

M.D. NEWS

Special Feature

Time Is Brain



Alexian Brothers Hospital Network's
Neurosciences Institute

Time Is Brain: Alexian Brothers Hospital Network's Neurosciences Institute

By Paul J. Watkins

The statistics behind stroke are sobering. Every 45 seconds in the United States, someone experiences a stroke, and about 700,000 strokes occur in the United States each year. Stroke is the third leading cause of death in the United States, and over 160,000 Americans die from stroke each year. Stroke is a leading cause of serious, long-term disability.

When it comes to diagnosing and treating stroke, speed is essential. "Time is brain" is the memorable phrase that sums up the philosophy underlying stroke treatment.

"Endovascular stroke rescue is a relatively new field of medicine," says Tim W. Malisch, M.D., an interventional neuroradiologist and the Director of Interventional Neuroradiology at Alexian Brothers Neurosciences Institute, a comprehensive stroke center located within Alexian Brothers Medical Center, "and endovascular stroke rescue is a field in which we are seeing patients who come to the hospital with an acute neurological deficit. They're worked up, usually in the emergency room, through a process which we call a 'stroke alert.'"

A stroke alert calls together the Stroke Rescue Team, a large group of medical personnel who have made a commitment to be available immediately to evaluate these patients. Stroke rescue requires the collaboration of many specialized physicians, nurses, technologists and other specially trained health care professionals.

(Left to right) Franklin Marden, M.D.; Tim Malisch, M.D.; Szymon Sami Rosenblatt, M.D.: An essential part of the endovascular stroke rescue and interventional neuroradiology surgical team



PHOTO BY ELISA SORRENTINO, EB CREATIVE

"Our team treats patients with a wide range of diseases and abnormalities of the cerebral vascular system," says Dr. Malisch, "and that includes brain aneurysms, vascular malformations and large-vessel occlusions."

THE FIRST THREE HOURS

Time is of the essence when someone has had a stroke, and the sooner blood flow to the brain can be restored, the better the patient's chances of making a full recovery. The Stroke Rescue Team aims to administer treatment as soon as possible after the onset of stroke.

If an ischemic stroke is identified, the Stroke Rescue Team wants to determine the time of onset, or the time when the patient was last asymptomatic, because they want to maximize the chance that these patients can benefit from the new, emergent reperfusion strategies. The different reperfusion strategies have varying windows or time limitations.

The FDA-approved intervention for acute ischemic stroke is intravenous tPA (tissue plasminogen activator). It's approved for use up to three hours after stroke onset. The challenge, says Dr. Malisch, is that many of their patients come to the hospital with significant, sometimes devastating, ischemic strokes after that three-hour window has shut.

"We believe we have the opportunity to help these patients through an endovascular approach. We can bring these patients to the angiography suite and perform an emergent cerebral angiogram that will confirm for us that there is an occlusion of one of the cerebral arteries," says Dr. Malisch. "If the severity of the patient's stroke warrants, and if the time window still allows, we can use one of a number of different catheter-based strategies to reopen that vessel, re-establish blood flow and reperfuse that area of the brain in time to help that patient make a more complete and quicker recovery from the stroke."

One of the catheter-based strategies involves the use of thrombolytic tPA — the same drug the patient might have received in the emergency room had they arrived at the hospital within that three-hour

Tim W. Malisch, M.D., received his medical degree from Duke University Medical School in Durham, NC, and completed his residency in diagnostic radiology at Vanderbilt University in Nashville and his fellowship in interventional neuroradiology at the University of California at Los Angeles. From 1997 to 2001, he served as chief of the interventional neuroradiology section at Northwestern University Medical School, where he was also an assistant professor of radiology and neurological surgery. From 2001 to 2005, he served as an associate professor of radiology and neurosurgery at the University of Illinois at Chicago. Since 2005, he has been Director of the Division of Interventional Neuroradiology at Alexian Brothers Medical Center in Elk Grove Village and adjunct associate professor of radiology at the University of Illinois at Chicago. Dr. Malisch is a member of several professional organizations, including the Society of Neurointerventional Surgery, American Society of Neuroradiology (senior member) and the Radiological Society of North America. He has published extensively in his areas of expertise.

