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Spring 2017
Brainwaves is published by the Allegheny Health Network Neuroscience Institute in cooperation with the Department of Marketing and Communications. It is produced quarterly for physicians and patients interested in the latest diagnostics, treatments and research at the AHN Neuroscience Institute.
Medicine is continually moving forward. Ever since Hippocrates, the father of modern medicine, advocated in the fifth century that disease was a natural process caused by specific factors, health care has evolved in ways that early scientists likely never imagined.

People in the United States are living longer than ever, and the significant force behind the better quality of health in our country is most certainly our medical advances. We now have innovative technologies that allow us to diagnose disease sooner, new medications that combat disease more effectively, and sophisticated procedures that help us to treat patients whose conditions were previously considered inoperable.

The AHN Neuroscience Institute contributes greatly to the advancement of brain and spine conditions through our own life-changing medical breakthroughs combined with patient-centric care that we regard as vital to the treatment and healing process.

In this newsletter, you will read how Allegheny General Hospital has become the first facility in the region to use the Medtronic OsteoCool™ System to treat patients with metastatic spine cancer. Our neurosurgeons use this leading-edge radiofrequency technology to deliver targeted heat directly to a tumor in order to kill cancer cells. The procedure helps alleviate the debilitating pain that these patients experience, allowing them to live their lives more actively again.

We are also using Mazor X™ robotic technology to treat patients with spine conditions. This type of minimally invasive surgery can promote a faster recovery, reduce post-operative pain, and return our patients to their lives more quickly than traditional surgery. Its 3-D planning software maps out the procedure while the guidance system controls the surgeon’s tools, both of which help us navigate with incredible accuracy.

You can also read about the Cahouet Center for Comprehensive Parkinson’s Care at AHN and its synergistic approach to managing and treating the disease. Patients receive extremely individualized care. Whether they need time with a physical therapist or a speech therapist, nutrition education, or a support group, they have it all in one location. We want to eliminate the stress and burden from patients and their families, so that they don’t have to spend their time on the phone making appointments, in the car driving to different facilities, or on the Internet trying to find the support and services needed to live life with Parkinson’s disease.

The significantly positive results that patients are experiencing at the AHN Neuroscience Institute drives us as physicians to want to do even more — and even better. We build on the medical knowledge that precedes us and continue our forward motion of generating new ideas and developments that improve the lives of our patients.

Sincerely,

Donald Whiting, MD  
System Chairman  
Allegheny Health Network Neuroscience Institute  
Chairman of Neurosurgery

James Valeriano, MD  
Chairman of Neurology  
Allegheny Health Network

Hae-Dong Jho, MD, PhD  
Chairman of Neuroendoscopy  
Allegheny Health Network
Energetic and tenacious, Delores Jacquel, 74, has been a hard worker her entire adult life. While raising seven children, she was also a heating and air conditioning service representative, a retail sales clerk, a receptionist, a lunch lady, and a babysitter — sometimes working two jobs simultaneously.

Delores says her “don’t put off until tomorrow what you can do today” disposition kept her active until 2014 when a chronic cough loomed over her. She had previously been diagnosed with chronic obstructive pulmonary disease (COPD), but she thought the cough stemmed from inhaling something at work.

“I worked in retail, and every pair of shoes in the store and so many of the clothes had glitter on them, so I figured I had been breathing that in, and that’s what was causing my cough,” Delores said.

Her primary care physician examined her and prescribed blood tests and a chest X-ray with contrast. The tests showed that Delores had lung cancer and blood clots in her lungs, and she was immediately transferred to Allegheny General Hospital (AGH) for care.

“It was devastating to find out, but I’m going to run with it. I’m a fighter,” said Delores. She has undergone both radiation therapy and chemotherapy at Allegheny Health Network (AHN) Cancer Institute. The cancer, however, has metastasized to the bones in her spine.

A new solution for metastatic bone disease
Metastatic bone disease occurs in 60 to 80 percent of cancer patients, most frequently among patients with primary malignancies of the breast, prostate, liver, and lung, according to the American Cancer Society. Delores experienced significant back pain and was referred to Nestor Tomycz, MD, neurosurgeon and director of the Neurosurgical Pain Division at the AHN Neuroscience Institute.

Dr. Tomycz is the first physician in the region to utilize a leading-edge radiofrequency technology to treat patients with painful spine metastases. The Medtronic OsteoCool™ System allows a specialist to deliver targeted heat directly to a tumor for between 6 and 15 minutes. Patients can typically go home the same day.

“I started by getting from one phone pole to the next, and then I made it to the playground, and now I can walk two ballfields,” Delores said. “I even got rid of the oxygen I was using. I’m going to make my lungs work the best they can.”

