CONDITION

Autonomic dysreflexia

Learn how to recognize autonomic dysreflexia after spinal cord injury, identify common triggers, respond safely, and know when emergency care is needed.

WHAT IT IS
Sudden dangerous blood pressure rise from an abnormal nervous system response

BODY SYSTEM
Nervous system

MAIN SYMPTOMS
Sudden blood pressure rise, pounding headache, sweating or flushing, blurred vision

WHAT CAUSES IT
Abnormal nervous system response after spinal cord injury

HOW IT IS DIAGNOSED
Blood pressure change, spinal cord history, symptoms, trigger response

MAIN TREATMENT
Trigger removal and blood pressure control

CAN IT BE CURED?
No - episodes may recur despite prevention

IS IT AN EMERGENCY?
Yes, during an active episode

LONG-TERM OUTLOOK
Usually good with prompt treatment, but episodes may recur

Overview

Autonomic dysreflexia is a sudden, potentially dangerous rise in blood pressure caused by an abnormal nervous system response. It most often affects people with a spinal cord injury at or above the sixth thoracic level, called T6. It can also occur with some other conditions that damage the spinal cord.

The autonomic nervous system controls body functions that happen without conscious effort, such as blood pressure, heart rate, sweating, and digestion. After a high spinal cord injury, a painful or irritating problem below the level of injury can trigger a strong nerve response. The brain may be unable to send enough calming signals past the injured area.

As a result, blood vessels below the injury tighten and blood pressure rises. The body may try to compensate above the injury by slowing the heart rate and widening blood vessels, but this

may not be enough to control the blood pressure.

Many people with high spinal cord injuries have a lower-than-average resting blood pressure. For this reason, a blood pressure that does not seem very high by usual standards may represent a major increase for that person. In adults with a spinal cord injury, a rise in systolic blood pressure-the top number-of more than 20 millimeters of mercury above the person's usual level can indicate autonomic dysreflexia.

Autonomic dysreflexia requires immediate attention. Most episodes improve when the trigger is found and removed. Without prompt treatment, however, severely elevated blood pressure can damage the brain, heart, eyes, or other organs. People at risk should have an emergency plan and make sure caregivers and clinicians know about the condition.

Symptoms

Symptoms often begin suddenly. They can be mild, severe, or sometimes absent despite a significant rise in blood pressure. This is sometimes called silent autonomic dysreflexia.

Possible signs and symptoms include:

Symptoms can vary from one episode to another. A slow heart rate is common, but heart rate alone cannot confirm or rule out the condition.

Suspected autonomic dysreflexia is an emergency, especially when blood pressure is rising or symptoms are not improving after an obvious trigger is corrected. The person should follow their emergency plan immediately. Emergency medical help is appropriate if the trigger cannot be found, blood pressure remains elevated, symptoms are severe, or trained help is not available.

Loss of consciousness, a seizure, new difficulty speaking, new facial drooping, sudden weakness, severe chest pain, or trouble breathing requires emergency medical services.

- A sudden rise in blood pressure above the person's usual level
- A pounding or severe headache
- Sweating, flushing, or blotchy skin above the spinal cord injury
- Goosebumps or pale, cool skin below the injury
- A stuffy nose
- Blurred vision or seeing spots
- Anxiety, uneasiness, or a sense that something is wrong

- Chest tightness
- Nausea
- A slow, fast, or irregular heartbeat

Causes and risk factors

Autonomic dysreflexia is usually triggered by irritation below the level of spinal cord injury. The person may not feel the irritation because sensation can be reduced or absent.

Bladder problems are common triggers. These include an overfilled bladder, a blocked or kinked catheter, a catheter bag that is too full, bladder stones, a urinary tract infection, or a medical procedure involving the bladder.

Bowel problems can also trigger an episode. Examples include constipation, stool that is difficult to pass, hemorrhoids, anal irritation, and bowel-care procedures.

Other possible triggers include:

The main risk factor is a spinal cord injury at or above T6. Risk generally increases with a higher and more complete injury, although an episode may occur with an incomplete injury. It usually develops after the early period of spinal shock has passed, but timing varies.

People who have had autonomic dysreflexia before are at increased risk of another episode, particularly if the underlying trigger tends to recur. Preventive bladder, bowel, and skin care can reduce risk but cannot prevent every episode.

- Pressure injuries, cuts, burns, blisters, or ingrown toenails
- Tight clothing, shoes, straps, braces, or compression devices
- Prolonged pressure from sitting or lying in one position
- Broken bones or other injuries below the level of spinal injury
- Menstrual cramps, pregnancy, labor, or childbirth
- Sexual activity, ejaculation, or fertility procedures
- Tests or treatments involving the bladder, bowel, or reproductive organs
- Severe muscle spasms
- Extreme heat, cold, or sunburn

Diagnosis

Autonomic dysreflexia is diagnosed from the person's spinal cord history, symptoms, blood pressure change, and response to removal of a trigger. Treatment begins while clinicians search for the cause because waiting for tests may allow blood pressure to continue rising.