Franklin Marden, M.D., received his medical degree from the University of Wisconsin – Madison, where he also completed a clinical fellowship in the department of pathology and laboratory with a focus on neuropathology. He completed two residencies at Washington University in St. Louis — a neurology residency at Barnes-Jewish Hospital and a diagnostic radiology residency at the Mallinckrodt Institute of Radiology. He also completed a two-year fellowship in interventional neuroradiology at the University of Illinois at Chicago. Dr. Marden is board certified in general neurology, radiology and vascular neurology.

Szymon Sami Rosenblatt, M.D., received his medical degree from the University of Düsseldorf School of Medicine in Düsseldorf, Germany. He completed his residency in neurosurgery at Northwestern University Medical Center in Chicago and a fellowship in cerebrovascular and skull base surgery at the University of Cincinnati College of Medicine and Mayfield Neurological Institute in Cincinnati. He also completed research fellowships at House Ear Institute in Los Angeles and the Stroke Research Laboratory at Massachusetts General Hospital in Boston. Dr. Rosenblatt has published many articles and book chapters on various aspects of cerebrovascular and skull base surgery, along with a number of pieces on skull base tumors. In addition to his expertise in cerebrovascular and skull base surgery, Dr. Rosenblatt also has a special interest in the neurological treatment of chronic pain disorders, with significant experience in a number of innovative pain and spasticity management procedures. Dr. Rosenblatt is the Medical Director of Neurological Surgery at Alexian Brothers Neurosciences Institute.

window; however, instead of receiving the tPA through an IV, the interventional neuroradiologist uses a microcatheter to infuse the tPA directly into the occluded vessel.

“This gives us a longer, safer time window than IV tPA,” explains Dr. Malisch, “allowing us to go up to six hours past stroke onset for the anterior circulation branches — that is the carotid artery and its branches — and we can go up to 12 hours for the posterior circulation — the vertebrobasilar occlusions and their branches.

“We also have two thrombectomy devices approved by the FDA for removing blood clots. These mechanical clot-retrieval devices further extend our window of intervention. For the anterior circulation, we’re routinely going up to eight hours beyond the onset of symptoms, and for the basilar artery occlusions, we can go up to 12 hours.”

“One device, called the Merci device, can actually pull the blood clot out,” says Franklin Marden, M.D., another interventional neuroradiologist at the institute. “This device is shaped like a little corkscrew, and it’s placed a little beyond the blood clot and then we pull everything back, catch the blood clot and pull the blood clot out. We have another device, called the Penumbra device, that is more like a suction catheter that can suction the blood clot out.”

STRONG ACUTE STROKE PROGRAM

The neuroendovascular program at the institute is state of the art, featuring a

leading-edge, \$5.5-million Siemens neuroangiography suite; however, Dr. Malisch says the strength and success of the neuroendovascular program goes beyond leading-edge technology. Highly trained and experienced health care professionals — with specialized training and around-the-clock availability — are also essential.

“To go above and beyond and to become board certified in vascular neurology is still fairly uncommon, and to have a program where neurologists take stroke call and are available 24 hours a day, seven days a week — that in itself is still the exception, not the rule,” says Dr. Malisch. “To combine these things and to say we have 24/7 coverage for stroke patients by vascular subspecialized neurologists — not medical students, interns or residents, but subspecialty board-certified, experienced vascular neurologists

Dr. Malisch performs a procedure in the interventional neuro biplane suite.



PHOTO BY ELISA SORRENTINO, EB CREATIVE



Ginger Reilly, nurse practitioner, follows up with former patient Jane Carstens

“I am grateful that the right technology and the right expertise were available so close to home.”

— isn’t something you find in too many places in the country.”

“We offer the whole gamut of services, from acute stroke care to tumor embolization to treatment of brain aneurysms and vascular malformations,” adds Dr. Marden. “In addition, we have advanced imaging, including functional MRI and diffuser tensor imaging, and a neurosurgeon, Dr. Rosenblatt, who’s fellowship trained in cerebrovascular and skull base surgery.”

