

Brain attack!

Doctors disappointed with progress of “clotbuster” regimen, but have ideas how to make stroke reversal more successful

by MICHAEL FINLEY
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It's the suddenness that tips you off. You're standing at the photocopier, or finishing a conference call, or stepping out of a cab. Then suddenly ...

- you feel numbness in the face, arm or leg, maybe just on one side
- you feel confused, you don't “get” what's happening
- you can't see right, or talk right
- you can't walk without staggering
- you feel an awful migraine-caliber headache.

Yes, you are having a stroke. Probably the commonest, ischemic kind, caused by an obstruction (usually a clot) somewhere in the blood vessels of the brain. What a myocardial infarct is to the heart, a cerebral vascular accident or stroke is to the brain – a veritable attack, characterized the same way, by insufficient blood flow to the so-vital organ.

Doctors have known about strokes since the days of Hippocrates, when it was called apoplexy, which in Greek means “knocked down by violence.” It wasn't until the renaissance, however, that autopsies showed that people who died of apoplexy experienced an obstruction (ischemic stroke) or sudden bleeding in the brain (hemorrhagic stroke).

Every year about 600,000 American get knocked down this way. Over a third of these die. Strokes are the third-largest cause of death after cancer and heart disease.

Beat the clock

But back to your stroke. You're probably not sharp enough to realize it just now, but in this sudden moment of being knocked down, you have been entered in a race against time.

If you get to the hospital and get treatment within three hours – a tried-and-true injection of tissue plasminogen activator, or tPA, a medicine that tells the body's natural clot-dissolving mechanism to kick in -- you have a decent chance, about one in eight, of coming out of the ER completely restored.

If not, if you lose your race (and you survive), you will face the most difficult challenge of your life, coming back from a stroke-caused neurological deficit – loss of movement, or speech, or other brain function.

It will be difficult physically, because your brain will no longer effectively command your body as it used to. It will have to master new pathways – and new is always hard.

In the meantime, you will live in what most stroke victims describe as hell on earth – having much you want to say and do, but unable to say or do much of anything. People won't understand you. They may tune you out entirely.

So you can see how terribly important it is, when you get knocked down, to get to the hospital quickly. So how many ischemic stroke victims do you suppose get to the ER in time?

“The sad news is that only 2.5 percent of stroke victims get treated in the recommended time frame in our area,” said David Anderson, MD, chairman of the neurology department at the University of Minnesota. Anderson knows, because he conducted the study that yielded that disappointing statistic.

It's a matter of deep distress to the neurological community, he said, because the treatment really works. The same drug, tPA, is provided by ERs for heart attack patients, and it saves lives by the tens of thousands. But for a variety of reasons, the healthcare system has been unable to make it work often enough, and as effectively, for stroke victims.

One reason, said Karen Porth, MD, who heads up the stroke treatment team at the Minneapolis Clinic of Neurology in Edina, is that strokes aren't as obvious as heart attacks. “When people have a heart attack, they know it. Stroke victims aren't so sure. Often, they tell themselves, I will just lie down for a spell, and this feeling will go away.” And lying down, of course, eats the three-hour target time right up.

It may even be that denial of a neurological problem is neurologically hardwired into us, Anderson suggested. Humans have long lived in a world in which it is safer to deny there is an problem imminent problem than to “go down” and seek help.

A more rational fear is expense, Porth said. “People worry that an ambulance ride won't be covered, and they will wind up owing hundreds of dollars for over-reacting. So they wait for a ride from a daughter across town – and lose more time.”

But the problem that troubles both Anderson and Porth is that the current system just doesn't work as well for stroke victims as it does for heart attack victims. Not every hospital ER is equipped to do the procedure. Right now it requires a neurologist to be there in the emergency room. Not every ER has neurologists on call that can arrive quickly and make the proper diagnosis.

“Everyone is trying their best,” Porth said. “It isn't that neurologists aren't involved, or that ERs don't care. We just haven't made the same commitment that we have made to heart attacks.”

A better way

One neurologist who has achieved higher success rates is Sandra Hanson, who runs the stroke treatment team at Methodist Hospital in Saint Louis Park. She sees the problem being one of commitment.

“It’s not reasonable to expect entire ERs to make strokes a number one priority,” she said. The clotbuster drug can’t be administered as willy-nilly as giving epinephrine for bee-stings. If you give it to a patient with a different problem, you can cause bleeding into the brain, which is as bad the problem you are trying to solve. So in her view it is up to neurologists to step up the pace. “It is crucial that the people in charge of responding are fully invested in the problem.

Methodist Hospital’s neurology staff is never far from the emergency room, and doctors are available around the clock for spot consultation. Hanson herself, in addition to seeing a full schedule of clinical patients, is on call three 24-hour periods every week, during which she may get five emergency stroke calls.

“It’s too big a commitment for just a few persons,” she said, “but it’s doable. It just requires a little organization.” And the payoff is terrific. Get to a patient within three hours, and there’s a 50% chance of some degree of improvement. Any doctor will jump at those kind of odds.

There are lots newer and more exciting treatments and technologies for stroke than tPA, Hanson said [see sidebar]. But tPA still represents medicine’s best way to achieve life-sparing results for the largest number of people at the most important moment. That’s why she and her colleagues are taking pains to get it right.

Sidebar:

It can happen to you

150 word sidebar on NeuroVasx – to come

NeuroVasx, Inc. was founded in 1997 to develop unique diagnostic and therapeutic devices for the treatment of cerebrovascular diseases. The Company's initial products are designed to provide faster and more effective treatment of acute stroke. NeuroVasx intends to introduce its first product into the U.S. market, the Sub-MicroInfusion Catheter, in the latter half of 1999. NeuroVasx has assembled an impressive array of managerial, technical, and medical advisory talent and a state-of-the-art facility in order to develop unique products to compete in the rapidly evolving Interventional Neuroradiology market.

Sidebar:

It can happen to you

The phone call was from Gail, a friend who doesn’t drive. We have an understanding: when she’s in dire need, she can call me. (Freelance writers can be awfully available.) So I knew this was serious.

“There’s something wrong with my friend Sally’s mom, and Sally’s an hour away by car. Is there any chance you could get us over to the emergency ward?”

“What do you think’s the matter?” I asked.

“She may have had a stroke.”

Minutes later. Gail and I were helping Audrey slip on her coat and wobble down the sidewalk to my car, and within a half hour we arrived at the hospital. There, a neurologist was called in, who examined Audrey and gave her an injection of something called tPA (tissue plasminogen activator), a handy medicine that activates the body’s natural clotbusting mechanism.

The medicine worked. A couple of hours later, Audrey left the hospital, a little fatigued from the ordeal, but otherwise OK. By acting quickly, we prevented Audrey from experiencing serious deficits from her stroke. The only mistake we made, we were told, was driving her ourselves. Better to call 911 and have an ambulance get over there, *stat*.

– **Mike Finley**

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