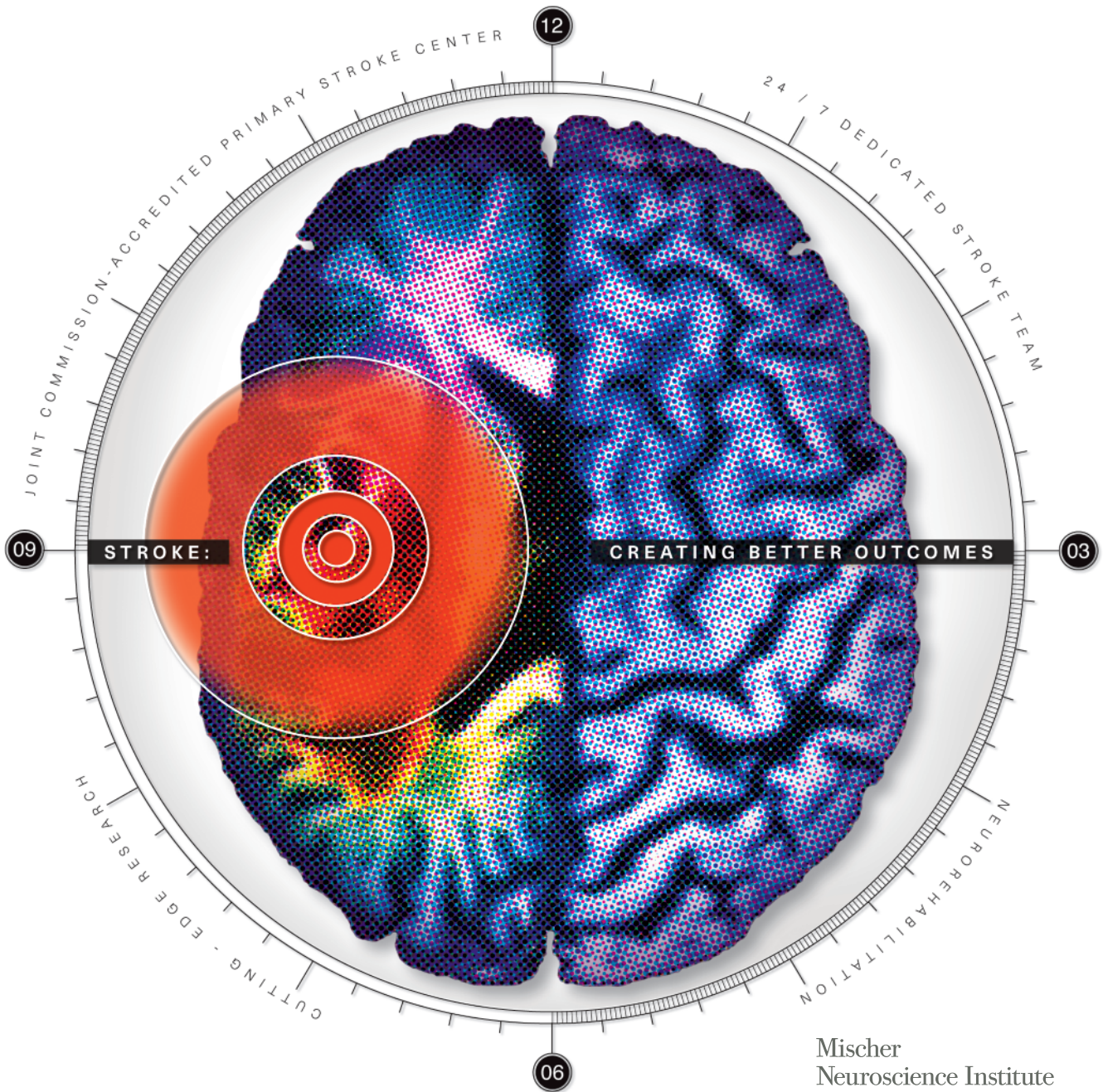


# MEMORIAL HERMANN MISCHER NEUROSCIENCE INSTITUTE JOURNAL

TEXAS MEDICAL CENTER



Mischer  
Neuroscience Institute

MEMORIAL  
HERMANN

Affiliated with The University of Texas Medical School at Houston

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# RAISING THE BAR

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AT MEMORIAL HERMANN, quality and safety are core strategies that underscore our commitment to providing optimal clinical outcomes through patient-centered care. To deliver on that promise, physicians and staff here have embraced a culture of accountability and innovation, which has led to a relentless focus on continuous improvement.

In 2009, Memorial Hermann was singled out to receive one of the nation's most coveted quality and safety awards: the 16th Annual National Quality Healthcare Award, presented by the National Quality Forum (NQF) in partnership with Modern Healthcare and the Studer Group.

The NQF award follows recognitions of Memorial Hermann-Texas Medical Center as a leader in quality and performance by University HealthSystem Consortium and Thomson Reuters, two prestigious organizations dedicated to improving patient safety. Thomson Reuters recognized the hospital for the second year in a row with the 2007

Thomson 100 Top Hospitals® Performance Improvement Leaders Award, based on an examination of more than 2,800 American hospitals across a range of clinical, financial, operational and patient safety data. Memorial Hermann-TMC is the only hospital in Texas and one of only 15 major academic institutions across the country to be named to the list.

We're proud of these recognitions, which are testimony to the dedication of our team of physicians and staff and the impact they are having on the lives of our patients.