Szymon Sami Rosenblatt, M.D., is the Medical Director of Neurological Surgery at the institute. He leads a team of dedicated neurosurgeons trained in a variety of subspecialties. “I think the most intimate association we have is with the endovascular team

led by Dr. Malisch,” says Dr. Rosenblatt, “because any patient who comes in with a subarachnoid hemorrhage, we see together. If that patient turns out to have an aneurysm which is ruptured or unruptured, we decide together which treatment modality is best for the patient. That would mean either endovascular coiling or microsurgical clipping.”

CLIPS AND COILS

For decades, neurosurgeons like Dr. Rosenblatt have treated aneurysms by surgically placing a clip across the neck of the aneurysm to prevent blood from entering it. This approach is generally very effective and is often the best way to treat an aneurysm.

An alternative approach to treating aneurysms uses minimally invasive techniques to fill the inside of the aneurysm with tiny coils made of platinum. These coils, which look a little like soft metal springs, are threaded up into the aneurysm using a thin flexible tube called a catheter, placed in an artery near the groin by an interventional neuroradiologist like Dr. Marden or Dr. Malisch. The aneurysm is packed with coils from the inside of the blood vessel, and in time the coils help scar tissue form, which seals off the aneurysm and protects it from bleeding.

Recovery time for coiling is usually faster than for the more invasive open-surgical clipping. However, not every aneurysm is appropriate for this kind of treatment. Before treating any aneurysm, Drs. Marden, Malisch and Rosenblatt will confer with each other to decide on which treatment is best for a particular patient.

SERVING THE COMMUNITY

“The Alexian stroke initiative is an effort to bring comprehensive stroke care to the entire community the Alexian Brothers serve,” says Mark Frey, CEO of Alexian Brothers Hospital Network. “I think what we discovered when we looked at stroke data in 2002 was that the number of strokes in our service area [was] really higher than you would have expected, and when you see something like that, and the data suggests that maybe there’s a deviation in your environment, you have to take a look at the data and try to understand what that means. When we see that more patients are having stroke than would be typically predicted, that, for us,

A Patient’s Story

It started out as a headache. It came and went, then came and stayed. Jane Carstens, a Carol Stream grandmother, was busy at her job as a school secretary and tried to ignore it. When she couldn’t anymore, she found her regular physician was out of town. With the weekend approaching, she went to an area urgent care center. Diagnosed with a sinus infection and with antibiotics in hand, she went home to rest.

Her headache soon got worse and, at her husband’s insistence, Jane went to a nearby Alexian Brothers Immediate

Care Center. The physician there felt that more than an infection was to blame and recommended she go to the Alexian Neurosciences Institute at Alexian Brothers Medical Center, Elk Grove Village, for a brain scan.

Alexian Brothers physicians saw what appeared to be a tumor on her pituitary gland. Assured that these are almost always benign, Jane scheduled surgery.

During her operation, the neurosurgeon found that the mass was actually an aneurysm that had ruptured, creating a life-threatening situation. Jane was

immediately rushed from the operating room to the nearby neuroangiography suite. There, Dr. Franklin Marden and Dr. Tim Malisch were able to quickly evaluate Jane’s condition and coiled off the aneurysm, stopping her bleeding.

Today, Jane is back to normal, and subsequent imaging has shown that the aneurysm is completely cured. “Thanks to the skills of Drs. Marden and Malisch, and the staff at Alexian Brothers, I am as good as new,” she said. “There were some very scary moments and I know the outcome could have been very different.”

means we have to have a response to that. We have to do something to try to enhance the quality of care in the community.”

Alexian Brothers Hospital Network’s dedication to serving its communities has not gone unnoticed. Alexian Brothers Medical Center, which houses the Neurosciences Institute, and St. Alexius Medical Center are both designated as certified primary stroke centers by the Joint Commission. Both hospitals also recently received the American Stroke Association’s Get With the Guidelines – Stroke Gold Performance Achievement Award. The award recognizes the Alexian Brothers Hospital Network’s commitment and success in implementing a higher standard of stroke care. To receive the award, hospitals have to demonstrate 85% or greater adherence in the Get With the Guidelines – Stroke key measures for 24 or more consecutive months.

