What disabilities can result from a stroke?

The types and degrees of disability that follow a stroke depend upon which area of the brain is damaged and how much is damaged. It is difficult to compare one individual's disability to another, since every stroke can damage slightly different parts and amounts of the brain. Generally, stroke can cause five types of disabilities: paralysis or problems controlling movement; sensory disturbances including pain; problems using or understanding language; problems with thinking and memory; and emotional disturbances.

Paralysis or problems controlling movement (motor control)

Paralysis is one of the most common disabilities resulting from stroke. The paralysis is usually on the side of the body opposite the side of the brain damaged by stroke, and may affect the face, an arm, a leg, or the entire side of the body. This one-sided paralysis is called *hemiplegia* if it involves complete inability to move or *hemiparesis* if it is less than total weakness. Stroke patients with hemiparesis or hemiplegia may have difficulty with everyday activities such as walking or grasping objects. Some stroke patients have problems with swallowing, called *dysphagia*, due to damage to the part of the brain that controls the muscles for swallowing. Damage to a lower part of the brain, the cerebellum, can affect the body's ability to coordinate movement, a disability called *ataxia*, leading to problems with body posture, walking, and balance.

Sensory disturbances including pain

Stroke patients may lose the ability to feel touch, pain, temperature, or position. Sensory deficits also may hinder the ability to recognize objects that patients are holding and can even be severe enough to cause loss of recognition of one's own limb. Some stroke patients experience pain, numbness or odd sensations of tingling or prickling in paralyzed or weakened limbs, a symptom known as *paresthesias*.

The loss of urinary continence is fairly common immediately after a stroke and often results from a combination of sensory and motor deficits. Stroke survivors may lose the ability to sense the need to urinate or the ability to control bladder muscles. Some may lack enough mobility to reach a toilet in time. Loss of bowel control or constipation also may occur. Permanent incontinence after a stroke is uncommon, but even a temporary loss of bowel or bladder control can be emotionally difficult for stroke survivors.

Stroke survivors frequently have a variety of chronic pain syndromes resulting from stroke-induced damage to the nervous system (neuropathic pain). In some stroke patients, pathways for sensation in the brain are damaged, causing the transmission of false signals that result in the sensation of pain in a limb or side of the body that has the sensory deficit. The most common of these pain syndromes is called "thalamic pain syndrome" (caused by a stroke to the thalamus, which processes sensory information from the body to the brain), which can be difficult to treat even with medications. Finally, some pain that occurs after stroke is not due to nervous system damage, but rather to mechanical problems caused by the weakness from the stroke. Patients who have a seriously weakened or paralyzed arm commonly experience moderate to severe pain that radiates outward from the shoulder. Most often, the pain results from lack of movement in a joint that has been immobilized for a prolonged period of time (such as having your arm or shoulder in a cast for weeks) and the tendons and ligaments around the joint become fixed in one position. This is commonly called a "frozen" joint; "passive" movement (the joint is gently moved or flexed by a therapist or caregiver rather than by the individual) at the joint in a paralyzed limb is essential to prevent painful "freezing" and to allow easy movement if and when voluntary motor strength returns.

Problems using or understanding language (aphasia)

At least one-fourth of all stroke survivors experience language impairments, involving the ability to speak, write, and understand spoken and written language. A stroke-induced injury to any of the brain's language-control centers can severely impair verbal communication. The dominant centers for language are in the left side of the brain for right-handed individuals and many left-handers as well. Damage to a language center located on the dominant side of the brain, known as Broca's area, causes *expressive aphasia*. People with this type of aphasia have difficulty conveying their thoughts through words or writing. They lose the ability to speak the words they are thinking and to put words together in coherent, grammatically correct sentences. In contrast, damage to a language center located in a rear portion of the brain, called Wernicke's area, results in *receptive aphasia*. People with this condition have difficulty understanding spoken or written language and often have incoherent speech. Although they can form grammatically correct sentences, their utterances are often devoid of meaning. The most severe form of aphasia, *global aphasia*, is caused by extensive damage to several areas of the brain involved in language function. People with global aphasia lose nearly all their linguistic abilities; they cannot understand language or use it to convey thought.