Meet Maryland’s A-Team in Acute Stroke Care
It is our sincere pleasure to present our second “Clinical Neurosciences Update” from the Departments of Neurology and Neurosurgery. The current issue focuses on vascular neurosciences and in particular the approach and care of patients with acute ischemic or hemorrhagic stroke. Our nationally designated Comprehensive Stroke Center (CSC) is among the busiest in the Mid-Atlantic region and provides high acuity, emergent care. The CSC is a highly collaborative and interdisciplinary team that includes neurology, neurosurgery, interventional neuroradiology, and emergency medicine to perform complicated and often life-saving procedures such as thrombolysis and thrombectomy. In this issue, we highlight Dr. Marc Simard, a clinician-scientist, vascular neurosurgeon, who has pioneered experimental approaches to the treatment of increased intracranial pressure, brain swelling, and sub-arachnoid hemorrhage.

The close collaboration between Neurology and Neurosurgery for patient care and research helps us to lead the region in many areas of clinical neuroscience such as stroke, epilepsy, and movement disorders, supported by such advanced services as the Neurocritical Care and Emergency Neurology Unit, which is specially equipped to care for the sickest patients when timely care is critical. We continue to strive daily for the best patient outcomes and to embrace new technologies and treatments that will insure the health of our patients. Clinical neurosciences here at University of Maryland Medical Center and University of Maryland School of Medicine continue to grow with enhanced research funding, new clinical trials, expanded patient outreach, and ongoing national reputation for excellence. It remains our privilege to serve our patient communities.

Howard M. Eisenberg, MD          Peter B. Crino, MD, PhD
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By any measure and at any age, strokes are deadly serious. Currently the fifth leading cause of mortality in the nation, these “brain attacks” kill about 140,000 Americans each year—about one death every four minutes. In dollars and cents, the US loses $34 billion annually due to stroke, when the costs of health care services, medications, and lost productivity due to disability are added up.

Fortunately, for stroke sufferers throughout the state of Maryland, their best chance for survival and recovery is close at hand. The University of Maryland Medical Center Comprehensive Stroke Center (CSC) is nationally recognized as the premier center in the state dedicated to comprehensive care of patients with complex cerebrovascular disease and acute stroke conditions.

Due to its exceptional history of providing advanced cerebrovascular care, CSC originally was designated as the state’s first certified Primary Stroke Center by The Joint Commission (TJC). Then in 2014, the center joined an elite group of medical institutions in achieving TJC’s Advanced Certification as a Comprehensive Stroke Center (CSC), a new designation awarded to fewer than 130 stroke centers in the United States. The center also received a similar designation from the Maryland Institute for Emergency Medical Services Systems (MIEMSS).

To become a Comprehensive Stroke Center, medical institutions must demonstrate utilization of state-of-the-art technology (including advanced imaging capabilities), 24/7 availability of specialized treatments, and staff with the unique education and competencies to care for complex stroke patients. “As a stroke center, we are leaders in Maryland,” says Marcella A. Wozniak, MD, PhD. Associate Professor of Neurology and Medical Director of the Comprehensive Stroke Center. “One of our central missions here is that anyone in the state who is eligible for stroke therapies can be identified and transferred here to our CSC for treatment.”

Going to ‘BAT’ for Stroke Patients

Today, UMMC’s CSC is one of the busiest in the region, receiving 1,600 calls annually from area physicians seeking consultation with faculty experts, while providing the most advanced and innovative treatments for more than 1,200 patients with neurovascular disease every year. Managing the front line of these efforts is CSC’s Brain Attack Team (BAT), a multispecialty group created to rapidly evaluate and treat patients with vascular causes of neurological disorders around the clock, seven days a week. Staffed by board-certified faculty from multiple specialties who can provide rapid evaluation and complex lifesaving interventions for patients, BAT counts among its ranks highly skilled vascular neurologists, emergency physicians, neuro-intensivists, neurosurgeons, vascular surgeons, interventional neuroradiologists, nurses and other professionals.