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**MEMORIAL HERMANN-Texas MEDICAL CENTER WAS RANKED NO. 6  
BY THE UNIVERSITY HEALTHSYSTEM CONSORTIUM ON  
THEIR ANNUAL LIST OF TOP-PERFORMING ACADEMIC MEDICAL  
CENTERS FOR QUALITY AND ACCOUNTABILITY.**

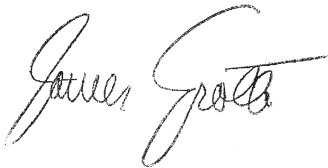
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**Dong H. Kim, M.D.**

DIRECTOR, MISCHER NEUROSCIENCE  
INSTITUTE AT MEMORIAL HERMANN

PROFESSOR AND CHAIR,  
DEPARTMENT OF NEUROSURGERY,  
THE UNIVERSITY OF TEXAS MEDICAL  
SCHOOL AT HOUSTON



**James C. Grotta, M.D.**

CO-DIRECTOR, MISCHER  
NEUROSCIENCE INSTITUTE AT  
MEMORIAL HERMANN

PROFESSOR AND CHAIR,  
DEPARTMENT OF NEUROLOGY  
THE UNIVERSITY OF TEXAS MEDICAL  
SCHOOL AT HOUSTON

# HYPOTHERMIA MAY IMPROVE SURVIVAL RATES FOR STROKE AND OTHER NEUROLOGICAL INJURIES

**L**OWERING the body temperature of patients may be an effective way to reduce brain damage following stroke and other types of neurological injury, including trauma, says James C. Grotta, M.D., co-director of the Mischer Neuroscience Institute, and chair of the department of Neurology at The University of Texas Medical School at Houston. Dr. Grotta is

Medical School, hypothermia has been under investigation since 2000, even before it was proven useful in the treatment of cardiac arrest. “Cooling cardiac arrest patients to 33 degrees Celsius to reduce brain damage has been proven safe in studies at Memorial Hermann-TMC and around the world,” he says. “It’s effective in reducing the risk of neurological damage, it’s approved as a therapy, but unfortunately, it’s also underutilized.”

Dr. Grotta and his colleagues are extending the use of therapeutic hypothermia from cardiac arrest to stroke patients with a five-year grant from the National Institute of Neurological Disorders and Stroke (NINDS) at the National Institutes of Health (NIH). The grant is part of a NINDS program to establish 10 national centers focused on the rapid diagnosis and effective treatment of stroke.

Memorial Hermann-TMC’s strong stroke

**DR. GROTTA AND HIS COLLEAGUES ARE EXTENDING THE USE OF THERAPEUTIC HYPOTHERMIA FROM CARDIAC ARREST TO STROKE PATIENTS WITH A FIVE-YEAR GRANT FROM THE NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE (NINDS) AT THE NATIONAL INSTITUTES OF HEALTH.**

principal investigator in a series of Phase I trials currently under way at Memorial Hermann-Texas Medical Center evaluating novel approaches, including hypothermia, for treating and preventing acute stroke.

Induction of moderate hypothermia (28°C to 32°C) has been used successfully since the 1950s to protect the brain against ischemia during open-heart surgery. Based on its neuro-protective effects, therapeutic hypothermia following cardiac arrest was attempted in the late 1950s, but the practice was soon abandoned due to problems with its use. In 2002, successful clinical trial results prompted the Advanced Life Support Task Force of the American Heart Association’s International Liaison Committee on Resuscitation (ILCOR) to recommend that patients be cooled to 32°C to 34°C for 12 to 24 hours following cardiac arrest.

At Memorial Hermann-TMC and the UT

treatment record made the hospital an ideal location for trials under the NINDS grant. Teams led by Dr. Grotta, working closely with the Houston Fire Department and EMS, successfully administer tPA to more than 20 percent of patients who present with ischemic stroke, far exceeding the national average of 2 percent.

“As part of the clinical trial, we’re testing a number of different methods for cooling patients,” says Dr. Grotta, who holds the Roy M. and Phyllis Gough Huffington Distinguished Chair in Neurology at the UT Medical School. “It’s much easier to cool cardiac arrest patients because they’re unconscious. But stroke patients are awake, so cooling them and keeping them comfortable at the same time is a challenge.”

Rather than lowering body temperature to an uncomfortable 33°C, Dr. Grotta and his colleagues have evaluated the effects of

**FOR MORE INFORMATION ABOUT HYPOTHERMIA AS A TREATMENT FOR STROKE AND OTHER NEUROLOGICAL INJURY, E-MAIL DR. GROTTA AT JAMES.C.GROTTA@UTH.TMC.EDU.**

lowering temperature to 35°C and adding low doses of caffeine and ethanol to supplement the effect of cooling. Early research has shown that hypothermia combined with caffeinol, a neuroprotective blend of ethanol and caffeine, may protect the brain by limiting stroke damage more than either treatment alone.

“Results to date are promising,” he says. “We’ve treated over 40 patients safely with caffeinol. Of those, about half have been treated with the entire combination – caffeine, ethanol and cooling. It’s been difficult to keep patients comfortable with the combination, but we’re hoping hypothermia will eventually be proven as successful in treating stroke patients as it has been in cases of cardiac arrest. Now that we’ve shown that the treatment is safe, Phase II research will examine the effectiveness of caffeinol and hypothermia separately and together.”

Dr. Grotta has teamed up with University of California, San Diego, neurologist Patrick D. Lyden, M.D., who has developed a method for cooling conscious patients to 33 degrees while controlling shivering. The two neurologists are seeking NIH funding for ICTuS-C2, a Phase II treatment selection study of intravenous thrombolysis plus hypothermia for acute treatment of ischemic stroke. “Our trial in Houston included about 20 patients to demonstrate that it’s feasible and safe to administer caffeinol and cooling with tPA,” Dr. Grotta says. “At UC, San Diego, Dr. Lyden investigated the effects of catheter-based cooling in another 40 patients.”

Hypothermia is also under investigation at Memorial Hermann-TMC in the treatment of traumatic brain injury (TBI). In early 2008, under the care of Alex Valadka, M.D., Grammy Award-winning Tejano singer Emilio Navaira was cooled following surgery for an acute subdural hematoma. Dr. Valadka is director of neurotrauma at MNI and a professor in the department of Neurosurgery at the UT Medical School. Navaira was later transferred to TIRR Memorial Hermann for rehabilitation. ■

## HYPOTHERMIA IN STROKE TREATMENT: PATIENT #14



Thirty-eight-year-old Cheryl Sorak was securing her newborn daughter in the rear seat of the car when she felt something on her leg. “I looked down and realized it was my hand,” she says. “Then I realized I couldn’t move my left arm.”

