



Message From Dr. Erol Veznedaroglu

Director of the Capital Institute
for Neurosciences



Summer has finally arrived, and many of us are seeking a slight reprieve from the hectic pace of life. At the Institute, we are in high gear during the summer months, continuing to build unique world-class programs.

I am very proud to announce that Dr. Roy Patchell, a world-renowned neuro-oncologist, will soon be joining the Capital Institute for Neurosciences.

Dr. Patchell was previously Chairman of the Division of Neurology at the Barrow Neurological Institute in Phoenix, an internationally recognized neurological center. In fact, one of the most widely recognized standard classification systems for brain cancer is *The Patchell Classification*, which is used by neuro-oncologists and neurosurgeons around the world. In October, Dr. Patchell will be joining Dr. Arlan Mintz, Director of Neurosurgical Oncology, to develop new treatments for brain cancer.

I am currently in Spain where I traveled to deliver a lecture on treatment paradigms for patients over the age of 80. Before leaving, I introduced Dr. Peter Gliebus, who will direct our Cognitive Disorders Program. Dr. Gliebus has unique training in Alzheimer's Disease and cognitive decline — a field I believe medicine has not dealt with well in the past.

So please enjoy your summer, reflect on summers past, enjoy time with family and friends, and rest assured that we are continuing to build a unique institute that exists nowhere else except right here in New Jersey.

Capital Institute for Neurosciences
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New Emergency Stroke Treatment Gives Woman Second Chance at Life



Less than a year ago, Elisa Kahn experienced a massive and potentially deadly stroke. She was in her Philadelphia home one morning when her head hurt, and she became dizzy and tripped. The left side of her face drooped, and the left side of her body became paralyzed. An ambulance took her to Aria Health, her local community hospital, where a CT scan was promptly performed identifying her stroke, and a clot busting medication called tPA was appropriately given.

At the same time, the hospital consulted with the neurosurgical team at Capital Health, available around the clock. As her neurosurgical emergency was escalating, she was quickly transferred to the Capital Institute for Neurosciences, located at Capital Health in Trenton. She was taken immediately to the angiography suite where the network of blood vessels in her brain could be viewed and analyzed on a real-time basis. Dr. Vez was able to locate the clot blocking the supply of blood to the entire right hemisphere of

Elisa's brain. Then, neurosurgical medical history was made.

Within 15 minutes of her arrival in the suite, the blood vessel was re-opened. Elisa became the first person in the nation treated with the Trevo™ Pro Retrieval System following its approval by the FDA just two days earlier. Starting with a small incision in the leg, the device is threaded through blood vessels up to the brain where the surgeon manipulates it to mechanically retrieve blood clots. Dr. Vez, who became the first surgeon to use the device following its approval, called the device a giant leap forward from earlier devices.

"Dr. Vez saved my life," said Elisa, who was back working days after her stroke. Dr. Vez described her case as an example of everything going right in a stroke emergency. "Elisa is doing so well today because everyone worked together. Every stroke patient should have an efficient team, well-trained neurosurgeons, and state-of-the-art technology," he said.

Migraine Prevalent Among Teen Girls; Many Misuse OTC Drugs



Migraine headaches are surprisingly common among teenage girls, yet many have limited knowledge of the disorder and frequently misuse over-the-counter medications that can worsen their symptoms, a noted headache researcher says.

Dr. Mitra Assadi, director of the Headache Center at Capital Health's Capital Institute for Neurosciences, is calling for health education messages aimed

at teenage girls to include information about migraines, including signs, symptoms and potential treatments.

"Empowering girls with basic information regarding migraine could have a powerful impact on their medical care and their quality of life," Dr. Assadi said. "Too many teen girls are suffering needlessly because they are not getting properly diagnosed and treated."

Dr. Assadi's research on migraines includes a recent study published in the *Journal of Pediatric Neurology* that recruited 309 girls aged 14-18. Eighteen percent of the girls were found to have definite migraine, based on the International Headache Classification. Twenty-five percent had probable migraine. Another 45 percent had non-migraine headaches.

The teen girls in the study also had poor knowledge about the symptoms, triggers, treatments and auras associated with migraine.

For instance, just 57 percent of girls with definite migraine correctly identified their headaches as migraine, while only 28 percent of those with probable migraines considered themselves to have migraines. The research determined that the teenagers' knowledge was "substantially" limited in regards to migraine auras and "moderately" limited in terms of symptoms, triggers and treatment.

The study also found that many teens overused over-the-counter (OTC) medications, such as aspirin, acetaminophen, naproxen and ibuprofen. "What we know from existing literature is that overuse of these medications can lead to rebound headaches, and may produce renal and liver damage," Dr. Assadi said.

