT
Poison advice, monitoring, supportive care, and supervised dose reduction

CAN IT BE CURED?
Sometimes - many effects improve after exposure ends

IS IT AN EMERGENCY?
Sometimes - seizures, collapse, severe confusion, or breathing trouble

LONG-TERM OUTLOOK
Most recover; prolonged exposure can cause lasting complications

Overview

Corticosteroids like prednisone or hydrocortisone are medicines that reduce inflammation and change how the immune system works. Examples include prednisone, prednisolone, dexamethasone, hydrocortisone, and methylprednisolone. They are different from anabolic steroids used to increase muscle.

A corticosteroid overdose means exposure to more medicine than intended. This may happen after one large dose, several extra doses, or excessive use over weeks or months. Steroids can be taken as tablets or liquids, injected, inhaled, applied to the skin, or used as eye or nasal preparations.

One accidental extra dose often causes no serious harm, but the risk depends on the medicine, amount, timing, other health conditions, and other medicines taken. Large exposures and

prolonged excessive use can affect blood sugar, blood pressure, mood, immunity, muscles, bones, and the body's natural production of cortisol.

Cortisol is a hormone made by the adrenal glands, which sit above the kidneys. Long-term steroid treatment can reduce the adrenal glands' ability to make cortisol. This matters because suddenly stopping steroids may then cause adrenal insufficiency, meaning the body does not have enough cortisol to respond to illness or stress.

If an overdose may have happened, get advice from a poison service or healthcare professional rather than waiting for symptoms.

Symptoms

Symptoms after a single large dose may be mild or absent at first. When they occur, they can include nausea, agitation, anxiety, unusual sleepiness, headache, raised blood pressure, or high blood sugar. High blood sugar may cause thirst, frequent urination, blurred vision, or tiredness.

Some people develop marked changes in mood or thinking. These may include severe anxiety, depression, confusion, unusually energetic behaviour, hallucinations, or loss of contact with reality. These effects are sometimes called steroid-induced psychiatric symptoms.

Repeated excessive exposure usually causes more gradual changes, such as:

Children may grow more slowly with prolonged excessive exposure. Inhaled or topical steroids can also cause problems when used in large amounts for a long time, particularly with strong products, use over large skin areas, or medicine interactions.

Symptoms alone cannot confirm an overdose. Several illnesses and medication side effects can cause similar changes.

- Increased appetite, weight gain, and a rounder face
- Swelling of the legs or feet from fluid retention
- Easy bruising, thin skin, acne, or slow wound healing
- Muscle weakness, especially around the hips and shoulders
- Trouble sleeping or persistent mood changes
- Higher blood pressure or blood sugar
- More frequent or harder-to-control infections
- Irregular menstrual periods or reduced sexual function

Causes and risk factors

An overdose may happen through a dosing mistake, such as taking the same dose twice or confusing tablets of different strengths. Children may swallow medicine accidentally. A person may also use more than prescribed because symptoms are not improving.

Long-term toxicity can develop even when steroids are being used for a medical reason. The risk generally rises with greater total exposure, longer treatment, and the use of more than one steroid product.

Some medicines slow the breakdown of particular corticosteroids. This can raise steroid levels, including levels from some inhalers, nasal sprays, or injections. Giving every prescriber and pharmacist a complete medication list helps them identify these interactions.

Health problems such as diabetes, high blood pressure, osteoporosis, glaucoma, or an active infection may make certain steroid effects more important. However, having one of these conditions does not mean that an overdose has occurred.

Diagnosis

There is no single test that confirms every corticosteroid overdose. Assessment begins with identifying the exact product, strength, amount, route, and time of exposure. Clinicians may also ask about repeated doses, recent dose changes, and other medicines or supplements.

Bring the medication container or a photograph of its label if this can be done safely. Do not delay emergency care to search for packaging.

An examination may include blood pressure, heart rate, temperature, mental alertness, hydration, and signs of infection or fluid retention. Blood tests may check glucose, sodium, potassium, kidney function, and other measures based on the situation. An electrocardiogram, or ECG, may be used to assess heart rhythm when symptoms or electrolyte changes make this necessary.

If prolonged use may have suppressed the adrenal glands, cortisol testing may be considered. A morning cortisol blood test or a stimulation test can help assess how well the adrenal glands respond. These tests are not needed after every extra dose and must be interpreted in the context of recent steroid use.

Treatment and management

For a possible recent overdose, contact a poison information service promptly. In the United

States, Poison Control is available at 1-800-222-1222 or through its online service. In other countries, use the local poison centre or urgent medical service.

Do not make yourself or another person vomit. Do not take activated charcoal unless a poison specialist or healthcare professional specifically recommends it. Charcoal is only useful in selected situations and can cause harm if used incorrectly.

There is no general antidote that reverses corticosteroid overdose. Treatment is supportive, meaning that clinicians monitor and manage the effects while the body clears or adjusts to the medicine. This may include fluids, observation, blood sugar treatment, correction of significant electrolyte changes, or care for severe mood and behaviour changes.

People with prolonged excessive exposure may need their dose reduced gradually. This is called tapering. The schedule is based on the steroid, treatment duration, underlying illness, symptoms, and likelihood of adrenal suppression.