BAT’s patient response format is modeled after the concept of the “golden hour” pioneered at the University of Maryland’s Shock Trauma Center. With two million neurons dying every minute, literally every second counts for stroke patients. In response, BAT’s accelerated continuum of care can begin well in advance of a stroke patient arriving at UMMC for treatment. The team collectively works as a statewide and even national resource for primary stroke center physicians, providing

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both general consultation on stroke care and prehospital evaluation of stroke patients.

Those patients deemed candidates for advanced treatment at UMMC’s CSC are expedited via land and air interhospital transport to the Medical Center, where BAT neurologists work closely with the neuro-interventional radiology team to make clinical decisions about patient treatment based on imaging diagnostics. Before and after their treatment, patients receive expert care in UMMC’s 22-bed Neurological Critical Care Unit (NCCU) UMMC under the direction of Neeraj Badjatia, MD, MS and staffed by 13 dedicated advanced practice providers, 75 neuroscience nurses, four United Council for Neurological Subspecialties (UCNS) fellows in neurocritical care, and seven neurocritical care trained faculty from Neurology, Emergency Medicine, Anesthesiology, and Neurosurgery.

In the case of a major stroke, the therapeutic time window in which emergent care must be delivered to prevent disability or mortality has expanded. “The efficacy of stroke treatment traditionally has fallen within a six-hour window,” says Dheeraj Gandhi, MBBS. “However, recent guidelines issued by the American Heart Association and American Stroke Association indicate that a mechanical thrombectomy could benefit certain acute stroke patients up to 24 hours.”

The ability to perform mechanical thrombectomies for stroke patients is a key requirement of a comprehensive stroke center. UMMC’s CSC has four board-certified interventional neuroradiologists who are on call 24/7 to evaluate a stroke patient for mechanical thrombectomy. “It can take less than an hour to complete this procedure,” notes Dr. Gandhi. “In terms of recovery, 40-50 percent of patients walk out of the Medical Center within two to three days. It is a transformative treatment.”

When additional advanced lifesaving procedures are called for, Neurosurgery’s skilled neurosurgeons (E. Francois Aldrich, MB, ChB; Elizabeth J. Le, MD; and J. Marc Simard, MD, PhD) specialize in treating complex conditions involving stroke, aneurysms, and other cerebrovascular disorders. They also partner with the UM Gamma Knife Center—the first center of its kind in the Mid-Atlantic—a revolutionary, non-invasive surgery that has proven effective for arteriovenous malformations and certain brain tumors. And for stroke patients in recovery, the University of Maryland Rehabilitation & Orthopaedic Institute offers a comprehensive, interdisciplinary and individualized Stroke Rehabilitation Program, designed to help stroke patients recover and maximize their potential based upon their diagnosis and goals.

Preventing the Next Stroke

Along with the exceptional clinical treatment for stroke, a parallel priority of the CSC is stroke prevention through a range of clinical and outcomes research studies. “We believe that part of our responsibility is to participate in clinical research that advances immediate clinical care,” says Steven J. Kittner, MD, MPH, Professor of Neurology and Chief of the Division of Stroke and Cerebrovascular Diseases.
Current CSC researchers and their studies include:

- **John Cole, MD, MS**, Associate Professor of Neurology, studies the genetic mechanisms that predispose patients to having strokes in order to prevent them. He currently is working with an American Heart Association Grant, augmented by a grant by Bayer Pharmaceutical, to study small vessel stroke genetics. Dr. Cole and his team maintain a Stroke Biorepository, which banks genetics samples and stroke outcome data.

- **Carolyn Cronin, MD, PhD**, Assistant Professor of Neurology, is the local site primary investigator for StrokeNet, a network of 25 regional centers, involving 200 hospitals, that is dedicated to the conduct of stroke trials. Dr. Cronin was the site primary investigator for the POINT trial, a pivotal trial for patients with TIA or low National Institutes of Stroke Scale Scores. Currently, she is the primary investigator for the CHARM Study: Glibenclamide for large hemispheric infarction analyzing mRS and mortality. The primary purpose of this study is to determine if the study drug decreases malignant edema in large ischemic stroke.