“I think it’s a very substantial recognition because it can’t be accomplished by the work of any one or two physicians or any one or two health care professionals,” says Dr. Malisch. “It means you have an entire team that is talented and also dedicated. The dedication of the team is just amazing, from the emergency department to the ICU to the neurosciences floor to neurorehabilitation.”

Get With the Guidelines Gold Awards and The Joint Commission Primary Stroke Certifications were made possible by leadership from a multi disciplinary team including Drs. Phil Gorelick, Sanford Sherman, Merrell Reiss, Michael Berkowitz, John Sullivan, Rick Stephani, Sami Rosenblatt, Tim Malisch, Guy Dugan, Scott Neeley, and other clinical professionals including Barb Jerry, Chris Babashka, Tracy Foss, Mona Olges, Theresa Terna, Tonya Deen, Patty Gessner, Bonnie Lim, Cindy Barth, Debbie Rossman, Ginger Reilly and Wende Fedder.

ALEXIAN REHABILITATION HOSPITAL

For many stroke patients, recovering from stroke includes some type of physical or cognitive rehabilitation, and they can receive that care without having to leave the Alexian Brothers Hospital Network.

Alexian Rehabilitation Hospital is a partnership between Alexian Brothers Hospital Network and the Rehabilitation Institute of Chicago. The 66-bed, state-of-the-art facility offers inpatient services, day rehabilitation, outpatient services and specialty programs for neurological and musculoskeletal disorders. It’s located across the street from Alexian Brothers Medical Center.

“It’s considered one of the finest rehab centers in the country,” says Dr. Marden. “The rehab physicians — the physiatrists — are very important components of the program for the stroke patients.”

“The neurorehabilitation program here is just phenomenal,” adds Dr. Malisch, “and it’s very rewarding to be working with this team, allowing me the opportunity to see these patients in clinic six months after their strokes, and to see them back fully engaged in their previous lives. That’s hugely satisfying and that represents a commitment from the hospital administration not just to support what we do in the angiography suite, but also to support what’s going

