

in **good** health

Reducing the Damage from Stroke

Every year in the United States a whopping 795,000 people have a stroke. Stroke, also called a “brain attack,” is a medical emergency. It occurs when blood flow to an area of the brain is cut off. As a result, brain cells die and, if not caught early, the stroke may result in permanent brain damage or death. Although this common neurological condition may not always be prevented, minimizing certain risk factors can help prevent a stroke from occurring. Recent advances have led to the development of highly effective tools that can minimize the damage from stroke. We asked Jason Tarpley, MD, PhD, medical director of the Providence Saint John’s Health Center stroke center, to describe the recent advances in stroke prevention and treatment and the cutting-edge strategies employed at Saint John’s to improve patient outcomes. Dr. Tarpley attended medical school and completed his residency and fellowship at the University of California, Los Angeles.

Q: **How did you become interested in stroke?**

“I was drawn to stroke as a subspecialty for a couple reasons. First, stroke tells us about the function of different parts of the brain. When someone has a stroke, or subarachnoid hemorrhage



Jason Tarpley, MD, PhD

or bleeding into the brain, they have dysfunction in a specific part of the brain. It’s fascinating and fun that you can figure out where

the problem is in the brain by understanding a patient’s symptoms. The second reason I was drawn to stroke as a specialty is that with our amazing new treatments, stroke patients can get better right in front of your eyes.”

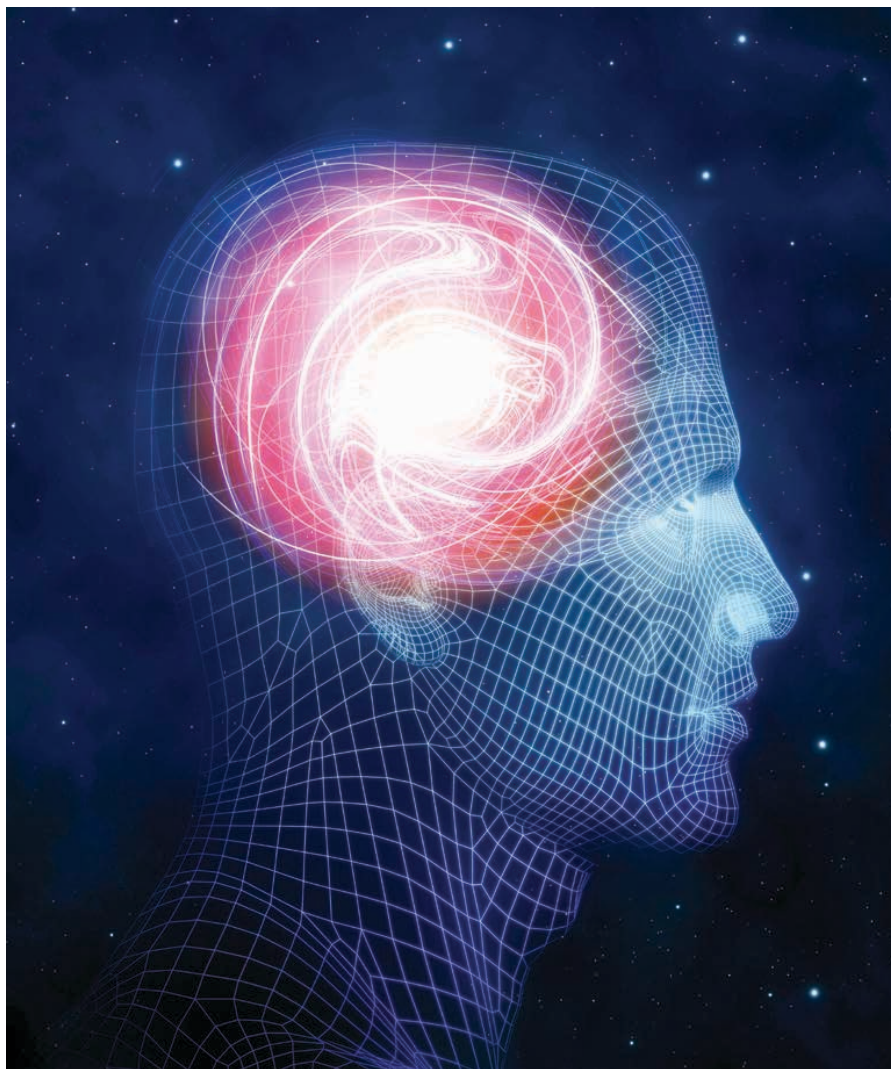
What are some of the advances in treating stroke?