- **Steven Kittner, MD, MPH**, Professor of Neurology, leads an international consortium working together to understand the genetic determinants of early-onset ischemic stroke, an age group where genetic factors are particularly important. He also collaborates with a multi-site study aiming to understand the genetic underpinnings of intracerebral hemorrhage and the factors predicting outcome of this devastating type of stroke.

- **Michael Phipps, MD, MHS** works as an advisor to Chesapeake Regional Information System for our Patients (CRISP), a regional health information exchange (HIE) serving Maryland and the District of Columbia. His specific interest is employing the online CRISP portal to share “emergent imaging,” where critical stroke patient images are automatically uploaded into the cloud for quick access. Because data-heavy images like CT angiograms can take some time to upload, this preemptive step will save valuable time in remote diagnostic review and treatment decisions. Dr. Phipps also is leading the effort in creating a Telestroke video-conferencing system, where CSC faculty can discuss patient cases with remote physicians in real time.

- **Karen Yarbrough, DNP, CRNP** is SCS’s Programs Director and serves as chairperson of the Maryland Stroke Center Consortium, which facilitates policy development to remove disparities for acute stroke care due to geography, race, culture, socioeconomic status, gender and other barriers that impede the rapid triage of the stroke patient.
For decades, most of the preclinical scientific research on acute ischemic stroke and traumatic brain injury (TBI) focused on protecting or preserving neurons. However, in day-to-day neurocritical care, most of the efforts spent on managing patients with severe forms of brain injury—large hemispheric infarction (LHI) and brain contusions—are directed toward managing cerebral edema, brain swelling, and elevated intracranial pressure (ICP). Cerebral edema and elevated ICP add insult to injury by further compromising the already damaged brain and, in the worst cases, by directly causing brain death. The available “tools” for countering edema, brain swelling and elevated ICP are antiquated and inadequate, consisting simply of osmotherapeutics (mannitol and hypertonic saline) and decompressive craniectomy. At present, there are no strategies for targeting molecular mechanisms of brain edema.

Bench-to-Bedside

The story of glyburide (also known as glibenclamide) in ischemic stroke and TBI is a classic example of “bench to bedside” research—a fundamental, basic-science discovery whose potential clinical applicability was recognized early on, and has since advanced to clinical trials.

The target of glyburide, the SUR1-TRPM4 channel, was discovered by serendipity nearly two decades ago while doing single channel patch clamp experiments on astrocytes from rat brain. It was quickly appreciated that this channel was unique, although it would take several years before the channel was characterized molecularly.

Early on, it was recognized that the SUR1-TRPM4 channel plays a major role in edema formation. Cerebral ischemia and trauma induce subtle changes in the endothelial cells that line the blood vessels of the brain, causing them to express SUR1-TRPM4 channels. When these channels open, endothelial cells swell, thereby compromising the critical barrier function they normally perform. This results in edema formation and brain swelling, and can lead to secondary hemorrhage (in stroke, called hemorrhagic transformation; in TBI, called contusion blossoming).

New work in stroke has shown that the SUR1-TRPM4 channel physically co-assembles with and regulates...
aquaporin-4, a water channel long implicated in brain edema. Moreover, new work in stroke has shown that the SURI-TRPM4 channel is activated not only by ischemia/reperfusion, but also by the very drug used to treat stroke patients—recombinant tissue plasminogen activator (rtPA).

Early on, it also was recognized that the channel is potently blocked by glyburide. At the time, glyburide was known only as an antidiabetic drug that caused the release of insulin through its ability to block ATP-sensitive potassium channels. When it was discovered that the SURI-TRPM4 channel is transcriptionally upregulated in cerebral ischemia and TBI, it became evident that glyburide might have other uses beyond diabetes, particularly for LHI and brain contusions.

Preclinical studies on animal models of LHI quickly showed that pharmacological blockade of SURI-TRPM4 with glyburide reduces edema, brain swelling and death. One preclinical study found that, left untreated, LHI in an animal model resulted in 67% mortality, similar to that in untreated humans with LHI. In this model, both glyburide and decompressive craniectomy prevented mortality, but glyburide-treated rats were significantly better off in terms of brain tissue preservation, recovery of neurological function and general wellbeing. This study exemplified the axiom that “preventing brain swelling is better than decompressing the already swollen brain.”