Sorak’s first thought was to call her husband. “When I tried to stand up to get my cell phone, I couldn’t move my left leg. I fell out of the car into the street. Someone stopped to help. I could hear people talking but I was disoriented. I heard someone say we need to call 911. The next thing I remember was the paramedics and the ambulance.”

EMS rushed Sorak to the Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center, where a medical team led by James C. Grotta, M.D., successfully administers intravenous tPA to 20 percent of patients who present with ischemic stroke. Sorak received tPA about 90 minutes after her stroke, well within the three-hour treatment window. When Dr. Grotta asked if she would participate in a study investigating the neuro-protective effects of hypothermia, she and her husband agreed.

Funded by a five-year grant from the National Institute of Neurological Disorders and Stroke (NINDS), the study is one of a series of trials currently under way at Memorial Hermann-TMC evaluating novel approaches for treating and preventing acute stroke, including hypothermia alone and in combination with caffeine and ethanol.

Sorak was Patient #14 of the 20 who received the entire combination – caffeine, ethanol and cooling – in the Phase I trial. “I remember being ridiculously cold,” she says. “My teeth were chattering. My joints hurt from shaking so much. The treatment seemed to last an eternity.”

In reality, Sorak was cooled for 24 hours. “After the cooling, I remember a doctor coming in and asking me to raise my left arm. I was fine.”

By the time she was evaluated for rehabilitation, she had equal strength in both hands. “I didn’t need rehab,” she says. “I could tell that I had some residual facial sagging and my speech was a little slurred, but only people who were close to me would have noticed. After a couple of weeks those signs were gone. I was able to button the 15 tiny snaps on my daughter’s pajamas and I thought if I could do that, I could do just about anything.

“I don’t know why I had the stroke. I didn’t have high cholesterol or high blood pressure. I’d just had my baby four months earlier, and I knew I was healthy,” she says. “I have to thank the paramedics for correctly diagnosing a stroke and taking me to the right hospital to handle it, which saved time and therefore saved me from a life with disabilities.”

# GOING HOME: DOROTHY MALONE REGAINS HER INDEPENDENCE

FOLLOWING ACUTE CARE FOR STROKE, A HOUSTON WOMAN BENEFITS FROM INNOVATIVE NEUROREHABILITATIVE TECHNOLOGY AND INTEGRATED CARE AT MISCHER NEUROSCIENCE INSTITUTE AND TIRR MEMORIAL HERMANN.

**D**OROTHY MALONE was devastated when she suffered a stroke in April 2008. “Before my stroke, I walked on the treadmill every morning for an hour. I worked out with a trainer and lifted weights twice a week. I had a healthy diet and didn’t smoke or drink. I was a very independent 78 year old.”

**“MRS. MALONE CAME TO OUR SERVICE JUST FOUR DAYS AFTER HER STROKE,” SAYS NNEKA IFEJIKI, M.D. “WE BELIEVE THE SOONER YOU GET TO REHAB FOLLOWING A STROKE, THE BETTER. ONCE A PATIENT ARRIVES ON OUR UNIT, WE’RE VERY AGGRESSIVE WITH THERAPY.”**

Previously diagnosed with atrial fibrillation, Malone had tried a variety of antiarrhythmic medications, including anticoagulants. When she began having dizzy spells, she and her children knew something was wrong.

“I was sitting on the sofa eating breakfast and watching TV,” recalls Malone, who lives alone. “When I tried to stand up, my knees buckled. Then the phone started ringing. Both of my children call me every day, and I knew it was one of them.”

When her mother didn’t answer the phone after three calls, Molly Malone drove to the apartment. “I knew something was wrong,” she says. “On the way, I called a very close friend, Sue Porretto, and asked her to meet me there. Mom had the door dead-bolted, so I couldn’t get in. She heard me pounding on the

door and when I heard her voice – and knew she was alive – I called 911.”

After the ambulance transport and a long wait in the emergency room of another Houston hospital, Porretto called Frank Yatsu, M.D., a neurologist affiliated with Memorial Hermann-Texas Medical Center and professor of neurology at The University of Texas Medical School at Houston. Dr. Yatsu facilitated Malone’s transfer to the Stroke Center at Mischer Neuroscience Institute, where she was admitted on April 8, 2008, under the care of neurologist Nicole Gonzales, M.D., an assistant professor of neurology at the UT Medical School. She was diagnosed with a right middle cerebral artery stroke secondary to atrial fibrillation.

When Malone was stabilized, she was transferred to the hospital’s 23-bed inpatient neurorehabilitation unit for comprehensive care and an aggressive program of physical therapy, occupational therapy and speech/language pathology. The neurorehabilitation unit’s multidisciplinary team – a physician, nurse practitioner, neuropsychologist, rehabilitation nurse, case manager and social worker for each patient – is led by Elizabeth Noser, M.D., medical director of neurorehabilitation for the Memorial Hermann system. She and Nneka Ifejika, M.D., directed Malone’s neurorehabilitative care.

“Mrs. Malone came to our service just four days after her stroke,” says Dr. Ifejika, who is medical director of neurorehabilitation at Memorial Hermann-TMC and assistant professor and director of neurorehabilitation at the UT Medical School, “We believe the sooner you get to rehab following a stroke the better. Once a patient arrives on our unit, we’re very aggressive with therapy.”

During her recovery, Malone benefited from the Institute’s innovative neurorehabilitation technology, including the Bioness Foot Drop System. “The Bioness uses mild stimulation to lift the patient’s foot to aid in walking,” Dr.

Ifejika says. “With most patients, return of use occurs in the leg gradually from the hip on down. The foot tends to drop, which puts people at risk for falls. The system helps patients regain the use of the involved foot faster.”

The Bioness Foot Drop System has three components that communicate with each other wirelessly. A leg cuff fits just below the knee to place stimulation where it helps the patient most. The gait sensor attaches to the patient’s shoe and “tells” the leg cuff whether the heel is on the ground or in the air. A handheld remote control lets the patient adjust the stimulation levels and on-off controls.