A clinician or trained caregiver will compare the current blood pressure with the person's usual baseline. Blood pressure and pulse may be checked every few minutes during an episode. Both arms may be assessed if readings seem unexpected.

The evaluation usually starts with the bladder because bladder problems are frequent and can often be corrected quickly. A urinary catheter may be checked for kinks, obstruction, poor drainage, or an overfilled collection bag. If there is no catheter, bladder drainage may be needed according to the person's established care plan.

If the bladder is not the cause, the bowel and skin may be evaluated. Clinicians may look for constipation, pressure, tight clothing, wounds, burns, fractures, infections, or problems related to a recent procedure. A bowel examination can itself worsen autonomic dysreflexia, so it should be performed carefully by someone who understands the condition.

Blood tests, urine tests, imaging, or heart monitoring may be needed if the trigger is unclear or complications are suspected. Other causes of high blood pressure or headache may also be considered. However, a person with a high spinal cord injury and a sudden blood pressure rise should be assessed promptly for autonomic dysreflexia.

Treatment and management

The first steps are intended to lower blood pressure and identify the trigger. A person with suspected autonomic dysreflexia should sit upright, if it is safe to do so, and lower their legs. This helps blood pool in the lower body. Tight clothing, abdominal binders, shoes, straps, or other restrictive items should be loosened.

Blood pressure and pulse should be checked promptly and then repeatedly during the episode. The person should not be left alone.

The bladder is checked first in most situations. Catheter tubing can be inspected for kinks, compression, or a full drainage bag. A catheter should not be pulled out or flushed unless this is part of a clinician-directed plan and the person has been trained to do it. If catheterization is required, it should be performed by a trained person using the patient's emergency protocol.

If bladder drainage does not resolve the episode, other triggers are investigated. Skin should be checked for pressure, tight items, injury, or heat exposure. Bowel evaluation usually follows after blood pressure has been addressed and bladder causes have been excluded.

If blood pressure remains dangerously elevated, clinicians may use a rapid-acting,

short-duration blood pressure medicine. Clinical guidelines advise considering medication when systolic blood pressure remains at or above 150 mm Hg, while continuing to remove the trigger. The specific medicine depends on the person's health, current medicines, recent use of erectile dysfunction drugs, and the care setting. These medicines can sometimes cause blood pressure to fall too far, so monitoring is necessary.

Once the trigger is removed, blood pressure often drops quickly. Monitoring should continue because symptoms can return or blood pressure can become too low.

Long-term management focuses on prevention and preparation:

People who are pregnant or planning pregnancy should discuss autonomic dysreflexia with their rehabilitation and obstetric teams. Labor and procedures involving the pelvic organs can trigger episodes, so advance planning is important.

- Maintain the recommended bladder and bowel routine.
- Inspect skin and pressure-prone areas regularly.
- Keep an autonomic dysreflexia emergency plan and prescribed supplies available.
- Record the usual resting blood pressure and known personal triggers.
- Carry a medical alert card or wear medical identification.
- Teach family members, caregivers, and support workers how to respond.
- Tell healthcare professionals about the risk before procedures below the injury level.

Complications

A severe or prolonged blood pressure rise can damage blood vessels and organs. Reported complications include stroke, bleeding in the brain or eyes, seizures, abnormal heart rhythms, heart injury, and fluid in the lungs. These outcomes are uncommon when episodes are recognized and treated quickly, but the risk is why autonomic dysreflexia is treated as an emergency.

Blood pressure may fall below the person's normal level after the trigger is removed or after blood pressure medicine is given. This can cause dizziness, weakness, blurred vision, or fainting. Continued monitoring helps identify this problem.

Repeated episodes may interfere with sleep, rehabilitation, sexual activity, bowel care, or bladder management. They may also signal an untreated issue such as recurrent catheter blockage, constipation, a pressure injury, bladder stones, or infection.

Follow up

After an episode, the healthcare team may review what happened, what triggered it, how high the blood pressure rose, and which actions were effective. This is routine follow-up rather than emergency care once symptoms have resolved and blood pressure has returned near baseline.

A rehabilitation clinician may recommend changes to bladder care, bowel management, skin protection, seating, equipment, or the emergency plan. Repeated or unexplained episodes deserve medical review even if they resolve at home.

Seek urgent medical advice if episodes are becoming more frequent, the usual trigger cannot be identified, catheter drainage repeatedly stops, or new urinary, bowel, skin, or pain symptoms develop.

Call emergency medical services during an active episode if blood pressure remains elevated after initial measures, the trigger cannot be removed promptly, symptoms worsen, or there are signs of stroke, seizure, breathing difficulty, loss of consciousness, or severe chest pain. Do not drive yourself during an active episode.

Sources

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