A natural experiment suggested itself—what happens to diabetic patients when they have a stroke? What happens if they are already on glyburide or a similar sulfonylurea drug, as compared to being on a non-sulfonylurea drug for their diabetes? Retrospective studies showed that, indeed, patients who were taking a sulfonylurea drug for diabetes and who stayed on it after stroke fared better than those who were not taking a sulfonylurea. Patients on a sulfonylurea recovered better, were less likely to have hemorrhagic transformation, and were less likely to die.

“The story of glyburide (also known as glibenclamide) in ischemic stroke and TBI is a classic example of ‘bench to bedside’ research.”

A Problem Remedied

Although the preclinical and retrospective clinical data were promising, there was one problem: the oral form of glyburide was not suitable for non-diabetics, who might have other uses beyond diabetes, particularly for LHI and brain contusions.

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Remedy Pharmaceuticals sponsored two early-stage clinical trials called: “Glyburide Advantage in Malignant Edema and Stroke” (GAMES), focused on patients with LHI, i.e., those at highest risk of dying or needing a decompressive craniectomy.

The GAMES-Pilot study was conducted at just two sites, University of Maryland and Mass General Hospital. The study was largely to determine the logistics of whether we could even contemplate a realistic study of RP-1127 in humans, not just patients with stroke, but those with the most severe, life-threatening strokes, those with LHI? The GAMES-Pilot study showed that indeed it is possible to recruit appropriate LHI patients, complete an MRI evaluation, obtain informed consent, and begin an infusion of RP-1127 within 10 hours of stroke onset. When the GAMES-Pilot outcome data were compared with historical controls, subjects treated with RP-1127 were found to have more favorable clinical outcomes, with reduced death and less need for decompressive craniectomy.

GAMES-Pilot led to a modest-sized Phase 2 clinical trial, GAMES-RP, a double-blind, randomized, placebo-controlled trial conducted at 17 medical centers in the USA. The primary endpoint of GAMES-RP was not met, largely because it stipulated less use of decompressive craniectomy, which many patients underwent, some perhaps needlessly. Nevertheless, the findings were quite promising, with significant reductions in midline-shift (linked to brain swelling) and serum MMP-9 (linked to edema and hemorrhagic transformation), a reduction in all-cause mortality by half, and a very favorable shift in functional outcomes (mRS) at 90 days and one year. Adjudicated neurological deaths were highly significantly reduced with drug, compared to placebo.
With completion of the highly promising GAMES-RP study, it was not surprising that “big pharma” would become interested. In 2017, Biogen acquired the RP-1127 (renamed Cirara) program from Remedy Pharmaceuticals for the specific purpose of sponsoring a pivotal Phase 3 trial in LHI. Biogen recently completed their efforts to secure approval for their clinical trial design from US (FDA), European and Japanese regulatory agencies. Now, Biogen is poised to begin enrolling patients in a world-wide, 100-center, 680 subject Phase 3 clinical trial of intravenous glyburide in LHI. Aply, given its roots in Baltimore, the study is named CHARM—Cirara in large Hemispheric infarction Analysing mRS and Mortality. In CHARM, as in GAMES-RP, Dr. Carolyn Cronin will serve as the University of Maryland principal investigator, leading a team of world-class stroke neurologists (Drs. John W. Cole, Steven J. Kittner, Jose Merino, Melissa Motta, Michael Phipps and Marcella Wozniak).

The CHARM study is in the planning stage to begin enrolling LHI patients within nine hours of symptom onset during Summer 2018. This is the final step in the transition from Dr. Simard’s basic science work at University of Maryland to the first medical therapy to prevent edema in patients with the most devastating strokes. To refer patients, call Maryland Express Care at 410-328-1234 to speak to the Brain Attack Team neurologist on call.

