



Understanding Stroke



Tom, experienced a stroke in 2005.



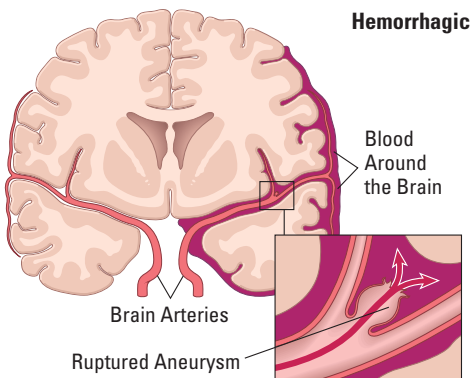
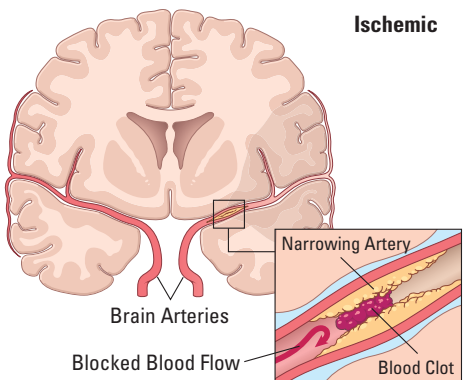
What Is Stroke?

A stroke is caused by the sudden loss of blood flow to the brain or bleeding in or around the brain. Either can cause brain cells to stop functioning or die. When nerve cells in the brain die, the function of body parts they control is harmed or lost. Depending on the part of the brain affected, people can lose speech, feeling, muscle strength, coordination, vision, or memory. Some people recover completely; others are seriously disabled or die.

What Causes Stroke?

There are two main types of stroke: hemorrhagic and ischemic. With a hemorrhagic stroke, there is bleeding in or around the brain. With an ischemic stroke, blood flow to part of the brain is blocked. Without blood flow, that part of the brain is injured.

Cross Section of the Brain



Eighty percent of strokes are ischemic. Ischemic strokes can be caused by narrowing of the large arteries to the brain or the small arteries within the brain. Ischemic strokes can also be caused by clots that block blood flow to the brain. There are many other possible causes of ischemic stroke. The lack of normal blood flow to brain cells sets off a chain reaction. When blood cannot get to the brain, cells begin to die within minutes. Quick medical treatment is essential to prevent the damage from spreading to a larger area of the brain where blood flow might be reduced but not completely cut off.

Hemorrhagic strokes involve bleeding around or into the brain. Although there are many possible causes of hemorrhagic stroke, they are most commonly caused by:

- Weak spots in brain arteries, called aneurysms, that burst and cause blood to cover the brain
- Small blood vessels within the brain that break

What Are the Symptoms?

Stroke strikes fast. You should, too. Call 9-1-1. Stroke symptoms can vary. They can start slowly or come on quickly. You may wake up with the symptoms. Act quickly if these symptoms come on **SUDDENLY**:

- Numbness or weakness of the face, arm, or leg, especially on one side of the body
- Confusion or trouble speaking or understanding
- Trouble seeing in one or both eyes
- Trouble walking, dizziness, or loss of balance or coordination
- Severe headache

Did you know?

Neurologists are medical doctors who specialize in disorders of the brain and nerves. They often diagnose and treat people with stroke.

How Is Stroke Diagnosed?

An evaluation by a neurologist or other physician will help both diagnose a stroke and provide information to understand its cause. The evaluation may include:

- Physical examination
- Neurologic examination
- Brain imaging tests
- Tests that image blood vessels to the brain
- Blood tests
- Tests of heart function
 - Electrocardiogram (ECG/EKG)
 - Ultrasound examination (echocardiogram) of the heart
 - Heart rhythm monitoring

What Are the Treatment Options?

Immediate medical care is important. For patients with ischemic stroke who meet certain criteria, a clot-busting drug (tissue plasminogen activator, tPA) can improve outcomes when given up to four-and-a-half hours after symptoms began. However, the sooner the treatment can be given, the more likely it is to help. Other ways of removing blood clots from brain arteries may also be considered in some cases.