Malone’s rehabilitation team also used the Bioness Hand Rehabilitation System to speed the return of wrist extension. She progressed well, was discharged to her home in mid-May and began outpatient rehabilitation at TIRR Memorial Hermann Kirby Glen.

At Kirby Glen, Malone was one of the first patients to use the outpatient rehabilitation facility’s Lokomat®, the world’s first driven-gait orthosis. Designed to benefit patients with neurological movement disorders, the system consists of the robotic gait orthosis itself and the Levi body-weight support system used in combination with a treadmill. The patient’s legs are guided on the treadmill according to a preprogrammed physiological gait pattern, which can be adjusted to accommodate individual needs and rehabilitation goals. Advantages of Lokomat-based therapy include faster progress through longer and more intensive training sessions compared to manual treadmill training, ease of monitoring and assessment of patient walking activity and improved motivation through visualized performance feedback.

In July, Malone suffered a setback when she fell at home and injured her left hand. “We got a call from Mrs. Malone’s daughter saying she was back in the hospital being treated for a hematoma on her involved side,” Dr.

Ifejika says. “Drainage and a skin graft were required. She became deconditioned because of the surgery, and we began the entire rehabilitation process over again.”

Following her discharge from Memorial Hermann-TMC in August, Malone completed four months of home therapy. She started back on the Lokomat at Kirby Glen in January 2009.

“I am determined to regain my independence,” she says. “My left hand is starting to come back. I’m very opti-

“Because of the length of stay in neurorehabilitation, we develop very close relationships with our patients and their families,” Dr. Ifejika says. “They’ve gone through a devastating event, and we all work together as a team to help them make the transition back to the community. Patients and family members are an integral part of that team.”

Molly Malone, who stayed at the hospital during her mother’s inpatient rehabilitation, considers it a positive experience. “We marveled at all the positive things



**Dorothy Malone uses the Lokomat to improve her gait as part of her neurorehabilitation program.**

mistic that I’m going to regain the use of my left arm and leg. The therapists at Kirby Glen and my doctors - Dr. Elizabeth Noser, Dr. Nneka Ifejika and Dr. Nicole Gonzales - are extraordinary. They are truly healers of the body and the spirit.

“Doctors’ positive attitudes and enthusiasm are powerfully influencing to a patient,” she adds. “I was blessed to have doctors whose training and experience were exemplary, and who also had endless compassion, sensitivity and thoughtfulness. They let me know that no request or question was too big or too small. I could feel them with me every step of my recovery journey, and they’re still with me today.”

we saw happening around us in the neurorehabilitation unit. There were many large and small kindnesses that really make you want to give back to that hospital. They focused on the entire person - physically, mentally and spiritually - which is how the hospital experience should be for everyone. We would have been happier not to be there, but we consider it a fantastic experience.”

Dorothy Malone lives at home and continues to work toward regaining her independence. A caregiver helps with her daytime needs. ■

# MOVING TOWARD IMPROVED DIAGNOSIS AND TREATMENT OF MILD TRAUMATIC BRAIN INJURY

ALEX VALADKA, M.D., IS PRINCIPAL INVESTIGATOR OF A \$36.6 MILLION  
DEPARTMENT OF DEFENSE STUDY

**O**F THE MORE than 1.5 million people who suffer a traumatic brain injury each year in the United States, as many as 75 percent sustain a concussion, a mild injury that can lead to long-term or permanent impairments and disabilities. Mild to severe TBI has also become the

Baylor College of Medicine, and Rice University; their clinical affiliates Memorial Hermann-Texas Medical Center, Ben Taub General Hospital and Michael E. DeBakey VA Medical Center; and the Transitional Learning Center in Galveston.

“Our goal is to make discoveries that will ultimately allow us to intervene with the most effective early therapy before a mild traumatic brain injury results in a chronic problem,” says Alex Valadka, M.D., director of neurotrauma services at Memorial Hermann-Texas Medical Center, vice chair of the department of Neurosurgery at The University of Texas Medical School at Houston and the consortium’s principal investigator. “There is a high prevalence of mild traumatic brain injury in soldiers, and the consortium’s work is driven by that. We believe that the

**“OUR GOAL IS TO MAKE DISCOVERIES THAT WILL ULTIMATELY ALLOW US  
TO INTERVENE WITH THE MOST EFFECTIVE EARLY THERAPY BEFORE A MILD  
TRAUMATIC BRAIN INJURY RESULTS IN A CHRONIC PROBLEM.”**

signature injury of military personnel deployed to Iraq and Afghanistan. Now, with funding from the United States Department of Defense (DOD) through the Congressionally Directed Medical Research Program (CDMRP), a consortium of Houston-area physicians and scientists has undertaken an important new research initiative to improve the diagnosis of mild traumatic brain injury (TBI) and develop innovative treatment strategies.

The \$36.6 million grant to the Mission Connect Mild TBI Translational Research Consortium is funded from August 1, 2008, through July 31, 2013. The total research award is \$25 million, with an additional \$11.6 million for the indirect costs of the research effort. The Mission Connect Consortium includes research teams from participating institutions The University of Texas Health Science Center at Houston, The University of Texas Medical Branch at Galveston (UTMB),

conclusions of our research will also benefit civilians, including athletes, who have suffered concussions.”

The research is being done within the framework of Mission Connect, a consortium established by TIRR Foundation in 1997 to facilitate collaborative research to improve outcomes for patients with brain and spinal cord injuries and neurological disorders. “The institutions that make up Mission Connect have a long history of working together successfully,” says Dong H. Kim, M.D., director of the Mischer Neuroscience Institute and chair of the department of Neurosurgery at the UT Medical School. “The consortium is a model of innovative thinking and close collaboration. Its existence made us more competitive for this grant than any one of our institutions would have been alone.”