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**Stepping It Up**

Dr. Simard and his research team maintain a rigorous research schedule that includes the following funded projects:

- “Gulf War neurotoxicants and acquired cognitive and neuropsychological dysfunction” ($250,000/Funding: VA Maryland Health Care System)
- “Spinal cord injury, progressive hemorrhagic necrosis and the NC(Ca-ATP) channel” ($250,000/Funding: NIH/NINDS)
- “TrpM4 channel in spinal cord injury” ($250,000/Funding: NIH/NINDS)
- “Non-canonical NF-kappaB signaling and Sur1-Trpm4 in traumatic brain injury” ($250,000/Funding: NIH/BINP)
- “Astrocyte regulation of the blood-brain barrier in intracerebral hemorrhage” ($250,000/Funding: NIN/NHLBI)
- “Fn14, non-canonical NF-kappaB and the downstream signaling in neuropathic pain” ($292,730/Funding: NIH/NINDS)
A 21st CENTURY FACELIFT FOR BRESSLER 12

If you find yourself stepping off the elevator on the 12th floor of the Bressler Research Building on West Baltimore Street, prepare to be surprised. That floor, home to the University of Maryland Department of Neurology Research Laboratories, has been transformed.

The two-month renovation of that floor, which was completed in April 2018, focused mainly on the public spaces, starting with a complete redo of the front lobby. “I don’t think there had been any upgrades in the décor since the Eisenhower era,” jokes Peter Crino, MD, PhD, Professor and Chair of the Department of Neurology. “I’m grateful to Dawn Flair in Neurology Administration, who was instrumental in organizing and coordinating this entire effort.”

Upgrades included removal of old tiling, a new ceiling, a refinished floor, and freshly painted walls. Modern signage was installed that includes a listing of all researchers and their respective offices. A large wall monitor opposite the elevators continually broadcasts information about upcoming seminars or conferences, as well as any current information posted by the floor’s researchers. Finally, new furnishings were added to the lobby to provide a more sophisticated atmosphere.

All hallways were cleared of old file cabinets and their contents, while all doors received new signage. Individual lab spaces will be updated over time as new faculty members are hired to occupy them.

“As our department shifts to more of a translational research culture, we need to professionalize our environment in order to attract new young clinician-scientists to our faculty who will want to do more NIH-funded research,” notes Dr. Crino. “Giving our research laboratories a modern, 21st century look will certainly appeal to our new recruits—as it already does to our present faculty.”

17TH ANNUAL NEUROLOGY TOWN-GOWN MEETING “BUILDS BRIDGES”

Call it a meeting of the minds—in Neurology, that is. Wednesday, June 13, 2018 marked the date of the 17th annual William J. Weiner, MD, Town Gown Neurology Update, held at the SMC Campus Center on the University of Maryland, Baltimore campus. Named in honor of the former Department of Neurology chair who initiated the event, the half-day event provides the opportunity for referring neurologists from surrounding communities to enjoy collegial conversations with their faculty counterparts in the Department of Neurology while earning CME credits for attending various presentations.

“The idea behind the meeting is to invite our community neurologists to meet and interact with our faculty here, because so many of them refer their patients to us,” says Peter Crino, MD, PhD, Professor and Chair of the Department of Neurology. “We see this event as opportunity to build bridges with our ‘town’ colleagues while providing them with important updates on a number of relevant clinical topics.”

This year’s meeting, attended by more than 100 neurologists, featured talks on epilepsy, auto-immune encephalitis, and stroke, with the keynote address, “An Update on the Diagnosis of Alzheimer’s Disease: Moving the Bench and Bedside Closer,” delivered by Eric McDade, DO, Associate Professor of Neurology at Washington University School of Medicine in St. Louis and a graduate of the Neurology Residency Program at the University of Maryland School of Medicine.
• Carolyn Cronin, MD. Assistant Professor of Neurology, led the University of Maryland team participating in the POINT trial, a practice-changing trial recently published in the New England Journal of Medicine. The study found that patients with minor ischemic stroke or high-risk TIA treated within 12 hours with combination aspirin and clopidogrel had fewer major ischemic events than patients treated with aspirin alone. The benefit of aspirin plus clopidogrel was concentrated in the first month of the trial, whereas the risk of hemorrhage remained relatively constant throughout the three months of follow-up. www.nejm.org/doi/full/10.1056/NEJMoa1800410

