



From stroke survivor

*The American Heart
Association's past
president Donna Arnett
shares her story*

BY TODD FARLEY



to heart-health advocate

In 2012, Donna Arnett, Ph.D., M.S.P.H., F.A.H.A., became the first epidemiologist named president of the American Heart Association (AHA). But more newsworthy than her field of study was her medical past: Twenty-seven years ago, Donna experienced a stroke, making her the first stroke survivor to lead the AHA. While she'd never hidden her history, as president of the organization Donna saw an opportunity.

"Since I was in a position where I had a platform and we now have a method of treating stroke," she says, "I decided to share my story."

Donna's stroke occurred when she was a seemingly healthy 27-year-old. She'd woken up early as usual, but when retrieving her dog from the backyard she discovered something wasn't right.

"When I called his name to come in, my words were garbled," she says. "I thought, did I really just hear that? It sounded odd, and I felt fuzzy, not myself."

Donna worked as a clinical nurse in a cardiologist's office and was aware of the signs of stroke but didn't believe it was happening to her. "I shook it off and went to work, and by 7 a.m. I thought I was having a transient ischemic attack," she says. During a transient ischemic attack, or TIA, an individual experiences the symptoms of stroke only temporarily.

But Donna's symptoms didn't go away. "The symptoms piled on over the next couple of hours," she says. "My face [was drooping on one side] and I was drooling. I was weaker on my left side. And my speech was slurred initially." By the time her mother drove her to the nearest

emergency room, Donna couldn't speak.

Although she felt no pain, Donna certainly felt fear. She was worried about her health and concerned she'd never be able to return to the career she loved. "It was really scary to be in the medical field and for my brain to be working and know what was going on," she says.

What was going on was that Donna was having a stroke. Strokes are classified into two major categories: *ischemic* and *hemorrhagic*. Nearly 90 percent of strokes are ischemic, which is when a blood vessel supplying blood to the brain becomes blocked. Hemorrhagic strokes occur when a weakened blood vessel bursts. Both result in brain injury.

"When the blood flow gets altered because of bleeding or blockage, the brain is starved of nutrients and oxygen and doesn't function correctly," says Ralph Sacco, M.D., M.S., F.A.H.A., F.A.A.N., chairman of neurology at the Miller School of Medicine, University of Miami and past president of AHA. "Either the brain cells die or become injured and neurological symptoms develop."

RECOGNIZING STROKE

The primary neurological symptoms of stroke are described by using the acronym FAST: **F**ace drooping, **A**rm weakness, **S**peech difficulty, and **T**ime, indicating the need for urgency in dealing with those symptoms. (For more information on stroke

symptoms, visit heartinsight.com to read our online-only bonus article, "Act FAST to recognize the signs of stroke.") "Other major neurological symptoms are sudden weakness or numbness and tingling on one side of the body, sudden loss of speech or slurred speech, sudden loss of vision, difficulty walking, and severe headache, although headache comes mostly during hemorrhagic strokes," says Sacco.

In the mid-1980s when Donna was experiencing those symptoms, there was little to be done for her when she arrived at the emergency room. Hemorrhagic strokes can be seen on a computed tomography (CT) scan, but ischemic strokes usually show normal brain tissue in the early hours after this type of stroke. Donna's scan showed nothing, indicating that she had an ischemic stroke. So she was admitted to the "step-down" unit of the hospital and watched closely.

"I was just observed," Donna says. "My speech started to come back over the course of the next few days, and eventually I went home and back to work."

While Donna returned to her normal life, she faced some challenges. "I lost parts of my brain I didn't realize until I went back to work," she says. "I forgot how to read a calendar so when scheduling my patients I'd say, you have to come back in a week, but I'd have no idea what that meant. From other parts of my brain, I knew the patient had to return in a week, but I could not look at a calendar and say what that was."

Another effect Donna felt is one she says is often under-recognized. She calls herself an upbeat person but says after the stroke, "it took a while for my brain to feel normal again. I felt this fuzziness and depression I'd never experienced before. It was probably six months before I felt really confident and healthy."

Three weeks after Donna's stroke, magnetic resonance imaging (MRI) revealed white lesions in her brain where the unhealthy brain tissue could be seen. "I had multiple small blood clots that broke off from a valve in my heart and went into my brain, so there were multiple smaller places impacted." This type of stroke is called a *cardioembolic stroke*, meaning the cause of stroke was from issues related to the heart.

Blood tests revealed that Donna had a blood clotting abnormality that led to her stroke. For the last 27 years she's been taking the blood thinner warfarin, and she's remained stroke-free ever since.

TIME IS BRAIN

While there was nothing to be done for Donna in the emergency room when she had her stroke, treatments for stroke now exist. Although only four hours passed that morning

Stroke by the numbers

- About 795,000 Americans will have a stroke (new or recurrent) each year. That's one stroke every 4 seconds.
- Stroke is the fourth highest cause of death in the United States, causing more than 128,000 deaths annually. Stroke is also a leading cause of disability.
- Stroke risk doubles with each decade past age 55.
- As many as 55,000 more women than men have strokes every year. Sixty percent of stroke deaths occur in women.
- The risk of first-time stroke is nearly two times higher for African-Americans than whites.
- There are approximately 7 million stroke survivors over age 20 currently living in the United States.
- The overall cost of stroke in the United States was estimated to be \$38.6 billion in 2009.
- About 2 million brain cells die every minute during a stroke, indicating the need to act FAST.

from the time Donna first experienced symptoms until she arrived at the hospital, in reality that wasn't fast enough.

