

Stroke research making gains one step at a time



JAMIE GERMANO staff photographer

Christine Skolnick, 42, exercises at Agape Physical Therapy in Webster. Skolnick suffered a stroke in February and is nearly recovered, thanks to new technology. Researchers hope for breakthroughs in the next five years.

New device saves Webster woman; local doctors develop treatments

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Christine Skolnick of Webster felt too sick to attend her own Super Bowl party in February.

By midday, the 42-year-old was in bed, sick to her stomach, feeling weak.

By that evening, when her husband, Jay Skolnick, looked in on her, she'd got-

ten worse. The right side of her face was drooping. Her words were slurred. Her right leg gave way when she tried to stand.

Her husband recognized the symptoms of stroke and called 911.

She was thinking, "I'm too young for this."

She is among a growing number of people who sur-

vive strokes because of advances in treatment. Yet stroke remains the third-leading cause of death and a leading cause of disability in the United States. New interventions don't always help and aren't suitable for everyone, but researchers remain hopeful that they

Stroke centers

Seven hospitals in a multi-county Rochester region are designated by New York state as primary stroke centers, which means they have the services to meet the unique and specialized needs of stroke patients. Included are all hospitals in Monroe County — Strong, Highland, Rochester General, Unity and Lakeside hospitals — and F.F. Thompson and Geneva General hospitals in Ontario County.

Stroke

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will discover breakthroughs within the next five years. Stroke specialists are trying to copy the model set by cancer and heart centers, establishing personalized treatment protocols.

"There's probably more that we don't know than we do know" about stroke, said Dr. W. Scott Burgin, associate professor of neurology at University of Rochester Medical Center and director of the Stroke Center at Rochester General Hospital, which sees the most stroke patients in the Rochester area. URM collaborates with RGH, Highland Hospital and Unity

Hospital to provide additional staff to their stroke centers and to conduct neurological research projects together.

About 3,700 people are admitted to hospitals in a seven-county area around Rochester for stroke per year, about half of them in Monroe County, said Dr. Webster Pilcher, chairman of neurosurgery at URM.

Even a few minutes of difficulty speaking or of moving your arm is a medical emergency, said Pilcher. During a stroke, a blood clot or hemorrhage deprives part of the brain of blood, and those brain cells begin to die. Blood clots cause about 87 percent of strokes.

"Time equals brain," said Dr. Mary Dombovy, director of Unity Health System's stroke program.

Skolnick didn't have time on her side. Her symptoms had begun about eight or nine hours before she went to the hospital. Brain scans at Strong Memorial Hospital showed a blood clot about an inch and a half long blocking an artery to her brain. Clots in the basilar artery, like hers, are fatal in about 90 percent of cases, according to the National Institute of Neurological Disorders and Stroke.

Skolnick had long passed the



Skolnick



Burgin



Dombovy



Deveikis

three-hour window in which patients can receive clot-dissolving medication — called tissue Plasminogen Activator or tPA — intravenously. Before tPA was approved in 1996 for strokes caused by clots, there was no proven treatment for stroke. Given within three hours, tPA improves by about one-third a patient's chance of being restored to normal, or nearly normal, functioning within 90 days.

Two doses of tPA delivered right to Skolnick's clot through a catheter threaded through a groin artery didn't help.

Then, Dr. John Deveikis, an interventional neuroradiologist, turned to a corkscrew-like device approved by the U.S. Food and Drug Administration in 2004. He threaded the Merci retriever past the clot, grabbed it and pulled it out — which felt like painful pressure, said Skolnick.

The interventions had risks, including about a 10 percent chance of making things worse. But the alternative was likely remaining "an invalid," said Skolnick, who has two teenage sons.

Immediately, she could move the fingers and toes on her right side again. Deveikis, who has used the Merci tools in about 40 cases, said about half of those patients improved.

Stroke specialists are encouraged by early results with a smaller device that uses suction to remove a blood clot causing a stroke. The FDA cleared the Penumbra System for use in December.

But research on both devices

is limited, said Dr. Walter Koroshetz, deputy director of the National Institute of Neurological Disorders and Stroke. Studies have lacked control groups. Both the Merci and Penumbra devices have high mortality rates and low rates of good recovery. The devices haven't been compared to other treatment.

Koroshetz expects to see increasingly sophisticated ways of removing blood clots. But removing a clot doesn't guarantee recovery. If the affected area of the brain has already died, clot removal won't reverse that and can increase the chance of bleeding into the brain.

The clot-dissolving tPA also has limitations. The medication can't dissolve large clots. It raises the risk of hemorrhage. And the drug can't be used in people who've recently had surgery, who take blood thinners or who have other contra-indications.

Since the 1990s, drug companies have poured billions of dollars into trying to develop drugs to protect the brain during a stroke. The neuroprotective agents have so far worked in animals, but not humans.

A federally funded study at URM, Rochester General and four other sites nationwide is testing the safety of activated protein C, or Xigris, approved to treat sepsis, for people who have had a stroke within six hours but decline the use of tPA. Dr. Curtis Benesch, director of the Stroke Center at URM, who is leading that study, said a handful of pa-

At a glance

According to the American Heart Association:

780,000 people nationwide experience a new or recurrent stroke per year.

150,000 people die from a stroke per year.

\$66 billion is the estimated direct and indirect cost of stroke for 2008.

Women have more strokes than men.

African Americans have almost twice the risk of first stroke as white people.

Third major killer, after diseases of the heart and cancer.

New York ranks best in the nation in age-adjusted death rate from stroke.

tients have been enrolled here so far toward the planned 72.

URM is also among five sites in the nation studying the safety and feasibility of the NeuroFlo catheter, used up to 24 hours after symptom onset to try to improve blood flow in non-obstructed arteries to shrink the area affected by the stroke, said Burgin, lead investigator.

Koroshetz said that stroke centers are experimenting with other ways to slow brain death during a stroke, such as high doses of oxygen or cooling the body. He expects discoveries within the next five years to bring dramatic changes in what's known about stroke and what can be done for it.

Today, Skolnick is nearly fully recovered. Some hearing loss in her right ear is attributed to nerve damage from the stroke. If she walks a lot, her right leg might drag a bit. But she can walk and talk and returned to her chemist job at Bausch & Lomb Inc.

"I'm blessed," said Skolnick. "It's a miracle — science, God, whatever you want to call it." □

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