Cynthia Adkins, executive director of TIRR Foundation, under which Mission Connect was founded and is managed,



agrees. “The award of this grant confirms the collaborative platform of Mission Connect as a powerful and pivotal force in research,” she says. “We were selected for the grant based on our 12-year history of success as a consortium, the outstanding researchers who comprise it and their track record of stellar work. Uniting these scientists in this shared research effort will accelerate the pace of discovery and will ultimately provide new diagnostic and treatment models for mild traumatic brain injury.”

are creating a model for head injury caused by a blast, which may be entirely different from traumatic brain injury resulting from other causes.”

Refining the diagnostic criteria for mild TBI revolves around differentiating symptoms of mechanical injury from those of post-traumatic stress disorder (PTSD). “The symptoms of PTSD and mild TBI overlap, but a mechanical injury to the brain requires one kind of treatment, and post-traumatic stress disorder requires another,” Dr. Miller says.

“This is a well-thought-out, highly organized project and we’re excited to be part of it,” Dr. Miller says. “We have researchers doing work at the cellular level, the animal level and the human level, and we’re working to develop a creative flow between these three areas. It’s rewarding for all of us to have an opportunity to address a health issue of significance to our returning service men and women, as well as to civilians recovering from mild traumatic brain injury.” ■



The work of the consortium’s 22 investigators is focused on three major goals: developing a laboratory model of mild TBI, improving and refining mild TBI diagnostic criteria and developing new treatments. “The lab model we’re developing now is laying the groundwork for the methodology we’ll use to do laboratory research throughout the study,” says Emmy Miller, Ph.D., R.N., research coordinator for the Mission Connect Mild TBI Translational Research Consortium. “For instance, our investigators

“To better distinguish between the two conditions, we’re using a comprehensive set of 21 cognitive and behavioral tests. We’ll also be examining the results of MRIs and EEGs and following subjects over a period of six months to define crucial clinical differences between these conditions.”

For clinical trials, the researchers will recruit patients with mild TBI who receive care at Memorial Hermann-TMC and Ben Taub General Hospital.

**Alex Valadka, M.D., is the principal investigator for the Mission Connect Mild TBI Translational Research Consortium study.**

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# MEMORIAL HERMANN AND UT WELCOME NEW RECRUITS

SEVEN NEW PHYSICIANS AND A RENOWNED SCIENTIST HAVE JOINED THE STAFF OF THE MISCHER NEUROSCIENCE INSTITUTE (MNI) AND THE FACULTY OF THE UNIVERSITY OF TEXAS MEDICAL SCHOOL AT HOUSTON.



**Claudio Soto, Ph.D.**, professor of neurology and director of the Center for Neurodegenerative Diseases at The University of Texas Medical School at Houston, joined the MNI from The University of Texas Medical Branch at Galveston (UTMB). At UTMB he was director of the George and Cynthia Mitchell Center for Neurodegenerative Diseases and a professor in the department of Neurology, the department of Neuroscience and Cell Biology and the department of Biochemistry and Molecular Biology. He received his Ph.D. in biochemistry and molecular biology from the University of Chile in 1993 and was a postdoctoral fellow at the Catholic University of Chile and at the New York University School of Medicine, where he became an assistant professor of research in 1995.

From 1999 to 2003, Dr. Soto was senior scientist, chair of the department of Molecular Neurobiology and senior executive scientific adviser for neurobiology at Serono International in Geneva, Switzerland. For the past 15 years, he and his colleagues have engaged in research into the molecular basis of neurodegenerative diseases with a particular focus on Alzheimer's and prion-related disorders. His work has led to the development of novel strategies for the treatment and diagnosis of these diseases. He has published more than 100 peer reviewed

scientific publications and contributed to more than 20 books. To date, his research has been funded by more than \$30 million in grants from the National Institutes of Health and private foundations.



**Imoigele P. Aisiku, M.D.**, joined the MNI as director of the Neuro ICU, concurrent with his appointment as associate professor in the department of Neurosurgery at the UT Medical School. Previously, he was an assistant professor in the department of Anesthesia/Critical Care and co-director of the Neurosurgical Science ICU at Virginia Commonwealth University.

Dr. Aisiku received his doctor of medicine at the University of Massachusetts School of Medicine in Worcester. In 2002, he completed a fellowship in critical care at Emory University School of Medicine. He completed a fellowship in neuroscience critical care at Washington University/Barnes Jewish Hospital in St. Louis, Missouri, in 2008.

He has served as principal investigator or co-investigator in funded studies of more than \$2.9 million, primarily from the National Institutes of Health. His research interests include sickle cell anemia, subarachnoid hemorrhage and traumatic brain injury. His work has been published in the *Annals of Emergency Medicine*, *Annals of Internal Medicine*, *Journal of Women's Health*, *Journal of Trauma* and other publications.



**Melissa Thomas, M.D.**, joins MNI following completion of a fellowship in neurophysiology with a focus on epilepsy, at The University of Texas Medical School at Houston. She is an instructor in neurology at the UT Medical School.

Dr. Thomas received her medical degree from the University of Louisville School of Medicine in Louisville, Kentucky, followed by an internship in internal medicine and a residency in neurology at the UT Medical School.

Her clinical interests include epilepsy and general neurology. Her research is focused on improving diagnosis and outcomes in candidates for epilepsy surgery.



**Qi-Lin Cao, M.D.**, associate professor of neurosurgery, joins the MNI from the Kentucky Spinal Cord Injury Research Center and the department of Neurological Surgery at the University of Louisville School of Medicine, where he was an assistant professor. He completed his medical degree at Hunan Medical University in China in 1990. In 1996, he was a visiting scholar at the Neurobiology Research Laboratory in the department of Otorhinolaryngology at the University of Freiburg, Germany, which he followed with a fellowship in psychology at the University of Louisville, Kentucky. In 2002, he completed a postdoctoral fellowship at the

Kentucky Spinal Cord Injury Research Center/University of Louisville School of Medicine.