• Francois Aldrich, MD. Professor and Director of Cerebrovascular Surgery, coauthored a paper reporting a Phase 1/2 clinical trial of the safety and clinical effects of intraventricular sustained-release nimodipine, compared to enteral nimodipine, in aneurysmal subarachnoid hemorrhage. The findings, published in Stroke, suggest that the intraventricular route of administration reduced both delayed cerebral ischemia and hypotension side effects, and paved the way for a recently started Phase 3 trial. www.ncbi.nlm.nih.gov/pmc/articles/PMC5176000/

• John Cole, MD and Dr. Steven Kittner and were coauthors and key contributors on a 2018 Nature Genetics paper (doi: dx.doi.org/10.1038/s41588-018-0058-3) that identified 22 new genetic risk factors for stroke, tripling the number of gene regions known to affect stroke risk. The findings demonstrated shared genetic influences with multiple related vascular conditions, especially blood pressure, but also identified independent loci that provide novel clues on stroke mechanisms with the potential to become drug targets for stroke therapy. The study was an international collaboration, including 67,000 persons with stroke; University of Maryland was the coordinating center for the NINDS Stroke Genetics Network, one of the largest consortia that contributed to the study.

• Michael Phipps, MD, MHS. Assistant Professor of Neurology, coauthored a series of papers on quality measurement and improvement in stroke and stroke rehabilitation in the journals, Neurology, Circulation: Cardiovascular Quality and Outcomes, and JAMA Neurology. The papers collectively updated the American Academy of Neurology stroke quality measures, demonstrated the feasibility of using the electronic medical record to assess quality of stroke care, and identified opportunities to improve the quality of care of patients with TIA and minor stroke. www.ncbi.nlm.nih.gov/pubmed/?cmd=HistorySearch&querykey=8

• The members of the Division of Stroke and Cerebrovascular Diseases, Drs. Cole, Cronin, Merino, Phipps, Wozniak and Kittner, published a paper in the journal Stroke on the dose-response relationship between cigarette smoking and ischemic stroke in young men (www.ncbi.nlm.nih.gov/pubmed/29674522). Division members mentored a medical student, Janina Markidan, in this research who presented the findings at the International Stroke Conference in Houston Texas earlier this year. The article was featured on the American Heart Association website under the byline, “The more you smoke, the more you stroke.” newsroom.heart.org/news/youth-stroke-smoking-stroke-risk

• Steven Kittner, MD, MPH, coauthored a focused update on stroke risk factors unique to women in the journal Stroke. stroke.ahajournals.org/content/strokeaha/early/2018/02/07/STROKEAHA.117.018415.full.pdf. The paper highlights that it is the peripartum and postpartum periods, rather than the three trimesters of pregnancy, that are associated with an increase in stroke risk and points out the need for more research on whether pregnancy confers an increased risk of stroke recurrence among women with a prior stroke.

• Dheeraj Gandhi, MD, Professor and Director of the Division of Interventional Neuroradiology, coauthored a series of papers about small unruptured intracranial aneurysm. One paper, published in the American Journal of Neuroradiology surveyed neuroradiologists regarding their imaging surveillance of small, ≤ 7 mm, aneurysms and found significant heterogeneity in practice although the majority favored indefinite yearly noncontrast MRA. www.ncbi.nlm.nih.gov/pubmed/29650787. The other paper, published in JAMA Neurology, www.ncbi.nlm.nih.gov/pubmed/29159405 reported on a comparative effectiveness analysis of the management of tiny, ≤ 3 mm, incidentally detected, unruptured aneurysms. No preventive treatment or imaging follow-up was found to be the most effective strategy, compared to aneurysm coiling or imaging surveillance.