Do not suddenly stop a regularly used corticosteroid without medical advice. Abrupt withdrawal after sustained treatment can allow the original illness to flare and can cause adrenal insufficiency. If excess use involves a skin cream, inhaler, or nasal spray, a clinician can review the strength, technique, treatment area, and other steroid products.

Complications

A short-term overdose can cause severe agitation, confusion, psychiatric symptoms, very high blood sugar, or major changes in blood pressure. Seizures are uncommon but require emergency care.

Steroids reduce immune activity. Excessive exposure may therefore increase the chance of infection or make an existing infection harder to recognise. Fever may not always be prominent.

Long-term excessive exposure can cause features of Cushing syndrome, a state of prolonged high steroid activity. Possible complications include diabetes, high blood pressure, muscle loss, osteoporosis, fractures, cataracts, glaucoma, and thinning of the skin. Rarely, reduced blood supply can damage part of a bone, often at the hip.

Stomach or intestinal bleeding is more concerning when steroids are combined with medicines that also raise bleeding risk, such as nonsteroidal anti-inflammatory drugs like ibuprofen or naproxen . Black stools or vomiting blood need urgent assessment.

Adrenal suppression is a key long-term complication. If steroids are stopped too quickly, cortisol can fall dangerously low. Severe adrenal insufficiency may cause vomiting, profound weakness, low blood pressure, confusion, or collapse.

Prevention

Many accidental overdoses can be prevented, although side effects from medically necessary treatment cannot always be avoided completely.

Take corticosteroids exactly as shown on the prescription label. Use a dosing chart, pill organiser, or phone reminder if missed or repeated doses are a concern. Before taking a replacement dose, check whether the original dose may already have been taken.

Keep all steroid products on one medication list, including tablets, injections, inhalers, nasal sprays, eye drops, and skin preparations. Ask a pharmacist to check for duplicate products and medicine interactions. Store medicines in their original containers and out of children's reach.

Do not share corticosteroids or use leftover tablets for a new illness. Attend planned monitoring for blood pressure, blood sugar, eyes, bones, growth, or adrenal function when this has been recommended for ongoing treatment.

Living with it and what to expect

After one accidental extra dose, many people have no symptoms or only temporary effects. A poison service can assess whether home observation is reasonable or whether testing is needed. Symptoms that do occur may settle as the medicine leaves the body, but the timing differs among steroid products.

Effects from prolonged excessive exposure usually improve more slowly. Appetite, sleep, mood, blood sugar, blood pressure, and swelling may change over weeks or months as exposure is safely reduced. Muscle strength and normal adrenal function can take longer to recover.

Some complications, such as fractures, cataracts, glaucoma, or bone damage, may require separate treatment and may not fully reverse. The illness for which the steroid was prescribed may also need another treatment plan while the dose changes.

Follow-up is often used to review symptoms, blood pressure, blood sugar, infection risk, and recovery of adrenal function. People at risk of adrenal insufficiency may be advised to carry a steroid emergency card or medical alert information. This helps emergency teams understand that extra steroid treatment could be needed during a serious illness or operation.

When to get medical help

Call a poison information service promptly after a suspected overdose, even if there are no symptoms. Have the medicine name, strength, estimated amount, time taken, age, weight, symptoms, and other medicines available if possible.

Seek same-day medical advice for persistent vomiting, marked swelling, worsening weakness, unusual mood changes, very high home blood sugar readings, or signs of infection. Also get advice before changing or stopping a steroid that has been used regularly.

Call emergency services now for:

Do not drive yourself if you are confused, faint, or seriously unwell.

- A seizure, collapse, or inability to wake
- Trouble breathing or severe weakness
- Severe confusion, hallucinations, or unsafe behaviour
- Fainting or signs of very low blood pressure
- Vomiting blood or passing black, tar-like stools
- Repeated vomiting with severe weakness after stopping steroids

Common questions

I took one extra steroid tablet. What should I do?

Check the medicine name and strength, then contact a pharmacist, poison service, or healthcare professional for advice. One extra dose is often not serious, but the correct response depends on the specific product, amount, age, health conditions, and other medicines. Do not take another dose to "balance out" the mistake.

Can a corticosteroid overdose be fatal?

Life-threatening effects from a single corticosteroid exposure are uncommon, but serious complications can occur. Risks include seizures, severe psychiatric symptoms, very high blood sugar, infection, bleeding, and adrenal crisis after abruptly stopping prolonged treatment.

Should I stop taking steroids if I think my dose is too high?

Do not suddenly stop a regularly used steroid unless an emergency clinician or poison specialist tells you to do so. The dose may need to be reduced gradually to prevent adrenal insufficiency and a flare of the condition being treated.

How long do overdose symptoms last?

Effects after a single exposure may settle over hours to several days. Changes caused by

prolonged excessive use can take weeks or months to improve. Recovery of natural cortisol production may take longer and sometimes requires testing.

Can inhaled or topical corticosteroids cause an overdose?

Yes, although serious whole-body effects are less common than with tablets or injections. Risk increases with high-strength products, large treatment areas, prolonged use, repeated injections, swallowing an inhaled product, or medicines that slow steroid breakdown.

Is this the same as an anabolic steroid overdose?

No. Corticosteroids reduce inflammation and immune activity. Anabolic steroids are related to testosterone and are used medically for different reasons or misused to increase muscle. Their overdose and long-term risks are different.

Sources

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