Dr. Cao serves as a reviewer for *Brain Research*, *Cell Transplantation*, *Experimental Neurology*, *Glia*, *Journal of Neurotrauma* and *Stem Cells*. His clinical interests include testing cell-based therapies for spinal cord and brain injury patients in collaboration with other MNI neurosurgeons. His current research, funded by the National Institutes of Health, is focused on repairing spinal cord injury using combinatorial strategies, including stem cell transplantation and gene therapy.



**Albert J. Fenoy, M.D.**, assistant professor of neurosurgery, comes to the MNI from the department of Neurosurgery at the University of Iowa Hospitals and Clinics, where he was a neurosurgery fellow associate. He received his doctor of medicine at the State University of New York at Stony Brook in 2002 and completed his residency at the University of Iowa in 2008. He completed a fellowship in functional neurosurgery at the Centre Hospitalier Universitaire de Grenoble, France, in December 2008.

Dr. Fenoy's clinical interests include deep brain stimulation for movement disorders such as Parkinson's disease and tremor and psychiatric diseases such as obsessive-compulsive disorder, in addition to surgery for neck and back pain. His research, which has been published in *Clinical Neurosurgery*, *Journal of Neurosurgery*, *Brain Research*, *Pediatric Neurosurgery* and *Journal of Neurosurgery: Spine*, has focused on the electrophysiology and clinical manifestations of basal ganglia disease and auditory cortex, as well as craniocervical junction abnormalities.



**Bryan C. Oh, M.D.**, assistant professor of neurosurgery, received his medical degree in 2001 at Stanford University School of Medicine. He completed his residency in neurological surgery at the University of Southern California Keck School of Medicine in Los Angeles, followed by a fellowship in spine and neurotrauma surgery at the University of Southern California/Rancho Los Amigos Medical Center. Prior to joining Memorial Hermann and the UT Medical School, he was a clinical assistant professor in the department of Neurological Surgery at the University of Southern California.

Dr. Oh has developed particular expertise in traumatic brain and spinal cord injury and an interest in complex spine surgery. His research interests include traumatic brain injury and neurorestoration. He is an ad hoc reviewer for *Neurosurgery*.



Neurosurgeon **William W. Ashley Jr., M.D., Ph.D., M.B.A.**, comes to MNI from Chicago where he was a faculty member at the University of Illinois at Chicago (UIC) department of Neurosurgery. After graduating from Stanford University, Dr. Ashley received an M.D. and Ph.D. in physiology and biophysics at the UIC College of Medicine. He completed his neurosurgical residency at Washington

University-St. Louis, followed by a dual fellowship in cerebrovascular and endovascular neurosurgery at UIC.

Dr. Ashley specializes in the treatment of all aspects of cerebrovascular disease using both open surgical and endovascular techniques. His specific areas of expertise include the treatment of cerebral aneurysms, arteriovenous malformations, extracranial carotid disease and intracranial atherosclerosis, including bypass surgery.

An assistant professor of neurosurgery at the UT Medical School, he has published extensively. In addition to his clinical work, Dr. Ashley is actively involved in basic science and translational research. His research interests include investigating the molecular basis for aneurysm rupture and cerebral vasospasm, intracranial atherosclerosis and novel neuroprotection paradigms.



**Suur Biliciler, M.D.**, assistant professor of neurology, earned her medical degree at Istanbul University Istanbul Faculty of Medicine in Turkey in 1998, followed by a residency in neurology at Istanbul University Cerrahpasa Faculty of Medicine. She was also a resident in neurology at St. Louis University from 2002 to 2006. In 2008, she completed a fellowship in neuromuscular diseases at Baylor College of Medicine.

A board-certified neurologist, Dr. Biliciler is a member of the American Academy of Neurology. Her clinical interests are neuromuscular disorders including muscular dystrophies; myasthenia gravis and inflammatory myopathies; hereditary, immune and inflammatory neuropathies; and amyotrophic lateral sclerosis. Her research is focused on muscular dystrophies.

# NEW NEURO ICU OFFERS STATE-OF-THE-ART CARE IN A HEALING ENVIRONMENT



Ribbon cutting for the new Neuro ICU (from left) Dr. Larry Kaiser, President, UT Health Science Center at Houston; Dr. Dong Kim; Dr. James Grotta; Gerald Bennett, Chairman, Memorial Hermann Healthcare System Board; Chuck Stokes, Memorial Hermann Chief Operating Officer; Walt Mischer; Paula Mischer; Juanita Romans, CEO, Memorial Hermann-TMC; Leila Mischer

Designed with input from physicians, nurses, patients and family members, Mischer Neuroscience Institute's new \$13.5 million Neuro Intensive Care Unit includes 32 private rooms in a 34,500-square-foot space built for efficiency of flow for both staff and equipment. Each room is unique in layout, ranging in size from just under 300 square feet to well over 400 square feet.

"By investing in a truly state-of-the-art neuroscience ICU, Memorial Hermann is making a strong statement about the level of care we want for southeast Texas and the surrounding regions," says Dong H. Kim, M.D., director of the Mischer Neuroscience Institute and professor and chair of the department of Neurosurgery at The University of Texas Medical School at Houston. "Our new neuro ICU is designed to support the needs of our patients during the most acute phase of their hospitalization, accommodate the needs of our teams of surgeons, intensivists, fellows and

residents, and integrate teaching and research space in support of our combined academic and clinical missions."

The new unit houses critical diagnostic and support equipment, including a mobile CT, ventilators, blood gas analyzer and PACS radiographic viewing rooms, within the unit to ensure faster results and improved patient care. All rooms are designed with break-away glass doors and virtual 360-degree views from the floor to ensure

ease of patient monitoring. Consultation rooms allow for private conferences with family members and consulting physicians.

Special isolation rooms were incorporated into the design of the unit, and include an anteroom that separates the patient care environment from shared spaces to maintain a safe and infection-free environment. The waiting area was designed for the comfort of families who spend long hours in the ICU and includes a coffee bar, dedicated attendant and spacious work carrels.

"We're proud of the new unit and look forward to working with the philanthropic community to further develop the Mischer Neuroscience Institute, which was launched by a gift from the Walter Mischer, Sr. family," says Amanda Spielman, chief of hospital operations. "Continued expansion is part of our larger mission to raise the bar in neuroscience and ensure that our community is served by first-rate clinical programs based on breakthrough research."