• James Russell M.B., Ch.B., Vice Chair for research and Director of the Neuro-muscular Medicine section recently published a paper entitled “mGluR2/3 activation of the SIRT1 axis preserves mitochondrial function in diabetic neuropathy” in the Annals of Clinical and Translational Neurology. This study determined if a selective mGluR2/3 receptor agonist prevented or treated experimental diabetic peripheral neuropathy (DPN) through glutamate recycling and improved mitochondrial function. The authors showed that
activation of glutamate recycling pathways protects diabetic DRG and this is associated with activation of the SIRT1-PGC-1α-TFAM axis and preservation of mitochondrial OXPHOS function.

- **Philip Iffland II, PhD**, Research Assistant Professor in Neurology, led a study entitled “DEPDC5 and NPRL3 modulate cell size, filopodial outgrowth, and localization of mTOR in neural progenitor cells and neurons” published in *Neurobiology of Disease*. This study defined the effects of mutations in two genes DEPDC5 and NPRL3, modulators of mechanistic target of rapamycin (mTOR), on brain development.

**NIH Grant Support**

- A research team consisting of Neurocritical Care faculty **Gunjan Parikh, MD** and **Melissa Motta, MD**, Radiology faculty **Rao Gullapalli, PhD**, and Neurology faculty **Steven Kittner, MD, MPH**, are researching the genetic and imaging predictors of intracerebral hemorrhage as part of the multi-center ICH ROSE study. The ROSE study is a subcontract from Dan Woo, University of Cincinnati. Some Neuro ICU staff are collaborating but without support.

**CLINICAL HIGHLIGHTS**

- **Howard Eisenberg**, Professor and Raymond K. Thompson, MD, Chair in Neurosurgery gave the J. Douglas Miller Lecture, “A Novel Drug for the Treatment of Traumatic Brain Injury,” at the annual meeting of the American Association of Neurological Surgeons (AANS) held in April in New Orleans. Established as the Harvey Cushing Society in 1931, the AANS has approximately 11,000 members worldwide.

- **Marcella Wozniak, MD, PhD**, Associate Professor of Neurology and Medical Director of the Neurology Care Center, was featured in the *Baltimore Sun* article, “More patients could survive—and even thrive after —major strokes under new guidelines,” published on June 1 (www.baltimoresun.com/health/bs-hs-stroke-guidelines-20180523-story.html). Dr. Wozniak also was recently interviewed on stroke care for Maryland Public Television’s program, *Direct Connection* (www.youtube.com/watch?v=435MPD-nH-U&feature=youtu.be).

- **John Cole, MD**, Associate Professor of Neurology, leads the Maryland site for a similar investigation of ischemic stroke, the STRONG study, that examines genetic and psychosocial predictors of outcome. The STRONG study is a subcontract from UC Irving from E Alison Holman PI and Steven Cramer.

- **Steven Kittner, MD, MPH**, Professor of Neurology and **Braxton Mitchell**, Professor of Medicine, were recently awarded a NIH grant to establish an international consortium to study the genetics of early-onset ischemic stroke.

- **Daniel Harrison, MD**, Division of Neuro-Immunology, and member of the V.A. Multiple Sclerosis Center of Excellence recently received a new R01 grant from the NIH using brain MRI to demonstrate leptomeningeal contrast enhancement in multiple sclerosis (MS) as a marker of meningeal inflammation. Dr. Harrison’s lab will use MRI to investigate the hypothesis that meningeal inflammation in MS may be more ubiquitous than previously thought, is not effectively targeted by current treatments, and is related to some of the more damaging and poorly addressed aspects of MS (cortical injury, cognitive deficits, fatigue, and progressive disability accumulation).

- Compared to stroke at older ages, early-onset ischemic and hemorrhagic stroke is more frequently due to unusual genetic conditions. Comprehensive Stroke Center faculty have been collaborating closely with UM clinical genetics faculty, Elizabeth Streeten, MD and Carol Greene, MD, in the diagnosis and management of these rare conditions. Genetic testing including exome sequencing is used when indicated.

- Stroke faculty members **Marcella Wozniak, MD, PhD** and **Karen Yarbrough, DNP, CRNP, ACNP-BC**, are serving on the Stroke Quality Improvement Committee of the Maryland Institute for Emergency Medical Services Systems (MIEMSS).

