

Types of Stroke

There are two main ways "brain attacks" can happen **ischemic** and **hemorrhagic strokes**. In ischemic strokes, a blood clot blocks or "plugs" a blood vessel in the brain. In hemorrhagic strokes, a blood vessel in the brain breaks or ruptures.

Ischemic Stroke In everyday life, blood clotting is beneficial. When you are bleeding from a wound, blood clots work to slow and eventually stop the bleeding. In the case of stroke, however, blood clots are dangerous because they can block arteries and cut off blood flow, a process called ischemia. An ischemic stroke can occur in two ways embolic and thrombotic strokes.

Embolic Stroke In an embolic stroke, a blood clot forms somewhere in the body (usually the heart) and travels through the bloodstream to your brain. Once in your brain, the clot eventually travels to a blood vessel small enough to block its passage. The clot lodges there, blocking the blood vessel and causing a stroke. The medical word for this type of blood clot is embolus.

Thrombotic Stroke

In the second type of blood-clot stroke, blood flow is impaired because of a blockage to one or more of the arteries supplying blood to the brain. The process leading to this blockage is known as thrombosis. Strokes caused in this way are called thrombotic strokes. That's because the medical word for a clot that forms on a blood-vessel deposit is thrombus.

Blood-clot strokes can also happen as the result of unhealthy blood vessels clogged with a buildup of fatty deposits and cholesterol. Your body regards these buildups as multiple, tiny and repeated injuries to the blood vessel wall. So your body reacts to these injuries just as it would if you were bleeding from a wound it responds by forming clots.

Two types of thrombosis can cause stroke large vessel thrombosis and small vessel disease (or lacunar infarction).

Large Vessel Thrombosis

Thrombotic stroke occurs most often in the large arteries, so large vessel thrombosis is the most common and best understood type of thrombotic stroke. Most large vessel thrombosis is caused by a combination of long-term atherosclerosis followed by rapid blood clot formation. Thrombotic stroke patients are also likely to have coronary artery disease, and heart attack is a frequent cause of death in patients who have suffered this type of brain attack.

Small Vessel Disease/Lacunar Infarction

Small vessel disease, or lacunar infarction, occurs when blood flow is blocked to a very small arterial vessel. The term's origin is from the Latin word lacuna which means hole, and describes the small cavity remaining after the products of deep infarct have been removed by other cells in the body. Little is known about the causes of small vessel disease, but it is closely linked to hypertension.

Hemorrhagic Stroke

Strokes caused by the breakage or "blowout" of a blood vessel in the brain are called hemorrhagic strokes. The medical word for this type of breakage is hemorrhage. Hemorrhages can be caused by a number of disorders which affect the blood vessels, including long-standing high blood pressure and cerebral aneurysms. An aneurysm is a weak or thin spot on a blood vessel wall. These weak spots are usually present at birth. Aneurysms develop over a number of years and usually don't cause detectable problems until they break.

There are two types of hemorrhagic stroke subarachnoid and intracerebral.

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In an intracerebral hemorrhage, bleeding occurs from vessels within the brain itself. Hypertension is the primary cause of this type of hemorrhage.

In a subarachnoid hemorrhage (SAH), an aneurysm bursts in a large artery on or near the thin, delicate membrane surrounding the brain. Blood spills into the area around the brain which is filled with a protective fluid, causing the brain to be surrounded by blood-contaminated fluid.

The Effects of Stroke

The ability to define the world and our place in it distinguishes our humanity. Stroke or brain attack forever alters this world-making capacity. The stroke patient's world, once comprehensible and manageable, is transformed into a confusing, intimidating and hostile environment. The skills of intellect, sensation, perception and movement, which are honed over the course of a lifetime and which so characterize our humanity are the very abilities most compromised by stroke. Stroke can rob people of the most basic methods of interacting with the world.

The specific abilities that will be lost or affected by stroke depend on the extent of the brain damage and most importantly where in the brain the stroke occurred. The brain is an incredibly complex organ, and each area within the brain has responsibility for a particular function or ability. The brain is divided into four primary parts: the right hemisphere (or half), the left hemisphere, the cerebellum and the brain stem.

Right-Hemisphere Stroke

The right hemisphere of the brain controls the movement of the left side of the body. It also controls analytical and perceptual tasks, such as judging distance, size, speed, or position and seeing how parts are connected to wholes.

A stroke in the right hemisphere often causes paralysis in the left side of the body. This is known as left hemiplegia. Survivors of right-hemisphere strokes may also have problems with their spatial and perceptual abilities. This may cause them to misjudge distances (leading to a fall) or be unable to guide their hands to pick up an object, button a shirt or tie their shoes. They may even be unable to tell right-side up from upside-down when trying to read.