If a patient with spine metastases also suffers with a vertebral compression fracture, then the patient may have a vertebral-stabilizing procedure called vertebroplasty, or kyphoplasty, at the same time as the OsteoCool — possibly using the same small incisions.

This procedure empowers a spine surgeon with a safe and minimally invasive way to kill cancer within the spine using heat energy and provides patients with immediate pain relief so they can improve their quality of life,” Dr. Tomycz said.

For more information about OsteoCool, call 412-DOCTORS or 412-362-8677.
New Robotic Technology and Real-time Imaging Advance Spine Surgery at AHN to Next Level

As spinal surgery has evolved, more emphasis has been placed on minimizing trauma to a patient’s body during surgery and expediting a return to function by using minimally invasive techniques. AHN spine surgeons are now using FDA-approved Mazor X™ robotic technology combined with O-Arm real-time imaging to treat a variety of spinal conditions safely, precisely, and with little disruption to patients’ lives.

“This new technology allows us to perform major spine surgery through small incisions and with unprecedented accuracy, which often means less pain, blood loss, and recovery time than with conventional surgery,” said Donald Whiting, MD, neurosurgeon and chair of the AHN Neuroscience Institute.

Surgeons at Allegheny General, Forbes, and Saint Vincent hospitals perform spinal fusion using Mazor X™ to treat patients with spinal stenosis, scoliosis, degenerative spine conditions, spinal deformities, and spinal injury, infection, or tumors. The technology enables doctors to develop pre-operative treatment plans, create computerized measurement and alignment calculations, and provide exact intraoperative guidance for each patient’s specifications.

Robots assist in spinal fusion surgery
Spinal fusion is a technique that mimics the normal healing process of broken bones. Surgeons place a bone graft — composed of bonelike material, metal plates, screws, or rods — to permanently connect two or more vertebrae and eliminate mobility between them. It is effective in relieving symptoms of many back conditions where vertebrae motion is the source of pain. Robot-assisted spinal fusion can result in highly accurate screw placement, shorter hospital stays, and fewer complications compared to traditional open surgery.

“Among the surgical specialties, neurosurgery has been slower to adopt robotic technology. Nevertheless, we now have the means to safely involve robots in the neurosurgical operating theater and continue to acquire unique experience combining robotics and navigation,” Dr. Whiting said. “AHN is now poised to become a national leader in robotic and image-guided spinal surgery. We want patients interested in less invasive surgical technology to consider coming to us for a second opinion.”

A 3-D view inside the body
A critical aspect of the procedure’s technology is the O-Arm Stealth Navigation System equipment that is used to see inside the body during surgery. Minimally invasive surgery is typically performed through small incisions, and surgeons use microscopes and endoscopes to view the spinal structures on a 3-D monitor. The resulting high-power magnification and detailed visualization greatly extend a surgeon’s capabilities.

AHN’s piloting of the robotic technology, combined with real-time navigation of the O-Arm, will lead to groundbreaking changes in the performance and delivery of minimally invasive spine care in the coming years, explained Terrence Julien, MD, AHN neurosurgeon who is performing robotic surgeries at Forbes Hospital. The O-Arm uses intra-operative fluoroscopic imaging; it is similar to a CT scan linked to computer navigation, allowing the surgeon to see the spinal structures on a monitor.

“With the Mazor and O-Arm combined, we have 3-D preoperative planning and analytics incorporated with virtual direct visualization of the spine,” Dr. Julien said. “This gives us unprecedented tools for accuracy and precision with lasting benefits for our patients.”
The Allegheny Health Network (AHN) and the Parkinson Foundation Western Pennsylvania created the Cahouet Center for Comprehensive Parkinson’s Care to provide patients with personalized care plans that include the medical and support services needed to both manage the disease and treat symptoms.

The Center’s goal is to make it easier for patients and their families to access all the specialized treatment components and ongoing follow-up care by housing them in one location staffed by movement disorder experts.

“We focus on getting the patients better in all aspects of their lives. It’s more about learning to do the best with the disease, rather than just trying to alleviate their symptoms,” said Timothy Leichliter, MD, AHN neurologist, Parkinson’s specialist, and medical director of the Cahouet Center. “It’s not just treating patients with medicine. It’s about working outside the box and providing them with physical and occupational therapy, speech therapy, exercises, nutrition plans, and coping mechanisms.”

Coordination to fight the symptoms of Parkinson’s

Parkinson’s disease is a progressive disorder that can cause deterioration of motor skills, balance, speech, and sensory function. It progresses gradually and symptoms include tremor, slowness of movement, poor balance and coordination, and postural instability. Although there is no cure for Parkinson’s disease, exercise, proper nutrition, and medications can significantly improve symptoms.

Based at the AHN Professional Building in Bellevue, the Cahouet Center combines AHN’s medical expertise with the extensive resources of the Parkinson Foundation under one roof to address the changing needs that patients experience over the duration of the disease.