“Strokes caused by clots in arteries of the brain are called ischemic strokes. If someone seeks treatment right away, there are two treatments that can be provided. tPA, which was proven to be effective back in the mid-90s, is a drug that can dissolve about one-third of stroke-causing clots. It was a major advance in the field of stroke, and the stroke world just got its second major advance

in thrombectomy. tPA is like Drano working by dissolving clots. But, some clots are too big for tPA to take care of. These big clots are more dangerous, too. Thrombectomy is a procedure performed in which a tiny catheter is navigated into the arteries of the brain and a device is used to snare the clot and pull it out. Thrombectomy is like using a snake for a big clog. Thrombectomy can only be performed at specialized centers who have a developed interventional neuroradiology program.”

Can you explain why people need to get to the hospital right away when they are having a stroke?

“tPA typically has to be given within three hours of the onset of symptoms in order



to prevent damage to the brain. It's still a major problem that people don't get to the hospital in time to receive tPA. I just had a patient today who woke up and he was unable to produce speech, but he didn't get to the hospital on time. It happened all of a sudden. His language was suddenly impaired. Sudden impairment is a symptom of stroke nine times out of 10. His symptoms started at 8 a.m., and he didn't get to the ER until 1 p.m."

Why are people reluctant to call 911 with stroke symptoms?

"The challenge we have in acute stroke is that the symptom is a lack of function. It's not terrible pain. When someone has crushing pain, they usually don't wait four to six hours to go to the ER. But sometimes when someone can't move their arm they wait to go to the ER. We're doing what we can to get the word out that time matters. tPA and mechanical thrombectomy are both underutilized treatments, and we need to do something about that."

Does time also matter when performing a thrombectomy?

"The sooner you perform it, the better. About 1.9 million brain cells die every minute that an acute stroke goes untreated."

Are there good treatments for the other kind of stroke—hemorrhagic stroke?

"Hemorrhagic stroke is not as common, but it's actually more deadly than ischemic stroke. It's just as important to seek early care because we have good treatments for hemorrhage stroke as well. For example, when someone has bleeding from an aneurysm, treatment starts by fixing the aneurysm, but there is much more we can do as well."

Are there risk factors for stroke and strategies to prevent stroke?

"Age is a risk factor for stroke, and there is nothing you can do about it. It's a non-modifiable risk factor. But there are modifiable risk factors, such as making sure your blood pressure, blood sugar and cholesterol are under control. A common heart rhythm disorder, atrial fibrillation, also places individuals at a higher risk for stroke, often times warranting blood-thinning therapy to minimize the formation of blood clots. Smoking also increases the risk for both ischemic and hemorrhagic stroke. A healthy diet and exercise help prevent stroke. Carotid artery narrowing is when the arteries that bring up blood into the brain can form cholesterol plaques that cause a blockage or narrowing. That puts you at risk for having a stroke. Fixing these narrowed carotid arteries in the appropriate patients with either surgery or stenting can definitely prevent a stroke."

Saint John's anticipates being named an accredited stroke center later this year.

STROKE IS AN EMERGENCY

Doctors have several tools to treat stroke and minimize any long-term effects. However, these treatments often depend on patients or family members recognizing stroke symptoms and quickly calling for help. Remember the acronym **FAST**.

Face: One side of the face is drooping or numb.

Arm: One side of body is hanging, numb, weak or not working properly.

Speech: The person cannot speak or speech is hard to understand.

Time: Time is brain. Call 911 and get to a hospital immediately. Check the time so you can tell doctors when the symptoms first appeared.

What will this designation mean?

"When you have symptoms of a stroke, the best thing is to go to a designated stroke center as fast as possible. Our Westside community needs to have an advanced stroke center on this side of the 405 Freeway. A primary stroke center means the hospital is staffed with expert stroke neurologists, stroke-trained nurses, therapist and staff, and can deliver therapies like tPA and thrombectomy to stop a stroke in its tracks."

Saint John's has also added a telestroke program. What service does that provide?

"One of the things we have to do in a stroke center is to provide immediate stroke neurology evaluation of the patient. During the day we can provide immediate evaluation. After hours we can use the telestroke robot to establish a high-resolution video conference call with specialists on Providence's telestroke panel. This is a highly specialized panel of doctors who are fellowship-trained in neuro-critical care or vascular neurology. They are stroke neurologists. Using the robot, within minutes we can put a stroke neurologist in front of the patient via video. We named our robot Penny because the penumbra is the part of the brain at risk in stroke. We're trying to save the penumbra."

When patients have damage after a stroke, can they still get better and regain function?

"Most patients will get better after a stroke. Neurological rehab has come a long way. It's very useful after a stroke. The brain has an ability to be plastic and change. We try to focus rehab efforts on teaching the undamaged part of the brain to do the job for the damaged part of the brain."