Along with their impaired ability to judge spatial relationships, survivors of right-hemisphere strokes often have judgment difficulties that show up in their behavioral styles. These patients often develop an impulsive style unaware of their impairments and certain of their ability to perform the same tasks as before the stroke. This behavioral style can be extremely dangerous. It may lead the left hemiplegic stroke survivor to try to walk without aid. Or it may lead the survivor with spatial and perceptual impairments to try to drive a car.

Survivors of right-hemisphere strokes may also experience left-sided neglect. Stemming from visual field impairments, left-sided neglect causes the survivor of a right-hemisphere stroke to "forget" or "ignore" objects or people on their left side.

Finally, some survivors of right-hemisphere strokes will experience problems with short-term memory. Although they may be able to recount a visit to the seashore that took place 30 years ago, they may be unable to remember what they ate for breakfast that morning.

Left-Hemisphere Stroke

The left hemisphere of the brain controls the movement of the right side of the body. It also controls speech

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and language abilities for most people. A left-hemisphere stroke often causes paralysis of the right side of the body. This is known as right hemiplegia.

Someone who has had a left-hemisphere stroke may also develop aphasia. Aphasia is a catch-all term used to describe a wide range of speech and language problems. These problems can be highly specific, affecting only one component of the patient's ability to communicate, such as the ability to move their speech-related muscles to talk properly. The same patient may be completely unimpaired when it comes to writing, reading or understanding speech.

In contrast to survivors of right-hemisphere stroke, patients who have had a left-hemisphere stroke often develop a slow and cautious behavioral style. They may need frequent instruction and feedback to complete tasks.

Finally, patients with left-hemisphere stroke may develop memory problems similar to those of right-hemisphere stroke survivors. These problems can include shortened retention spans, difficulty in learning new information and problems in conceptualizing and generalizing.

Cerebellar Stroke

The cerebellum controls many of our reflexes and much of our balance and coordination. A stroke that takes place in the cerebellum can cause abnormal reflexes of the head and torso, coordination and balance problems, dizziness, nausea and vomiting.

Brain Stem Stroke

Strokes that occur in the brain stem are especially devastating. The brain stem is the area of the brain that controls all of our involuntary, "life-support" functions, such as breathing rate, blood pressure and heartbeat. The brain stem also controls abilities such as eye movements, hearing, speech and swallowing. Since impulses generated in the brain's hemispheres must travel through the brain stem on their way to the arms and legs, patients with a brain stem stroke may also develop paralysis in one or both sides of the body.

Life at Home: Survivors & Family

After a stroke, both the stroke survivor and the family often are apprehensive about being on their own at home. Among the common concerns are fear:

- that a stroke might happen again
- that the stroke survivor may be unable to accept the disabilities
- that the survivor might be placed in a nursing home
- that the caregiver may not be prepared to face the responsibility of caring for the stroke survivor
- that friends and family will abandon them

Behavior

The confused cautious stroke survivor needs an ordered environment. The stroke survivor with poor judgment must be guided when making important decisions. The apathetic stroke survivor, on the other hand, should not live in a world so quiet and simple that there is little to react to. The caregiver needs to be aware of the reasons for the stroke survivor's behavior, without overlooking the fact that he or she may also be depressed.

Depression

Depression is nearly universal among people who have had a stroke. It can be overwhelming, affecting the spirit and confidence of everyone involved. A depressed person may refuse or neglect to take medications, may not be motivated to perform exercises which will improve mobility or may be irritable with others. The stroke survivor's depression may dampen the family's enthusiasm for helping with recovery or drive away others who want to help. This deprives the stroke survivor of the social contacts which could help dispel depression, and creates a vicious cycle.

It is possible that as time goes by and a stroke survivor's deficits improve, the depression may lift by itself. Family can help by trying to stimulate interest in other people, encouraging leisure activities and providing opportunities to participate in spiritual activities. If necessary, chronic depression can be treated with individual counseling, group therapy or antidepressant drugs.

Emotional Lability

Sudden laughing or crying for no apparent reason and difficulty controlling emotional responses, known as emotional lability, affects many stroke survivors. There may be no happiness or sadness involved, and the emotional display will end as quickly as it started.

Neglect

Some stroke survivors neglect the side of their world corresponding to the side of their brain which was injured by the stroke. Those with left-sided neglect do not perceive what is on their left side. For example, the stroke survivor with left-sided neglect may ignore the left side of the face when washing or not eat food on the left side of the plate. If the stroke survivor's head is moved to the left, neglected objects may become apparent. If the plate is turned around, he or she will finish eating the meal.

Memory Loss

Some changes in behavior, such as memory loss, can be so subtle the family may not notice them at first. A stroke survivor may be anxious and cautious, needing a reminder to finish a sentence or know what to do next.

