

Carpe Diem – Seize the Day Blog

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In this week's blog we look at understanding atonic seizures, their causes, symptoms, and treatments. An atonic seizure occurs when there is a sudden loss of muscle tone. People with atonic seizures may suddenly drop things or fall to the ground if standing. Many different factors can cause atonic seizures. Doctors typically treat them with antiepileptic drugs (AEDs). Atonic seizures typically start in childhood and can continue into adulthood. Sometimes the person has just one seizure, or they can have several in a row. They may not be aware that the seizure occurred.

An atonic seizure, also known as a drop seizure, occurs when a person's muscles lose tone and suddenly go limp. Atonic means "without tone." This type of seizure typically lasts less than 15 seconds.

There are two types of atonic seizure:

- Focal motor atonic seizure: This occurs when the seizure starts in one part of the brain. It will usually cause a loss of muscle tone only in one part of the body.
- Generalized onset atonic seizure: This occurs when the seizure involves both sides of the brain. It results in a loss of muscle tone or a drop in the head, trunk, or whole body. It also causes confusion or a loss of consciousness.

What are the causes of an atonic seizure? Researchers do not know exactly what causes atonic seizures. Generally, abnormal electrical activity in the brain causes seizures.

Some possible triggers for seizures include:

- low blood sugar (hypoglycemia)
- traumatic brain injury
- your body's response to an infection in the body (sepsis)
- fever
- sleep deprivation
- an irregular anti-epileptic drug (AED) schedule

What are the symptoms of an atonic seizure? The main symptom of an atonic seizure is a sudden loss of muscle tone. If the person experiencing an atonic seizure is sitting, their head or upper body may droop. If they are standing, they may collapse completely.

An atonic seizure does not typically last long — usually less than 15 seconds. After the seizure, the person may experience some confusion and need to rest. If they injure themselves while falling, they might need medical treatment.

How do doctors diagnose an atonic seizure? To diagnose an atonic seizure, the doctor will perform a physical examination and get a detailed medical history from you. They will ask about your current health conditions, medications you take, and your lifestyle habits.

The doctor will attempt to determine whether something triggered the seizure or whether it was unprovoked. Your doctor may order a few tests, including:

- Electroencephalography: This test records the electrical activity in your brain and is one of the most common tests for diagnosing seizure disorders.
- Blood serum tests: These tests check for atypical levels of substances in your blood. These substances include electrolytes such as glucose, sodium, and potassium.
- MRI scan: This test shows images of the brain's structures using a magnetic field and radio waves.
- CT scan: This test is a type of X-ray that creates detailed images of the brain tissue and can help identify any brain abnormalities causing the seizures.
- PET scan: This test uses a small amount of radioactive glucose injected by IV into a vein. It allows medical professionals to view blood flow in the brain and monitor brain cell activity to determine how well the brain metabolizes sugar.

There are several possible treatments for atonic seizures. The doctor will consider a person's medical history and the results of diagnostic tests to help determine the right treatment for you. AEDs are among the most common treatments for atonic seizures. These drugs work by changing the chemical activity in the brain to stop a seizure from occurring. Some common AEDs include:

- lamotrigine
- carbamazepine
- sodium valproate
- levetiracetam
- topiramate

These drugs come in different forms, such as tablets, liquids, capsules, or syrups. It is common for them to cause side effects, including:

- drowsiness
- headaches
- lack of energy
- hair loss
- tremors
- agitation
- swollen gums
- rashes

If your symptoms are severe or if you get a rash, talk with your doctor. Your dose may need to be adjusted, or you may be having an allergic reaction to the drug.

If AEDs are not working to control your atonic seizures, your doctor may explore the possibility of surgery with you. If surgery is an option for you, the part of the brain that is causing the seizures will be removed. It is possible for the seizures to stop completely after surgery.

If surgery is not an option for you, other procedures may help. These include:

- Vagus nerve stimulation (VNS): This is a small electrical device placed under the skin that is like a pacemaker. The device connects to the vagus nerve in your neck and helps control seizures by changing the electrical signals in the brain.
- Deep brain stimulation (DBS): This is like VNS, except that the device is connected to wires that go directly to the brain. DBS is a new procedure, and doctors do not use it as often as VNS.
- Responsive neurostimulation: This is a device that connects to electrodes implanted in the brain at seizure-producing sites. The device sends out short electrical pulses when it detects atypical brain activity.

Some research shows that eating a ketogenic diet can help control seizures in people with drug-resistant epilepsy. This diet is high in fat and low in carbohydrates and protein. Experts do not know exactly how the ketogenic diet helps to reduce seizures. Due to the restrictive nature and possible side effects of the diet, you should only attempt it with input and monitoring from your doctor.

The best way to prevent an atonic seizure is by following your doctor's treatment plan. It is important to follow the dosage instructions if you are taking medication. Do not stop taking it all at once because doing so could cause a seizure.

Knowing your triggers can be helpful. Eating well, exercising, and avoiding drugs and alcohol can help lower your risk of triggering a seizure.

You can also save your brain by wearing a seatbelt while in a vehicle and wearing a helmet when bike riding or playing contact sports. This can help lower your risk of experiencing a traumatic brain injury.

If you are around someone who is having an atonic seizure, make sure they are in a safe place to lower their risk of injury. If the seizure lasts longer than 5 minutes, seek immediate medical care (call 911) for the person or bring them to a nearby emergency room.

Talk to your doctor if you suspect that you have experienced a seizure.

Editor's Note: The Carpe Diem – Seize the Day Blog will be distributed and posted weekly.
Always remember – CARPE DIEM – SEIZE THE DAY!

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