She said physicians sometimes dismiss migraines among girls, and even family members may not fully recognize the suffering caused by migraines. Moreover, both patients and families may be unaware of treatments, which include pharmacological and holistic interventions. Migraine remains a frequent cause of school absenteeism.

Patients who exhibit two of the following four symptoms may be diagnosed with migraine:

- Pain on one side of the head.
- Pain that is throbbing.
- Pain that increases with exertion.
- Pain that is moderate to severe.

Girls with migraine may also have sensitivity to light and sound, nausea and vomiting plus visual or speech changes, which signify migraine auras.

Pre-Hospital Stroke Program Started

A Capital Health study is working to get stroke patients diagnosed even before they reach the hospital, creating a system that speeds diagnosis and treatment. While paramedics and EMTs can currently provide pre-hospital notification that a patient is exhibiting signs of stroke, this initiative goes further. Capital Health has trained its emergency response personnel to identify and call appropriate stroke alerts in the field. This immediately triggers a process at the hospital's ER, enabling the patient to bypass triage and be streamlined to the CT scan for diagnostic imaging.

The study involves training more than 100 of the healthcare system's paramedics and EMTs in Advanced Stroke Life Support (ASLS), a program developed by the Gordon Center for Research in Medical Education at the University of Miami. Early study data has shown an increased accuracy in stroke diagnosis by these ASLS trained personnel as well as a dramatic 45% decrease in time required to initiate life-saving treatment in the ER. The Institute is now training all interested first responders throughout NJ and southeastern PA entirely free of charge.

Raritan Bay Joins Neuro Network

Raritan Bay Medical Center (RBMC) has joined the Institute's Neurosciences Network, a collaborative group of participating health care facilities with whom Capital Health will work to continually improve the availability of advanced diagnostics and treatment for patients with neurological disorders. RBMC's two hospitals, located in Perth Amboy and Old Bridge, represents an expansion northward of the Institute's formal network.

Member hospitals work closely with Capital Health and its Institute for Neurosciences to provide neurologic care at the local level, allowing patients to remain close to home, except those cases requiring specialized care where a transfer to Capital Health is medically warranted.

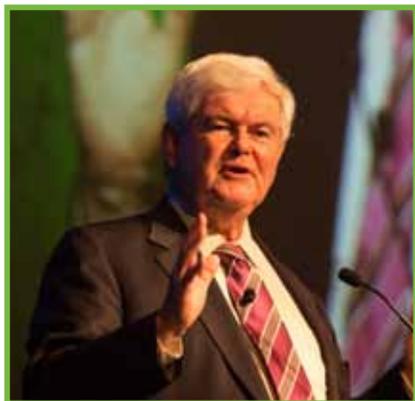
The network is an extension of Capital Health's regional status as a premier referral center for some of the most critical patients suffering from conditions such as stroke, aneurysm and other cerebrovascular emergencies, as well as brain and spine tumors.

Institute Opens Center City Office

The Capital Institute for Neurosciences has opened a new office location in Center City, Philadelphia, to bring experienced, highly trained brain neurosurgeons closer to Philadelphia area patients. Located in the historic Curtis Center, the suite of outpatient offices will benefit both new and existing patients. "Many of our neurosurgical patients are from the Philadelphia area, so we wanted to make our superior, outpatient care more convenient for them," said Dr. Erol Veznedaroglu, Director of the Capital Institute for Neurosciences at Capital Health.

The building is adjacent to Independence Mall, and the offices are conveniently located on the first floor, just steps from the indoor atrium. On-site parking is available at the building. Providing care closer to home for many of these patients will make follow-up care more convenient. Appointments with any of the Institute physicians can be scheduled by calling 877-247-3443. Signs or symptoms of stroke, call 911.

Nation Must Invest in Brain Research, Gingrich Tells NJ Health Professionals



The Honorable Newt Gingrich told neuroscience and health care professionals that investing in brain research will save billions of dollars in future medical costs — and he urged them to embrace the coming explosion of health care technology.

“I believe that investment in brain research will, in fact, do more than any other single investment to reduce the cost of health care in the next 30

years,” Gingrich said. “Think about autism, Alzheimer’s Disease, epilepsy, traumatic brain injuries, Lou Gehrig’s disease.”

Gingrich spoke to more than 400 neuroscientists, physicians and health care professionals at the Capital Institute for Neurosciences’ 5th Annual Neurosciences Conference in Atlantic City on April 19. In his keynote address, he said he supported the \$105 million federal initiative to research the brain, recently announced by President Obama, but he called the effort “timid. We need to do so much more.”

Gingrich, former Speaker of the US House of Representatives and former presidential candidate, spoke on “Medical Technology and Its Future Impact on the Medical Community.” He is the author of “Saving Lives & Saving Money.”

The former Speaker said the government must focus on long-term savings in health care and not just the short-term investment.

“How much do we now spend on Yellow Fever? Nothing. Our investment paid off in the long-term,” he said.

