



Fact Sheet: Stroke

Definition

Stroke is an injury to the brain caused by an interruption of the brain's blood supply. Strokes may be caused by:

- **Thrombosis:** A gradual narrowing and eventual blockage of a brain or neck artery, usually from the accumulated build-up of cholesterol and fatty deposits. Approximately 60% of all strokes are caused by thrombosis.
- **Embolism:** A blockage of a brain or neck artery by a clot or "embolus." Clots can be blood clots which form elsewhere in the body (usually the heart) and travel to the brain, or they can be small pieces which break off of fatty deposits lining the arteries. Approximately 20% of all strokes are caused by embolism.
- **Hemorrhage:** A rupture of an artery in the brain or on its surface. Such ruptures can be caused by an aneurysm (a thin, weak area on an artery wall) or by a congenital malformation of the brain's circulatory system. Hemorrhages may occur within the brain itself, or in the space between the brain and its protective outer membrane. Approximately 20% of all strokes are caused by hemorrhage.

Facts

Stroke remains our nation's third-leading killer. According to the National Stroke Association, stroke strikes about 730,000 Americans each year-killing 160,000 and forever altering the lives of the 570,000 who survive. There are an estimated four million stroke survivors living in the U.S. today.

Symptoms

Some strokes are preceded by warning signs called transient ischemic attacks (TIAs). TIAs cause a temporary interruption of blood flow within or leading to the brain. (A stroke is a permanent cutoff of blood to a region of the brain.) TIA or stroke warning signs include:

- Numbness, weakness, or paralysis of the face, arm, or leg-especially on one side of the body.
- Sudden blurred or decreased vision in one or both eyes. Difficulty speaking or understanding simple statements.
- Loss of balance, dizziness, or loss of coordination, especially when combined with another warning sign.
- Severe, unexplained, localized headache with rapid onset.

It's important to learn to recognize these serious warning signs. Although they may not

cause pain and may disappear quickly, they are clear warning signs that a stroke may soon follow. If you experience any stroke warning signs, call 911 immediately!

Effects

The particular after-effects experienced by a stroke survivor will depend upon the location and extent of the stroke. For example, strokes which occur in the left hemisphere (half) of the brain can affect communication and memory as well as movement on the right side of the body. Strokes which occur in the right hemisphere of the brain can affect spatial and perceptual abilities as well as movement on the left side of the body. Large strokes (which damage a significant portion of brain tissue) generally result in a greater number of effects and/or an increase in their severity.

Although no two stroke survivors will experience exactly the same injuries or disabilities, physical, cognitive and emotional symptoms common to many stroke survivors include:

- Paralysis—Usually on one side of the body (the side opposite the hemisphere in which the stroke occurred), including the face and mouth. Patients may have difficulty swallowing.
- Vision problems—Patient may be unable to focus, may have a blind spot, may have problems with peripheral vision or one-sided neglect.
- Communication difficulties—Aphasia is a term used to describe a collection of communication difficulties, including problems with speaking, understanding, reading, and writing.
- Emotional lability—Uncontrollable, unexplained outward displays of crying, anger or laughter which have no connection to patient's actual emotional state. Episodes generally come and go quickly and dissipate over time.
- Depression—A natural reaction, with origins in physiological and psychological causes. Some important factors in

predicting the presence and severity of post-stroke depression include previous history of depression, location of the stroke, and size of the stroke.

Diagnosis

Improved medical technology has increased physicians' ability to accurately diagnose strokes and assess the damage to the brain. However, it is not always easy to recognize small strokes because symptoms may be dismissed by the patient and family as changes due to the aging process, or may be confused with symptoms of other neurological illnesses. As discussed earlier, any episode of stroke warning signs requires immediate emergency evaluation.

Treatment

As mentioned previously, stroke warning signs require immediate emergency medical evaluation. One reason for this urgency is that researchers have discovered recently that stroke-related brain damage can extend far beyond the area directly involved in the stroke and can worsen over the first 24 hours. Researchers are attempting to limit or prevent this secondary damage by testing the brain-protecting effects of drugs administered within the first six hours post-stroke.

When stroke occurs, hospitalization is necessary to determine the cause of the stroke as well as to treat and prevent any complications that may result. Once the stroke survivor's condition is stabilized and neurological deficits no longer appear to be progressing, rehabilitation begins.

Rehabilitation may include intensive retraining in a variety of areas: movement; balance; perception of space and body; bowel and bladder control; language; and new methods of psychological and emotional adaptation.

Stroke rehabilitation programs consist of the coordinated efforts of many health professionals.

Approximately 80% of all stroke survivors have physical, perceptual and language deficits which can be helped through rehabilitation. Many do not receive the services they need because they are not referred to these services or because government or private insurers do not cover these services. A social worker can be useful in making special financial arrangements for long-term care.

Risk Factors

Several risk factors can make a person more likely to experience a stroke. These risks are divided into controllable (those you can change) and uncontrollable (those you cannot change).

Controllable Stroke Risk Factors

The good news is that 50% of all strokes can be prevented through medical attention and simple lifestyle changes.

- **Hypertension (high blood pressure):** High blood pressure means your blood pressure is consistently higher than 140/90. High blood pressure damages artery walls and can increase blood clotting action, which can lead to the formation of stroke-causing clots. High blood pressure can increase your stroke risk two to six times.
- **Atrial fibrillation:** Atrial fibrillation (AF) is the name of a particular type of irregular heartbeat affecting more than 1 million Americans. In AF, the left atrium (left upper chamber) of the heart beats rapidly and unpredictably. Normally, all four chambers of your heart beat in the same rhythm somewhere between 60 and 100 times every minute. In someone who has AF, the left atrium may beat as many as 400 times a minute. If left untreated, AF can increase your stroke risk from 4 to 6 times. Long-term untreated AF can also weaken the heart, leading to potential heart failure.

