

P A T I E N T V E R S I O N



**THE PREVENT DEFENSE
AGAINST STROKE:**
*Preventing a Second Stroke
or Transient Ischemic Attack*

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CME Institute

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PREVENTING A SECOND STROKE OR MINISTROKE

Have you had a stroke or ministroke, sometimes called a transient ischemic attack or TIA? If so, your chances of having another stroke are up to 10 times higher than for someone who has never had a stroke or ministroke before.

If you have had a stroke or TIA, there are certain things you can do to greatly lower your risk of a second stroke. This pamphlet provides some important facts about strokes and how to stop them from happening again.

Some important facts about stroke and TIA:

- A stroke happens about every 40 seconds in the U.S.
- Each year, about 185,000 people who have already had a stroke experience another (recurrent) stroke
- A TIA is sometimes called a “warning-stroke,” because about 15% of strokes happen after a TIA
- About half of patients who experience a TIA fail to report it to their health care provider
- After a TIA, the 90-day risk of stroke is between 3% and 17%
- Within 1 year after a TIA, up to a quarter of patients die



Reference: American Heart Association. Heart Disease and Stroke Statistics – 2010 Update. Dallas, Texas: American Heart Association; 2010.

WHAT IS A STROKE?

A stroke, which is sometimes called a “brain attack,” happens when blood that should go to your brain is either blocked or reduced. This prevents enough oxygen and food from getting to that part of the brain. When this happens, the brain cells begin to die within a few minutes. And when brain cells die, it produces changes in the way your body behaves. These changes include:

- Trouble walking
- Trouble speaking or understanding other people when they speak
- Feeling numb or becoming paralyzed on one side of your body
- Having trouble seeing in one or both eyes
- Having a very bad headache, which can cause vomiting or dizziness

These same symptoms can develop during a TIA, but with a TIA they may go away within a half hour. Even if your symptoms go away, you should report them immediately to your doctor. Your doctor will make a diagnosis, and if you have had a TIA, proper treatment will help to stop another TIA or a stroke from happening.

WHAT CAUSES A STROKE?

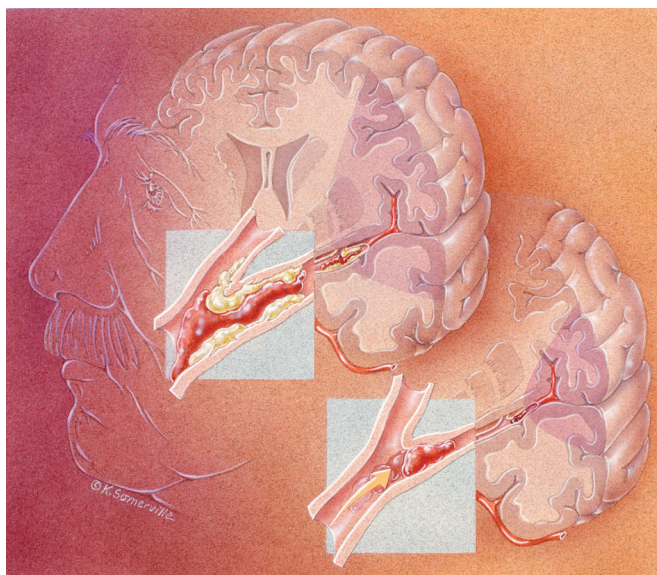
There are two types of strokes. The most common, called an **ischemic** stroke, happens when blood vessels called arteries are narrowed or blocked. This reduces the amount of blood that flows to your brain, dropping it below the level your brain needs to stay healthy. If you have used a water hose, you can understand why this happens: imagine that you are watering flowers and someone steps on the hose or bends it. There may not be enough water reaching the end of the hose to allow you to finish watering the plants. If the plants don't get enough water, over time they may die. This is the same with brain cells, only brain cells die much more quickly, within minutes of the blood flow stopping.



Ischemic strokes are caused either when a blood clot forms in one of the arteries that supply blood to the brain (called a **thrombotic** stroke) or when a blood clot forms in another part of the body and is carried by the blood to the smaller blood arteries (called an **embolic** stroke). A thrombotic stroke often occurs because arteries become clogged by fatty deposits, a condition known as **atherosclerosis**. The clots in embolic strokes often come from the heart, especially if the heart has an irregular beat (known as **atrial fibrillation**). These problems can also cause a TIA.