He cited examples where technology saves future health costs. He noted a recent case at the Capital Institute for Neurosciences where a 51-year-old woman fully recovered from a massive stroke solely because of a breakthrough emergency stroke intervention. He said the intervention saved potentially hundreds of thousands of dollars in rehabilitation costs, lost wages and taxes.

The three-day conference, which took place in April, focused on the latest in treatments for stroke, aneurysm and other neurologic diseases and injuries. Topics included brain development in the normal and autistic child, athletes and cerebral concussion, and advances in neurosurgical treatments for stroke and aneurysm.

Gingrich said the innovators who think creatively and who challenge themselves to ask the big questions will succeed. He noted the advances at the Capital Institute of Neurosciences he learned about while researching for his talk. Specifically, the Institute has the nation’s only emergency department dedicated exclusively to the treatment of brain emergencies. It also trains EMTs to diagnose stroke in the field, dramatically speeding treatment upon the patient’s arrival at the hospital.

“In New Jersey you are working against the grain. That’s what we need,” Gingrich said.

Concussion Expert Outlines Safety Protocol for Athletes



It’s a question Dr. Emil L. Matarese, Director of the Concussion Program at the Capital Institute for Neurosciences, hears often: “When can I go back to play?”

The young athlete who has suffered a concussion wants to return to play his or her sport. Sometimes, the parent and coach want the athlete back on the field quickly as well.

“What I want is for the child to grow up with a healthy brain,” Dr. Matarese said. He discussed the evaluation and treatment of athletes with cerebral concussion at the Capital Institute for Neurosciences’ 5th Annual Conference.

He said there is no such thing as a mild concussion — all concussions are serious. Further, an athlete can experience a concussion without ever losing consciousness.

Matarese said careful observation and clinical evaluation are necessary. Signs of a concussion can include physical and behavioral symptoms, such as headache, dizziness, insomnia, fatigue and nausea. Other signs can be changes in behavior, such as irritability, depression, anxiety, and sleep disturbances.

Dr. Matarese told health care professionals at the conference that careful steps are required before an athlete can return to the field. Anyone with a concussion must first rest both physically and cognitively, and that means no school or physical activity.

A student must be completely symptom free before they can return to sports.

“I have kids tell me, ‘But my headaches are almost gone.’ Or they say, ‘I am hardly dizzy anymore.’ That’s not good enough,” he said.

He described the careful steps necessary to slowly integrate the athlete back into physical activity, school and, finally, sports. Matarese said friends, family and school personnel must all be aware of the signs and symptoms of concussion.

“A second impact prior to full recovery can cause serious brain injury, including cerebral swelling, and can be very, very serious. This does not even need to be a major injury,” he said. “It’s so important that we educate people in our schools and even in the medical community about the seriousness of concussion.”

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Princeton Football Player Thanks Surgeons Who Saved His Life



Khamal Brown, a Princeton University football player, watched as Dr. Mandy Binning pointed to a radiological image of his brain – taken just two months earlier when he arrived, fast losing consciousness, at the Capital Health Regional Medical Center’s Center for Neurologic Emergency Medicine in Trenton.

“This image shows blood spilling into the section of the brain where spinal fluid should be,” Dr. Binning, a cerebrovascular neurosurgeon, explained to the student at

his follow-up visit. “Brain cells are dying by the second from too much pressure in the brain. We knew if we did not operate, you would die.”

Khamal and his father, Kevin Brown, looked on in amazement and gratitude. The image showed just how devastating the brain emergency could have been -- and how the team at Capital Health saved the football player.

On the afternoon when he fell ill, Khamal arrived at the brain emergency department

unresponsive and losing consciousness. Doctors quickly performed a CT scan right at the bedside with a revolutionary portable CT scanner at their state of the art facilities. An arteriovenous malformation (AVM), an abnormal connection between veins and arteries, probably present at birth, had ruptured, spilling blood into the space in the brain reserved for spinal fluid. Within minutes of diagnosis, Khamal was taken to Capital’s closed neuro ICU.

At the bedside, using neurologic technology and assisted by specially trained neuro professionals, the dual-trained neurosurgeon performed a life-saving drainage procedure called an external ventriculostomy, drilling a hole in the student’s skull to drain fluid and relieve the mounting pressure. Once he was stabilized, Dr. Binning performed a diagnostic cerebral angiogram to visualize and evaluate Khamal’s detailed cerebrovascular anatomy. She then performed another brain surgery to correct the arteriovenous malformation, or AVM.

“I am so grateful my son was directed to Capital Health,” Khamal’s father said. Dr. Binning said Khamal is recovering well and can return to school- even play football again if he so chooses.

Public Reporting Outcomes for Interventional Neurosurgical Procedures as Performed at Capital Health Regional Medical Center, Trenton, NJ