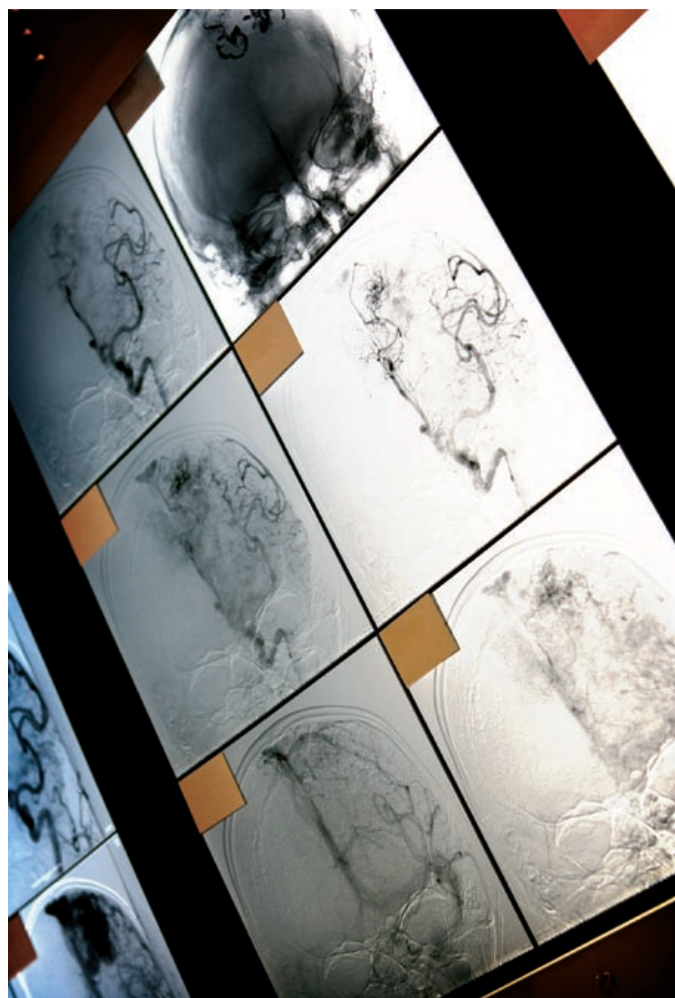


PHOTO BY ELISA SORRENTINO, EB CREATIVE

on upstairs on the neurosciences floor and what’s going on across the street in neurorehabilitation.”

VERTEBROPLASTY

As interventional neuroradiologists, both Dr. Marden and Dr. Malisch are trained and experienced in a wide range of minimally invasive procedures beyond those used to treat stroke and other neurological problems. One such procedure is vertebroplasty. Dr. Marden says that vertebroplasty and another very closely related procedure, kyphoplasty, were developed by interventional radiologists. Together, he and Dr. Malisch have performed more than 100 of these procedures.

“Vertebroplasty is a minimally invasive way of treating painful spinal compression fractures,” says Dr. Marden. “This is typically a procedure that doesn’t take more than an hour to do. The success rate is in the range of 75-90% in terms of significant pain relief. Many patients have immediate pain relief; for others, it takes a few days for the pain to go away. It improves a person’s ability to return to their lifestyle with very little downtime, and it has a very minimal complication rate.”

WHAT PHYSICIANS SHOULD KNOW

“We have 24/7 coverage for all neurovascular services,” states Dr. Marden, “and we offer a breadth and depth of services that

Referral Info

Alexian Brothers Neurosciences Institute provides diagnostic and treatment services for the following conditions:

- Acute stroke rescue – thrombolysis (intra-arterial tPA) or clot retrieval
- Aneurysm treatment – endovascular coiling and clipping
- Angioplasty/stenting of cervical or intracranial atherosclerosis
- Vascular malformations (brain and face AVMs, dural AVFs) using endovascular, Gamma Knife and microsurgery techniques
- Intracranial hemorrhage
- Uncontrollable epistaxis (nosebleeds)
- Vertebroplasty for spinal compression fractures

We have an Urgent Stroke and Neurovascular Transfer Line available 24/7/365 for referring physicians. The line will provide physicians access to neuroendovascular and neurosurgical expertise.

To make a referral and learn how our specialists can help your patient, please call 847-981-3630. If emergent, ask for the Urgent Transfer Line.



PHOTO BY ELISA SORRENTINO, EB CREATIVE

Interventional neuroradiologist Franklin Marden, M.D., discusses a case.

are very difficult to find in any hospital, and we're doing it in a community hospital setting. We're bringing academic-level programs out to the suburbs to people who wouldn't otherwise have access to these services.

"We are among the top ischemic stroke rescue centers in the Chicago area. In 2006, we gave more tPA for stroke than any other center in the Chicago area. We are one of the highest-volume centers for endovascular clot retrieval in the Chicago area, and we're getting great outcomes."

Dr. Rosenblatt says, "I want physicians to appreciate that we are able to provide state-of-the-art treatment 24/7 for most neurosurgical disorders, especially complicated brain tumors, pituitary tumors, skull base tumors and vascular lesions, including aneurysms and arteriovenous malformations. This institution is able to offer all the competing treatment options under one roof and in one department."

"I also want them to understand that Alexian Brothers has made tremendous investments geared towards bringing neuroscience services completely up to date and comparable with all leading institutions in the country. This includes buying a MEG [magnetoencephalography] unit, which only very few institutions have."

"While I'm very proud of our interventional neuroradiology program," says Dr. Malisch, "what we've accomplished in endovascular stroke rescue and in interventional neuroradiology wouldn't be possible without all the other members of the team — neurosurgeons, neurointensivists, vascular subspecialized neurologists, emergency room physicians, nurses, technologists and EMS personnel. I think the team is doing some great things, and I'm glad to be part of it." ■



Alexian Brothers Neurosciences Institute

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