Another type of stroke is known as a **hemorrhagic** stroke, which happens when a blood vessel in the brain leaks or breaks. Once again, blood flow to parts of the brain is decreased or stopped, and brain cell death may occur. Hemorrhagic stroke can be caused by several conditions, including uncontrolled high blood pressure (**hypertension**) and weak spots in blood vessel walls, also called **aneurysms**.

Once you have had a stroke or TIA, it is very important to treat the underlying causes of the stroke, or else they can cause another stroke.



RISK FACTORS FOR STROKE



Many things can increase your risk of getting a stroke or recurrent stroke, including:

- Age 55 or older
- High blood pressure
- High cholesterol
- Cigarette smoking or exposure to secondhand smoke
- Diabetes
- Being overweight
- Not getting enough exercise
- Heart disease
- Birth control pills or hormone therapies that use estrogen
- Heavy alcohol drinking
- Illegal drug use
- Previous stroke or TIA

Once you have had a stroke or TIA, it is critical that you reduce your risk factors as much as possible. Follow your doctor's advice for reducing blood pressure and cholesterol; follow his or her advice for managing diabetes: if you smoke, stop; exercise and lose weight; and if you drink, have fewer alcoholic drinks.

In addition, your doctor will discuss special treatments to help prevent another stroke.

FINDING THE CAUSE OF THE PROBLEM

After you report that you have had a stroke or TIA, and after you have received any needed emergency therapy, your doctor will perform tests to determine the reasons that you have had the stroke. These tests may include:

- A physical examination
- Blood tests to determine
 - How fast your blood clots
 - Whether you have an infection
 - Blood sugar levels
- Brain scans (CAT scans)
 - Help determine what type of stroke you had
- Magnetic resonance imaging (MRI)
 - Detects brain damage from an ischemic stroke
- Carotid ultrasound
 - Shows a narrowing or clotting in your neck arteries
- Echocardiography
 - Helps determine whether the blood clot came from the heart

PREVENTING FUTURE ISCHEMIC STROKES

After determining the cause of your stroke or TIA, your doctor may recommend different medications or procedures to help prevent another stroke. For ischemic strokes, these may include interventions to improve blood flow in arteries that are clogged. These include a nonsurgical procedure called angioplasty with or without stent placement, or a surgical procedure to remove the plaque in the arteries called endarterectomy.

If your heartbeat is irregular and you have atrial fibrillation, several treatments may be recommended. Your doctor may suggest

- Resetting the rhythm of your heart
- Controlling the rate of your heart
- Preventing blood clots

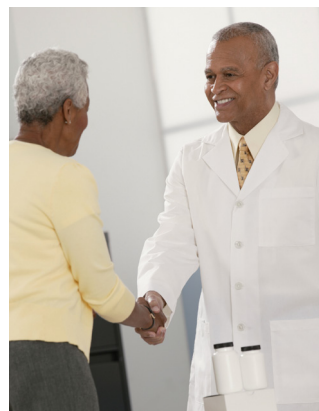
Resetting your heart's rhythm can be done with either a medical procedure called cardioversion or with drugs. For heart rate control, a surgical procedure called radiofrequency ablation may be recommended, or certain medications may also be used.

Your doctor may also recommend some preventive medications. These include **antiplatelet drugs** or **anticoagulants**.

Antiplatelet drugs work by making platelets—which are cells in your blood that help it to clot—less sticky. This prevents clots from forming in your blood vessels, where they may cause a stroke or TIA. Aspirin is the most commonly used antiplatelet drug, but depending on your medical condition, your doctor may prescribe other drugs

Anticoagulants, also called “blood-thinners,” also prevent clots from forming, but they do it in a different way. If you have atrial fibrillation, and are at high risk for a stroke, these drugs will be prescribed.

If any of these are prescribed, you will need to take them exactly as directed and to watch for any side effects that may occur.



HELPFUL RESOURCES

Your doctor will be your primary resource for information about your stroke or TIA, as well as its management/treatment. He or she will answer any questions you may have, and you should feel free to talk with him or her.

Other sources of information on stroke and atrial fibrillation include:

National Stroke Association

<http://www.stroke.org>

National Library of Medicine and the National Institutes of Health

<http://www.nlm.nih.gov/medlineplus/stroke.html>

National Institute of Neurological Disorders and Stroke

<http://www.ninds.nih.gov/disorders/stroke/stroke.htm>

Centers for Disease Control and Prevention

<http://www.cdc.gov/stroke/>

The Mayo Clinic

<http://www.mayoclinic.com/health/stroke/DS00150>

<http://www.mayoclinic.com/health/atrial-fibrillation/DS00291>