## MNI RECEIVES \$5 MILLION GIFT TO FUND NEUROSURGICAL RESEARCH AND TRAINING

Long-time philanthropists Celia and Albert J. Weatherhead III recently made a \$5 million commitment to the Memorial Hermann Foundation to support the work of MNI neurosurgeon P. Roc Chen, M.D. The funds will provide opportunities to advance medical treatments available through the Mischer Neuroscience Institute.

Dr. Chen will receive \$5 million disbursed over a 10-year period. "Dr. Chen is doing superlative research for the betterment of mankind," Al Weatherhead says. "When he makes advances, the world advances. It's thrilling to know that we're helping him move forward with his research and improve the clinical care delivered in our community." The couple made the gift through the Weatherhead Foundation, which was established in 1953 by Albert J. Weatherhead, Jr.

Dr. Chen will use a portion of the grant to fund new technology development, cerebrovascular and stroke research and



P. Roc Chen, M.D.

advanced training of young surgeons in cerebrovascular neurosurgery. "We are truly fortunate to benefit from this level of generosity," he says. "I look forward to using the resources made available by this gift to advance the field of neurosurgery."

An assistant professor in the department of Neurosurgery at The University of Texas Medical School at Houston, Dr. Chen is the director of cerebrovascular and endovascular neurosurgery. He is one of the few surgeons accomplished at both catheter-based minimally invasive therapy and open microsurgery to treat complex cerebrovascular diseases.

## MEMORIAL HERMANN-TEXAS MEDICAL CENTER GAINS QUALITY LEADERSHIP RECOGNITIONS

UNIVERSITY HEALTHSYSTEM CONSORTIUM (UHC) and Thomson Reuters, two prestigious organizations dedicated to improving patient safety, have recognized Memorial Hermann-Texas Medical Center as a leader in quality and performance.

UHC, a national alliance of nearly 300 academic medical centers and affiliated hospitals, ranked the hospital No. 6 on its annual list of top-performing academic medical centers for quality and accountability. Over the past three years, Memorial Hermann-TMC's ranking has risen significantly, from last year's No. 16 and the previous year's No. 34.

To generate the listing, UHC assesses

organizational performance across a broad spectrum of high-priority dimensions of patient care. The 2008 ranking covers mortality, effectiveness, safety, equity and patient-centeredness using measures developed by national organizations and the federal government.

Thomson Reuters, formerly known as Thomson Corporation, recognized the hospital for the second year in a row as a performance improvement leader with the 2007 Thomson 100 Top Hospitals® Performance Improvement Leaders Award. Memorial Hermann-TMC had to meet highly selective award criteria to be named among the nation's top 100 performance improvement leaders. Hospitals on the list were recognized as achieving the following gains from 2002 to 2006: having fewer patients deaths,

complications, and adverse safety events than expected; increasing expenses only 2.5 percent on average, compared with a 17.4 percent increase among peer hospitals over the five-year period; increasing profit margin from less than 1 percent to 6.9 percent; and reducing average length of stay by nearly a day, despite greater patient acuity.

The award is given based on the Thomson Reuters 100 Top Hospitals Performance Improvement Leaders study, which examines the performance of more than 2,800 American hospitals across a range of clinical, financial, operational and patient safety data. Memorial Hermann-TMC is the only hospital in Texas and one of only 15 major academic institutions across the country to be named to the list.

## HAROLD AND DIANE FARB FUND FOR STROKE RESEARCH ESTABLISHED, CAFFEINOL STUDY BEGINS

Houston philanthropist Diane Lokey Farb recently made a \$500,000 gift to the Memorial Hermann Foundation in memory of her husband Harold Farb and in support of research directed by stroke expert James C. Grotta, M.D. The gift has established the Harold and Diane Farb Fund for Stroke Research within the Mischer Neuroscience Institute.

"During my husband's lifetime, we shared the utmost respect for Dr. Grotta, and we appreciated the importance of the advancements he has made in stroke management," said Diane Farb, in making the gift.

Her generosity is funding further research to study the efficacy of caffeinol, a promising treatment for stroke discovered in the UT laboratory of Dr. Grotta and Jarek Aronowski, Ph.D., professor of neurology at The University of Texas Medical School at Houston. "Our goal is to provide the data needed to gain FDA approval of caffeinol as an effective treatment for stroke patients worldwide," says Dr. Grotta, who is co-director of the

Mischer Neuroscience Institute, and chair of the department of Neurology at the UT Medical School. Early studies of caffeinol, a neuroprotective blend of ethanol and caffeine, suggest that it may protect the brain by limiting damage caused by a stroke.

"We've tested caffeinol in our own animal model and have studied its effects on stroke patients alone and in combination with tPA and hypothermia, with good results," he says. "Our next

step is to continue our work here at UT and produce the same positive results in other laboratories around the country."

The Harold and Diane Farb Fund for Stroke Research is supporting preclinical studies at the UT Medical School, the University of Miami School of Medicine, the University of Massachusetts Medical School in Worcester and the University of Kansas Medical Center in Kansas City,

where lab research is focused on testing caffeinol in older animals with transient and permanent arterial occlusion. "We feel that it's important to show that a



Diane Lokey Farb and James C. Grotta, M.D.

neuroprotective drug such as caffeinol is effective in older animals, including primates, that results are consistent in independent laboratories and that we're certain about the time window of effect," Dr. Grotta says. "We also want to examine the results with various types of strokes before proceeding to clinical trials. It's possible that caffeinol might be effective for both ischemic and hemorrhagic strokes."