For example, patients have on-site access to AHN neurologists, neurosurgeons, and other clinicians with special expertise in treating Parkinson’s. They can also be part of clinical research trials of new treatments being explored for the disease.

AHN neurosurgeons have successfully treated hundreds of Parkinson’s patients with deep brain stimulation, a life-changing surgical procedure that involves implanting electrodes into the brain to regulate abnormal nerve impulses associated with Parkinson’s. The procedure has alleviated patients’ symptoms and allows them to lead more active and healthy lives.

Created to counter the challenges of care

The center is named for Frank Cahouet, retired chairman and chief executive of Mellon Financial Corp. who was diagnosed two years ago with Parkinson’s disease and has been cared for by a team of

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Allegheny General Hospital physicians. After he was diagnosed, Cahouet found it challenging to locate and coordinate all the services he needed. He said that leaving his medical appointment with a list of different contacts to schedule physical therapy, speech therapy, support groups, and home care was overwhelming.

“I thought there must be a lot of people like me — people who know they have Parkinson’s but don’t know what to do next. I wanted a comprehensive, well-coordinated care plan that would provide the best possible outcome for me over the long term,” Cahouet said.

To improve each patient’s quality of life, as well as meet their families’ needs, the center’s professional team includes a movement disorders specialist, speech, occupational, and physical therapists, psychologist, social worker, dietitian, and exercise specialist. Patients can take part in support groups, exercise classes, and educational programs conducted by the Parkinson Foundation at the center.

In addition, staff members from AHN and the Parkinson Foundation work together to identify professionals and resources in the patient’s community, and regularly call patients to monitor their progress and assist with any challenges.

“No two people who have Parkinson’s are alike, so it really does require an individualized care plan for patients to have the best chance of doing well,” said David Von Hofen, MS, Cahouet Center director and Parkinson Foundation Western Pennsylvania program director.

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The services of the Cahouet Center are open to all patients and families, regardless of their health care coverage or insurance providers.

Robinson Woman Recently Diagnosed with Parkinson’s Finds Many Reasons for Optimism at Center

Last year, Janet Abatta felt a tremor in her chin. When the tremor moved to her hands and extended to other parts of her face, she made an appointment with a neurologist who suggested that she see a movement disorder specialist. After a few tests, Janet was diagnosed with Parkinson’s disease.

“I was definitely shocked, but I have come a very long way since last September when I found out,” Janet explained.

Janet, 66, of Robinson Township was referred to the Cahouet Center for Comprehensive Parkinson’s Care at the AHN Professional Building in Bellevue, where she met Timothy Leichliter, MD, director of the center. Dr. Leichliter has been working closely with her to find the most effective medicine and appropriate exercises to minimize her tremors.

“The support I have received from everyone at the center and every place they referred me to — it’s just been wonderful,” she said.

The center’s health care team also introduced Janet to Rock Steady Boxing, a non-contact boxing fitness program for people with Parkinson’s disease. The routine uses boxing workouts to improve patients’ physical health, agility, and daily functioning.

“It is strengthening my muscles, and the goal is to delay the progression of the disease and diminish the tremors,” said Janet, a wife and mother of two grown daughters, with four grandchildren and one on the way. “I’ve also been walking, and the center referred me to a yoga group that I will start next week. The people at the center even found a Rock Steady group for me in Florida, because we’ll go there soon for a few months.”

Janet said the Cahouet Center staff has coordinated her care and referred her to various resources and services to help combat her symptoms. She said the research would have taken her weeks to do on her own — had she even known that the services existed.

They also connected her with a support group that she joins monthly at a local restaurant.

“It’s a great camaraderie, and it provides a lot of emotional support,” she said. “I’m new to this, so I have a lot to learn. There are people in the support group who were diagnosed 10 years ago and five years ago, and it’s nice to hear all of their different stories. In every way, I’m on a positive path.”
Support the Neuroscience Institute’s Mission to Treat and Cure

Allegheny Health Network (AHN) has an ongoing tradition of patient-centric, innovative care for people suffering with brain, spine, and neurological conditions. Much of our groundbreaking research to advance neurological and neurosurgical medicine is funded by generous donors who hope to restore and save lives.

The generosity of our donors allows us to continually expand our knowledge and skills to treat and cure. Whether you wish to support patient care, research, or education, or have personal goals for philanthropy, you are invited to become an integral part of our mission.

Please contact Erik Tomalis at erik.tomalis@ahn.org or 412-228-7192 to find out how you can donate and become involved. Thank you for considering becoming a supporter of the AHN Neuroscience Institute.

Visit ahn.org/specialties/neuroscience-institute or supportahn.org/neuro to learn more about us.

Visit ahn.org/livingproof to see how we affect patients’ lives.