- Stroke faculty are working with the Maryland Stroke Coordinators Consortium to develop protocols for the evaluation of patients for mechanical thrombectomy. Faculty also have partnered with community hospitals throughout Maryland to provide 24/7 consultation for acute ischemic stroke patients.
Seemant Chaturvedi, MD, will join the Department of Neurology in November 2018 as the new chief of the Division of Stroke and Cerebrovascular Diseases. He also will serve as Director of the UMMS Stroke Program. Dr. Chaturvedi is currently Professor of Clinical Neurology and Vice-Chair for VA Programs at the University of Miami Miller School of Medicine. He also serves as Chief of Neurology at the Miami VA Medical Center. His research interests include carotid revascularization, gender differences in stroke, embolic stroke, and stroke in young adults.

Join us in welcoming Elizabeth Julianna Le, MD, who has joined the Department of Neurosurgery as an Assistant Professor. Dr. Le is a graduate of the University of Maryland School of Medicine (UMSOM) where she was awarded the Faculty Gold Medal, and then completed her residency at UMSOM’s Department of Neurosurgery, followed by a fellowship in that department’s Division of Interventional Neuroradiology.

The Department of Neurology welcomes Tara Dutta, MD as Assistant Professor in the Stroke Division. Dr. Dutta completed her neurology residency and vascular neurology fellowship here at University of Maryland School of Medicine. She comes to us from Kaiser Permanente in Sacramento. Dr. Dutta is part of the new Clinical Neuroscience Service, working as a neuro-hospitalist.

Howard M. Eisenberg, MD, Professor, and Raymond K. Thompson, MD, Chair in Neurosurgery, were featured in a recent National Public Radio broadcast, “How Highly Focused Sound Waves Steadied a Farmer’s Trembling Hand.” The story recounted how a patient was treated successfully for essential tremor through the use of focused ultrasound, a procedure pioneered by Dr. Eisenberg.

The Department of Neurology’s Parkinson’s Disease & Movement Disorders Center held its sixth annual Within Our Reach Parkinson’s Disease Symposium on April 13, 2018 in Baltimore. The free all-day event gives Parkinson’s patients and their families the opportunity to learn about the latest treatments, solutions, and research concerning the disease, as well as attend a movement health fair and interact with expert physicians from the Movement Disorders team.

Focus on Philanthropy
Thanks to an outpouring of support from colleagues, friends, and family, fundraising for the David M. Ibrahimi, MD, Visiting Professorship has reached its goal. Dr. Ibrahimi, an Assistant Professor in the Department of Neurosurgery, passed away in July 2017 after a two-year battle with cancer. The new Visiting Professorship will carry forward Dr. Ibrahimi’s legacy by inviting world-renowned leaders in the field of spinal research to lecture and provide an outstanding educational opportunity for future generations of neurosurgeons. “It was an honor for me to be a part of this tremendous fundraising effort in memory of Dr. Ibrahimi and carry forward his legacy as a compassionate neurosurgeon who inspired so many,” says Emily Green, Director of Development for Neurology and Neurosurgery at the University of Maryland School of Medicine (UMSOM).

The new Dr. Bizhan Aarabi Professorship in Neurotrauma was established in December 2016 through a lead gift of $500,000 made by Bizhan Aarabi, MD, Professor of Neurosurgery. For the past 17 years, Dr. Aarabi has served as Director of Neurotrauma at the R Adams Cowley Shock Trauma Center. The professorship will recognize and reward scientists of an exceptional caliber and provide resources to sustain and expand UMSOM’s research, clinical, and entrepreneurial efforts. The inaugural recipient of the Aarabi Professorship will be J Marc Simard, MD, PhD, Professor of Neurosurgery and Chief of the Neurosurgical Service at the Baltimore VA Medical Center. A formal investiture ceremony is planned for Spring 2019.

To learn more about the impact your philanthropy can have on the Departments of Neurology and Neurosurgery, please contact Emily Greene at (410)706-5269 or egreene@som.umaryland.edu.