- **Smoking:** In addition to harming the lungs, smoking also injures blood vessel walls, speeds up hardening of the arteries, increases how hard your heart has to work, and raises blood pressure. Smoking can double your stroke risk. The good news is that if you stop smoking today, within 2 to 5 years your stroke risk will be the same as that of someone who has never smoked.
- **High cholesterol and excess weight:** In adults, a cholesterol level of 200 or lower is best. Excess cholesterol can settle on artery walls and lead to the eventual blockage of these vessels by thrombosis. Being overweight strains the entire circulatory system and predisposes you to other stroke risk factors, such as high blood pressure.

Uncontrollable Stroke Risk Factors

Although you cannot change these risk factors, you can greatly minimize their impact on your overall stroke risk by concentrating efforts on your controllable stroke risk factors.

- **Age:** Stroke risk doubles with each decade past age 55.
- **Gender:** Males have a slightly higher stroke risk than females.
- **Race:** African Americans have double the stroke risk of most other racial groups.
- **Family history:** A family history of stroke can mean you are at higher risk.
- **Diabetes:** Circulation problems associated with the disease may increase stroke risk even if blood sugar and insulin levels are closely managed.

In addition to these risk factors, stroke has also been associated with heavy alcohol use (especially binge drinking), elevated red blood cell counts, and with the use of high estrogen birth control pills by female smokers over age 30. No direct relationship has yet been demonstrated between stress and stroke risk.

Recurrent Stroke

A personal history of stroke can increase your risk of recurrent stroke by ten times. In addition to addressing controllable stroke risk factors, some stroke survivors may benefit from prescription medication to reduce their stroke risk.

Recommended Readings

Stroke and Cerebrovascular Diseases: A Guide for Patients and Their Families, 1999, The Stanford Stroke Center, 701 Welch Road, Bldg. B, Suite 325, Palo Alto, CA 94304, (650) 723-4448.

Brain Attack: Mapping Out Early Recovery From Stroke, Mary M. Castiglione and Cynthia Johnson, 1995, Pritchett and Hull Associates, 3440 Oakcliff Rd., NE, Ste. 110, Atlanta, GA 30340-3079, (800) 241-4925.

Right Brain Stroke, Interactive Therapeutics, Inc. P.O. Box 1805, Stow, OH 4424-0805, (800) 253-5111.

Recovering From a Stroke (Patient and Family Guide) and Post-Stroke Rehabilitation: Assessment, Referral, and Patient Management (Clinical Practice Guideline), U.S. Dept. of Health & Human Services, 1995, AHCPublications Clearinghouse, P.O. Box 8547, Silver Spring, MD 20907, (800) 358-9295.

Family Guide to Stroke, Louis R. Caplan, et al., 1994, American Heart Association. Available from the AHA Stroke Connection, (800) 553-6321.

Stroke Survivors, William Berquist, Rod McLean and Barbara Koblinsky, 1994, Jossey-Bass Publishers, 350 Sansome St., San Francisco, CA, (415) 433-1767.

Credits

National Stroke Association, 1999, Stroke Facts: Brain Attack Statistics.
American Heart Association, 1999, Stroke (Brain Attack).

Resources

Mountain Caregiver Resource Center
2491 Carmichael Drive, Suite 400
Chico, CA 95928
(530) 898-5925
(800) 995-0878
www.caregiverresources.org

Mountain Caregiver Resource Center offers a full complement of family services designed to assist caregivers of adults with brain disorders. Most services are offered free or on a low-cost sliding scale.

Services include: specialized information, family consultation and care planning, support groups, short-term counseling, respite care, legal and financial assistance, in addition to family and professional training.

Family Caregiver Alliance
690 Market Street, Suite 600
San Francisco, CA 94104
(415) 434-3388
(800) 445-8106 (in CA)
Website: <http://www.caregiver.org>
E-mail: info@caregiver.org

Family Caregiver Alliance supports and assists caregivers of brain-impaired adults through education, research, services and advocacy.

FCA's information Clearinghouse covers current medical, social, public policy and caregiving issues related to brain impairments.

For residents of the greater San Francisco Bay Area, FCA provides direct family support services for caregivers of those with

Alzheimer's disease, stroke, traumatic brain injury, Parkinson's and other debilitating brain disorders that strike adults.

National Stroke Association
96 Inverness Drive East, Suite I
Englewood, CO 80112-5112
(303) 649-9299
(800) STROKES
www.stroke.org

The National Stroke Association provides education, information and referral, and research on stroke for families, health care professionals and others interested in or affected by stroke.

The American Heart Association and the Easter Seal Society often sponsor stroke programs and stroke clubs or support groups throughout the nation. For more information on local or regional chapters contact:

American Heart Association
National Center 7272 Greenville Ave.
Dallas, TX 75231
(214) 373-6300
(800) 553-6321 (Stroke Connection)
www.amhrt.org

American Heart Association
California Affiliate
120 Montgomery St., Ste. 1650
San Francisco, CA 94104-4319
(415) 433-2273

Stroke information and referral to local self-help groups for stroke survivors and their families is available through 25 chapters throughout California. To identify your local chapter, contact the California Affiliate office.

National Easter Seal Society
230 West Monroe St., Ste. 1800
Chicago, IL 60606
(312) 726-6200
(800) 221-6827
www.seals.com

Many Easter Seal Society chapters sponsor rehabilitation and stroke resocialization programs.

Reviewed by Thelma Edwards, RN, National Stroke Association. Prepared by Family Caregiver Alliance in cooperation with California's Resource Centers, a statewide system of resource centers serving families and caregivers of brain-impaired adults. Funded by the California Department of Mental Health. Revised September 1999. ©All rights reserved.

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