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Some stroke survivors have difficulty with numbers and calculating. Their family will need to learn to keep things in the same place, do things in the same sequence, tell the stroke survivor in advance what is going to happen and possibly take over some responsibilities.

Communication Problems

If a stroke causes damage to the language center in the brain, there will be language difficulties. Some stroke survivors are unable to understand or speak at all. Others do not make sense when they speak. Some can no longer read or write. Many have difficulty pronouncing words. Communication problems are among the most frightening after-effects of stroke for both the survivor and the family, often requiring professional help.

Daily Task Difficulties

Stroke survivors will find that completing simple tasks around the house which they took for granted before the stroke are now extremely difficult or impossible. Many adaptive devices and techniques have been designed especially for stroke survivors to help them retain their independence and function safely and easily. The home usually can be modified so that narrow doorways, stairs and bathtubs do not interfere with the stroke survivor's ability to care for personal needs.

Helpful bathroom devices include grab bars, a raised toilet seat, a tub bench, a hand-held shower head, no-slip pads, a long-handled brush, a washing mitt with pockets for soap, soap-on-a-rope, an electric toothbrush and an electric razor.

There are many small electric appliances and kitchen modifications which also make it possible for the stroke survivor to participate in meal preparation.

Dressing and Grooming

Dressing oneself is a basic form of independence. The added value of being neatly and attractively dressed enhances a stroke survivor's self-image. There are many ways to eliminate the difficulties in getting dressed. Stroke survivors should avoid tight-fitting sleeves, armholes, pant legs and waistlines; as well as clothes which must be put on over the head. Clothes should fasten in front. Velcro fasteners should replace buttons, zippers and shoe laces. Devices which can aid in dressing and grooming include a mirror which hangs around the neck, a long-handled shoe horn and a device to help pull on stockings

Diet, Nutrition and Eating

A low-salt, low-fat, low-cholesterol diet can help prevent a recurrent stroke. People with high blood pressure should limit the amount of salt they eat. Those with high cholesterol or hardening of the arteries should avoid foods containing high levels of saturated fats (i.e., animal fats). People with diabetes need to follow their doctor's advice on diet. These diet controls can enhance the benefits of the drugs which may have been prescribed for control of a specific condition.

Weight control is also important. Inactive people can easily become overweight from eating more than a sedentary lifestyle requires. Obesity can also make it difficult for someone with a stroke-related disability to move around and exercise.

Some stroke survivors may have a reduced appetite. Ill-fitting dentures or a reduced sense of taste or smell can make food unappealing. The stroke survivor who lives alone might even skip meals because of the effort involved in buying groceries and preparing food. Soft foods and foods with stronger flavors may tempt stroke survivors who are not eating enough. Nutrition programs, such as Meals on Wheels, or hot lunches offered through community centers have been established to serve the elderly and the chronically ill.

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Special utensils can help people with physically-impaired arms and hands at the table. These include flatware with built-up handles which are easier to grasp, rocker knives for cutting food with one hand and attachable rings which keep food from being pushed off the plate accidentally.

Stroke survivors who have trouble swallowing need to be observed while eating so that they do not choke on their food. The same is true of those with memory loss who may forget to chew or to swallow. Tougher foods should be cut into small pieces.

Skin Care

Decubitus ulcers (sometimes called bed sores) can be a serious problem for stroke survivors who spend a good deal of time in bed or who use a wheelchair. The sores usually appear on the elbows, buttocks or heels.

To prevent bed sores, caregivers should make sure the stroke survivor does not sit or lie in the same position for long periods of time. Pillows should be used to support the impaired arm or leg. The feet can hang over the end of the mattress so that the heels don't rest on the sheet, or pillows can be put under the knees to prop them so that the soles of the feet rest flat on the bed. Sometimes, a piece of sheepskin placed under the elbows, buttocks or heels can be helpful. Special mattresses or cushions reduce pressure and help prevent decubitus ulcers.

Pain

A stroke survivor may suffer pain for many reasons. The weight of a paralyzed arm can cause pain in the shoulder. Improperly-fitted braces, slings or special shoes can cause discomfort. Often the source of pain can be traced to nerve damage, bed sores or an immobilized joint. Lying or sitting in one position too long causes the body and joints to stiffen and ache.

Sexuality

The quality of a couple's sexual relationship following a stroke differs from couple to couple. Most couples do find that their sexual relationship has changed, but not all find this to be a problem. The closeness that a couple shares before a stroke is the best indicator of how their relationship will evolve after the stroke. It is important to remember that sexual satisfaction, both giving and receiving, can be accomplished in many ways. Whatever is comfortable and acceptable between partners is normal sexual activity.

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