Based on the results of preclinical studies, Dr. Grotta and his team will seek funding for a randomized clinical trial of intravenous caffeinol versus placebo for two hours starting immediately upon patient arrival in the emergency departments of multiple major American centers. ■

STROKE, 2009, 40:00-00

DOI: 10.1161/STROKEAHA.108540245

# SEQUENCING OF TGF- $\beta$ PATHWAY GENES IN FAMILIAL CASES OF INTRACRANIAL ANEURYSM

*Teresa Santiago-Sim, Ph.D.; Sumy Mathew-Joseph, Ph.D.; Hariyadarshi Pannu, Ph.D.; Dianna M. Milewicz, M.D., Ph.D.; Christine E. Seidman, M.D.; J.G. Seidman, Ph.D.; Dong H. Kim, M.D.*

*From the Department of Genetics, Harvard Medical School, Boston, MA 02115, U.S.A. (T.S.S., S.M.J., J.G.S., C.E.S.); Department of Internal Medicine and Institute of Molecular Medicine, The University of Texas Health Science Center at Houston, Houston, TX 77030, U.S.A. (H.P., D.M.M.); Department of Pathology, Brigham and Women's Hospital, Boston, MA 02115, U.S.A. (C.E.S.); and Department of Neurosurgery, The University of Texas Medical School at Houston, Houston, TX 77030, U.S.A. (D.H.K.).*

## ABSTRACT

**BACKGROUND AND PURPOSE.** Familial aggregation of intracranial aneurysms (IA) strongly suggests a genetic contribution to pathogenesis. However, genetic risk factors have yet to be defined. For families affected by aortic aneurysms, specific gene variants have been identified, many affecting the receptors to transforming growth factor- $\beta$  (TGF- $\beta$ ). In recent work, we found that aortic and intracranial aneurysms may share a common genetic basis in some families. We hypothesized, therefore, that mutations in TGF- $\beta$  receptors might also play a role in IA pathogenesis.

**METHODS.** To identify genetic variants in TGF- $\beta$  and its receptors, TGFB1, TGFBR1, TGFBR2, ACVR1, TGFBR3 and ENG were directly sequenced in 44 unrelated patients with familial IA. Novel variants were confirmed by restriction digestion analyses, and allele frequencies were analyzed in cases versus individuals without known intracranial disease. Similarly, allele frequencies of a subset of known SNPs in each gene were also analyzed for association with IA.

**RESULTS.** No mutations were found in TGFB1, TGFBR1, TGFBR2 or ACVR1. Novel variants identified in ENG (p.A60E) and TGFBR3 (p.W112R) were not detected in at least 892 reference chromosomes. ENG p.A60E showed significant association with familial IA in case-control studies ( $P = 0.0080$ ). No association with IA could be found for any of the known polymorphisms tested.

**CONCLUSIONS.** Mutations in TGF- $\beta$  receptor genes are not a major cause of IA. However, we identified rare variants in ENG and TGFBR3 that may be important for IA pathogenesis in a subset of families.

# NEW-ONSET GERIATRIC EPILEPSY CARE: RACE, SETTING OF DIAGNOSIS AND CHOICE OF ANTIEPILEPTIC DRUG.

Omotola A. Hope, John E. Zeber, Nancy R. Kressin, Barbara G. Bokhour, Anne C. VanCott, Joyce A. Cramer, Megan E. Amuan, Janice E. Knoefel and Mary Jo Pugh

## ABSTRACT

**PURPOSE.** There is a growing movement to assess the quality of care provided to patients in the United States, but few studies have examined initial care for epilepsy patients. We examined the relationships among patient race, setting of initial diagnosis and initial treatment for older veterans newly diagnosed with epilepsy.

**METHODS.** We used Department of Veterans Affairs (VA) inpatient, outpatient, pharmacy and Medicare data (1999-2004) to identify patients 66 years and older with new-onset epilepsy. High-quality care was defined as avoiding a suboptimal agent (phenytoin, phenobarbital, primidone) as defined by experts. Predictors included demographic and clinical characteristics, and the context of the initial seizure diagnosis including the setting (e.g., emergency, neurology, hospital, primary care). We used mixed-effects multivariable logistic regression modeling to identify predictors of initial seizure diagnosis in a neurology setting, and receipt of a suboptimal AED.

**RESULTS.** Of 9,682 patients, 27% were initially diagnosed in neurology and 70% received a suboptimal AED. Blacks and Hispanics were less likely to be diagnosed in neurology clinics (black OR = 0.7 95% CI 0.6-0.8; Hispanic OR = 0.6 95% CI 0.5-0.9). Diagnosis in a non-neurology setting increased the likelihood of receiving a suboptimal agent (e.g., Emergency Department OR = 2.3 95% CI 2.0-2.7). After controlling for neurology diagnosis, black race was independently associated with an increased risk of receiving a suboptimal agent.

**DISCUSSION.** We demonstrated that differences in quality of care exist for both clinical setting of initial diagnosis and race. We discussed possible causes and implications of these findings.

*Department of Neurology, University of Texas Health Science Center at Houston, Houston, Texas, U.S.A.; Veterans Affairs HSR&D, South Texas Veterans Health Care System (VER-DICT), San Antonio, Texas, U.S.A.; Department of Psychiatry, University of Texas Health Science Center at San Antonio, San Antonio, Texas, U.S.A.; Center for Health Quality, Outcomes and Economic Research, Edith Nourse Rogers Memorial Hospital, Bedford, Massachusetts, U.S.A.; Section of General Internal Medicine, Boston University School of Medicine, Boston, Massachusetts, U.S.A.; Boston University School of Public Health, Boston, Massachusetts, U.S.A.; Neurology Division, VA Pittsburgh Healthcare System, Pittsburgh, Pennsylvania, U.S.A.; Department of Neurology, University of Pittsburgh, Pittsburgh, Pennsylvania, U.S.A.; Department of Psychiatry, Yale University, New Haven, Connecticut, U.S.A.; Epilepsy Therapy Project, Orange, Connecticut, U.S.A.; New Mexico Veterans Healthcare System, Medicine Service, Albuquerque, New Mexico, U.S.A.; University of New Mexico Departments of Internal Medicine and Neurology, Albuquerque, New Mexico, U.S.A.; and Department of General Medicine, University of Texas Health Science Center at San Antonio, San Antonio, Texas, U.S.A.*

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