"What we've learned is that every second lost is brain lost," she says. "[Today], there is a clot-busting drug called tPA [which stands for tissue plasminogen activator] and medical devices that can go in and retrieve a clot, to open up the vessel to allow the blood to flow again. Used within an early timeframe, that can help reverse the damage."

"Time is brain," Sacco says. "When blood flow to the brain is interrupted, brain cells may malfunction, and if you restore the blood flow quickly enough the cells may actually go back to normal. The longer the blood flow is interrupted, the more chances neurological symptoms will remain permanent."

Although he says hemorrhagic strokes are "harder to treat," most ischemic strokes can be treated if patients arrive at the emergency room quickly enough. "tPA dissolves blood clots and opens up blood vessels, but it only works if given up to 4½ hours of the beginning of the stroke," Sacco says. "In fact, it works better if it's given sooner so we try to give it as quickly as possible."

Sacco says this need for urgency in treating stroke is important because the drug can't be given immediately. "You can't get the tPA until certain things are done," he says. "We have to be able to differentiate between a hemorrhagic stroke and an ischemic stroke, so there are blood tests, an examination and brain images like CT scan or MRI, which are all critical before we give tPA."

At comprehensive stroke centers, clot-retrieval devices are also used to open up blood vessels in stroke patients. tPA has proven effective in treating stroke, but Sacco says it remains underused. "If there are 795,000 strokes a year, probably only about 5 percent of people are getting tPA, often because they aren't getting urgent medical attention fast enough."



Donna stays active by competing in K9 agility competitions around the country with her dog Sam.

AN OUNCE OF PREVENTION

Some stroke victims end up with brain deficiencies and will need various types of therapy (physical, occupational, speech) to try to improve their brain function. That reality emphasizes the importance of stroke prevention even more than stroke treatment.

Transient ischemic attack (TIA): Not a stroke but still urgent

There are certain risk factors that increase the likelihood of stroke. These include having high blood pressure, high cholesterol and high blood sugar (diabetes); being overweight and physically inactive; smoking; and eating a diet high in sodium.

Certain medical conditions can also lead to stroke. In older adults, abnormal heart rhythms can cause blockages that result in stroke. In younger people, problems with blood clotting often lead to blockages and stroke (as happened in Donna's case).

But there's only one real "warning sign" of stroke, and that's the TIA (often called a "mini stroke"), which indicates a stroke may well be on the way. Like all ischemic strokes, a TIA occurs when a blood vessel is blocked by a clot and brain function is impaired. The symptoms of TIA are the same as stroke and can include the "suddens":

- Sudden numbness or weakness of the face, arm or leg, especially on one side of the body
- Sudden confusion, trouble speaking or understanding
- Sudden trouble seeing in one or both eyes
- Sudden trouble walking, dizziness, loss of balance or coordination
- Sudden, severe headache with no known cause

A TIA is different than a stroke, however, in that it's temporary. The clots dissolve on their own and blood flow is restored. TIAs frequently last less than five minutes and brain function returns to normal without treatment of any kind, with no permanent brain damage.

While people who experience a TIA may breathe a sigh of relief when their symptoms diminish, the news is not all good: A TIA is a "warning stroke" that indicates a clot occurred, and the cause of that clot or possible future clots needs to be identified. A TIA "may mean the artery can block later," says Sacco, "so that's why you need to get urgent attention to figure out what caused the TIA and what to do to prevent a stroke."

Donna calls TIA "a common predecessor of stroke," an assertion supported by the AHA/ASA's statement that "a third of people who experience TIA go on to have a stroke within a year." Many will have a stroke within 48 hours. Like a stroke, a TIA should be considered a medical emergency and treated immediately.

"It's much better if you don't have a stroke at all," says Sacco. "The therapies aren't miraculous and don't bring everyone completely back, so it's better if you can prevent the stroke from occurring in the first place."

Donna agrees wholeheartedly. "We know the majority of strokes are ischemic and happen after a hardening of arteries," she says, "and we know how to prevent those kinds of strokes from happening."

To prevent those strokes, the American Heart Association/American Stroke Association advises everyone to follow modest lifestyle and behavioral changes that they call "Life's Simple 7." For more information, see page 16. It identifies the risk factors of stroke that can be controlled through lifestyle changes.

Controlling these risk factors, Donna says, strongly reduces one's chances of having a stroke. "We strongly believe at the AHA/ASA that stroke is largely preventable, treatable and beatable."

To see that stroke can be beatable, one need look no further than the story of Donna Arnett. "I think there's a very positive message to be shared that many people with stroke recover," Sacco says. "We often think of cases that leave someone disabled, but there are many people who recover and go on to do things like become president of the American Heart Association."

Donna's stroke occurred 27 years ago, but its effects can still be felt. She continues to have trouble with calendars, saying she hasn't been able to understand them since her stroke. She also admits that she's a "little more clumsy" than she was, isn't so "fast" and jokes that she doesn't intend to re-learn calculus again. Mostly, however, the effects of her stroke didn't slow Donna down. She became president of the AHA/ASA and is today the chair and professor of epidemiology at the University of Alabama School of Public Health.

Not bad for a woman who once worried she'd never work again. ■