Medical team studies when an effective but sometimes risky stroke drug should be used

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Count RoseMary Lee among the fortunate ones.

When Lee suffered a stroke a few weeks ago, she was rushed to a hospital with an advanced stroke program and she received state-of-the-art care.

Two days later, Lee, 79, was back home in Gladstone, Mo., and back to normal.

"It's amazing how it worked," Lee said.

Amazing, yes. But it happens far less often than it should, many doctors say.

Close to 800,000 people in the United States have strokes each year; they kill nearly130,000 people. It's the fifth-leading cause of death. When they're not deadly, strokes can be severely debilitating, making it difficult or impossible for survivors to speak or walk or care for themselves.

But advances in stroke care have made it possible for more people like Lee to leave the hospital with little or no disability.

The first line treatment for stroke - what the American Heart Association calls the gold standard - is a drug called tissue plasminogen activator, or tPA for short. Given intravenously, tPA dissolves the blood

clots in the brain that are responsible for about 87 percent of strokes. Patients who get it three hours or less after their stroke starts are 30 percent more likely to recover with little or no disability. Some patients qualify for tPA even 4 { hours after their symptoms first appear.

The drug has been around since 1996, but even after two decades few patients are getting it.

A key reason is that only 22 to 31 percent of patients arrive at a hospital in time for tPA. People often don't realize they're having a stroke and delay calling 911. Indeed, about 20 percent of strokes happen while people are asleep, and there's no way to determine when the stroke started.

But even when patients arrive at hospitals in time, just 13 percent got tPA last year, according to the American Heart Association.

"People still don't get urgent medical attention for stroke," said Ralph Sacco, a past president of the heart association and chief of neurology at Jackson Memorial Hospital in Miami. "There's a lot of room for improvement."

A recent study of Medicare patients found that tPA use varies drastically from region to region. In some hospital markets, no patients at all were receiving tPA; in other areas, tPA use was more than three times the national average.

One reason tPA hasn't been more widely adopted, stroke experts say, is that many doctors remain skittish about using the drug.

"I think there's some trepidation, what's the risk and benefit ratio," said Karin Olds, a neurologist and medical director of the stroke center at St. Luke's Hospital. "Emergency room doctors tell me they feel they don't

have the backup (from neurologists) after it's given. When you're not treating strokes all the time, you not comfortable using (tPA)."

That anxiety comes from some very real risks from tPA. The longer that a clot blocks an artery and starves the brain of oxygen, the greater the damage a stroke causes. Close to 2 million brain cells die every minute. As the damage progresses, the greater the chance tPA will cause catastrophic bleeding in the brain. About 6 percent of tPA patients will develop a serious hemorrhage.

Overall, the death rate for patients treated with tPA and those who aren't is roughly the same. The drug's benefit is in minimizing disability, not preventing death. But those benefits of tPA aren't always immediately apparent; tPA catastrophes happen in the ER, where emergency physicians see them.

"I've witnessed both dramatic improvements (with tPA) in my emergency department, but I've also seen the other side, people bleed and hemorrhage and deteriorate substantially," said Michael Brown, chairman of emergency medicine at Michigan State University.

Brown headed a committee of the American College of Emergency Physicians that issued new guidelines last year downgrading the organization's earlier support of tPA. It reassigned tPA for stroke from a "generally accepted" principle of patient management based on "a high degree of clinical certainty" into a strategy reflecting only "moderate clinical certainty."

The drug may be given to "selected patients," the new guidelines said, "at institutions where systems are in place to safely administer the medication."

Brown said the changes take into account new studies that "basically

confirmed the harm part of the equation." But he also acknowledged that the emergency physicians' group encountered a "groundswell of concerns" from emergency physicians who took issue with the previous 2013 guidelines favoring tPA.

Many stroke experts have been frustrated with backtracking by the American College of Emergency Physicians. Lee Schwamm, a neurologist at Massachusetts General Hospital, recently said the controversy "underscores the continued therapeutic nihilism that surrounds acute stroke."

Brown thinks Schwamm was overreacting.

"We said tPA should be offered. I want to stress that," he said. "The benefits are really powerful, it's huge. But every emergency physician has seen a patient deteriorate from a hemorrhage. It's heart-wrenching and tragic."

RESEARCH UNDERWAY

A national team of researchers, led by cardiologist John Spertus at St. Luke's Hospital, is hoping to give physicians more confidence with tPA.

They've created a computer program that can instantly calculate the risks and benefits of tPA for individual stroke patients based on a few simple factors such as the patient's age, blood pressure and blood sugar level, as well as the severity of the stroke and how much time had passed since it started. It puts the information into a few easy-to-read charts designed both for doctors and for patients and their families.

"Emergency room doctors are in a tough bind. This give them something to make them feel more comfortable (using tPA)," Spertus said. "It's like a computerized neurologist giving them an assessment."

St. Luke's is piloting this new decision-making tool, using it to help the network of rural hospitals that it advises on stroke care. "It's been a long time since I've had a hospital not give a patient tPA," said Olds, the St. Luke's stroke program medical director.

St. Luke's, along with the University of Kansas Medical Center, are the two Kansas City area hospitals with comprehensive stroke centers that are equipped and staffed 24/7 to handle all kinds of strokes. A number of other local hospitals have primary stroke centers that can handle many stroke cases.

The growing number of such stroke centers nationwide has now put close to 85 percent of Americans within an hour's drive of a stroke center, said Sacco of the American Heart Association. With that expertise available, "it's not the emergency room doctors having to act alone," he said.

At the St. Luke's stroke center, for example, the staff goes to great lengths to determine whether a newly arrived patient qualifies for tPA.

An ER nurse will call the patient's family for information about when the stroke started. Staff will scroll through the patient's cellphone looking for people to contact. In one case, after an airline passenger had a stroke in midflight, St. Luke's called the person who had been seated next to him for details.

"There's a lot of detective work in the emergency room," Olds said. "That's probably a barrier (at some hospitals), how far are you willing to go to find out."

LEARN SYMPTOMS

Another key factor in improving stroke outcomes is greater public

awareness of stroke symptoms, Sacco said. That's particularly important because people having a stroke may not be able to communicate or even realize that they're in trouble.

The heart association's stroke education campaign uses the acronym FAST, noting the symptoms of a face that is drooping, an arm that is weak, speech that is slurred, and that it is time to call 911.

"Everybody knows with chest pain it may be a heart attack," Sacco said. "We have to make everyone around (stroke victims) recognizes the symptoms."

RoseMary Lee, 79, is an example of everything going right.

Lee was dining out with family when she started slurring her words as she ordered off the Olive Garden menu. Her niece also noticed that the side of Lee's face had started to droop. As her family's anxiety rose, a nurse sitting nearby came over to help.

"I remember her asking me to squeeze my left hand. I thought she was just concerned," Lee said. "I had no idea she was testing my strength."

An ambulance was summoned and Lee was taken to St. Luke's Hospital's stroke center.

Minutes after arriving, Lee had received a brain scan to help doctors diagnose her stroke. She was started immediately on an intravenous tPA drip. Shortly after that, doctors snaked a tiny device from an artery in her groin up to the blocked artery in her brain to snatch the clot and pull it out.

Lee recalls that her father had a stroke in 1969 when he was in his late 60s. He was left paralyzed on the left side of his body.

"Who knows what they did for him at the hospital, probably not much back then," Lee said. "He was looking forward to retirement, but he just gave up. He couldn't go out and hunt and fish like he wanted to."

"I was spared all that," she said.