Other treatments are directed at reducing the risks of complications, optimizing recovery, and preventing future strokes. These may include drugs that thin the blood, drugs that lower blood pressure, drugs that lower cholesterol, and, in some cases, surgery or stents that open the insides of narrowed blood vessels in the neck.

For hemorrhagic stroke, treatment could include:

- Drugs that lower blood pressure
- Surgery to remove blood in the brain or decrease pressure on the brain
- Surgery to fix the broken blood vessels
- Insertion of a coil to block off bleeding vessels
- Drugs that prevent or reverse brain swelling
- Insertion of a tube into a hollow part of the brain to reduce pressure

Life After Stroke

Although some people recover fully after a stroke, others may have ongoing problems. These problems depend on the size and location of the stroke and can include:

- Problems with thinking and memory
- Difficulty speaking or understanding
- Difficulty swallowing
- Emotional problems, such as depression
- Loss of vision, often on one side
- Loss of strength or feeling on one side of the body
- Loss of balance and the ability to walk

Rehabilitation helps regain functions lost from damage due to stroke. During rehabilitation, most people will improve—although many do not recover completely. The brain can learn new ways of functioning by using undamaged brain cells.

Preventing a Second Stroke

People who have had a stroke are at much greater risk for another stroke than those who have never had one. Talk to your neurologist about ways to prevent a second stroke. These may include medications and changes to your lifestyle including:

- Eating a diet low in salt, fat, and cholesterol
- Controlling high blood pressure
- Quitting smoking
- Controlling cholesterol with drugs
- Taking drugs that reduce blood clotting

Partnering with Your Neurologist

To provide the best care, your neurologist needs to know all about your symptoms and medical history. Likewise, you need to get answers to your questions. Keeping a notebook about your condition and bringing a few well-organized questions to your appointments can be helpful.

For Family and Friends

The rehabilitation period after stroke is often a challenge for both patients and their caregivers. Recovery is supported by a multidisciplinary team that includes nurses and doctors. Physical, occupational, and speech therapists also play a central role. In addition, many people find that support groups are a source of help, comfort, and information during this time. See **Resources** for organizations to contact.

Help Us Cure Brain Disease

Make a Donation to Research

The American Brain Foundation supports vital research and education to discover causes, improved treatments, and cures for brain and other nervous system diseases. To learn more or to make a donation to support research, visit www.CureBrainDisease.org.

Make Your Voice Heard

To keep research advancing toward future cures and treatments for brain disease, it is important for people affected by neurologic disorders to advocate for more research funding. Contact your members of Congress and ask them to support neurology research by increasing funding for the National Institutes of Health (NIH). Look up your Congressional representatives at www.senate.gov and www.house.gov. Your voice can make a difference.

Take Part in Research

People are needed for clinical trials that can help find new treatments for neurologic disorders. Clinical trials are research studies. They help ensure that new drugs are both safe and effective. Ask your neurologist how to volunteer for a clinical trial. You can also find trials through patient organizations or the American Academy of Neurology website at www.aan.com/view/clinicaltrials.

Resources

American Academy of Neurology

www.aan.com

(800) 879-1960

The American Academy of Neurology website for patients and caregivers offers a wealth of articles, information about events and resources, and links to support groups, clinical trial information, and more.

Neurology Now® magazine

www.neurologynow.com

(800) 879-1960

Free magazine for patients and caregivers, courtesy of the American Academy of Neurology. Stories about people living with neurologic disorders, the latest information on resources and treatments, and more.

American Stroke Association

www.strokeassociation.org

(888) 4STROKE (478-7653)

Brain Aneurysm Foundation

www.bafound.org

(888) BRAIN02 (272-4602)

National Institute of Neurological Disorders and Stroke

www.ninds.nih.gov

(800) 352-9424

National Stroke Association

www.stroke.org

(800) STROKES (787-6537)

Speak Up: What you should know about stroke

www.jointcommission.org/speakup.aspx



www.aan.com

(800) 879-1960

The American Academy of Neurology, an association of 25,000 neurologists and neuroscience professionals, is dedicated to promoting the highest quality patient-centered neurologic care. For more information about the American Academy of Neurology, visit *www.aan.com*.