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Quality of Life Restored On the Neurosurgical Frontier

Approx. 3,200 Words

Jacob A. Rocetti, MD, FACS, director of functional neurosurgery at Central Memorial Hospital, is offering leading-edge surgical treatments to epilepsy and Parkinson's disease patients who are no longer responding adequately to medical management.

In *U.S. News & World Report's* 2008 "America's Best Hospitals" issue, Central Memorial Hospital was rated in ten clinical specialties – six of which made it the highest ranked in Ohio. Among those six specialties was the hospital's neurosciences program.

Much of that success and recognition is directly attributable to Jacob A. Rocetti, MD, FACS, director of functional neurosurgery at the hospital.

“Neurosurgery, to me, is investigating one of the real last frontiers in medicine," says Dr. Rocetti. "All the mysteries of the brain, the mind, personality, and physiologic function of the nervous system attract me to neurosurgery, as does the very diverse nature of our practice where we do such varied things on a day-to-day basis.

“Sometimes, it can involve procedures as diverse as removing an area of the brain that's causing intractable seizures, placing stimulating electrodes deep in the brain for Parkinson's disease or tremor, placing electrodes on the surface of the brain to treat chronic pain, infusing medications into the spinal fluid via an implantable pump for pain or spasticity, or working on investigational techniques to help regain function after stroke or spinal cord injury through gene therapy or other methods.

"Within neurosurgery, what I do is called functional neurosurgery and to me this is the most fascinating part of neurosurgery," he continues. "Dealing with physiologic disorders of the nervous system really enables me to work on the cutting edge of neurological sciences and to investigate and define new ways of helping people with neurologic disorders live better lives."

GOAL OF THE PROGRAM

Dr. Rocetti says the goal of the functional neurosurgery program is to be a tertiary resource for their referring physicians and to work with those physicians both in designing a treatment plan for each patient and in executing that plan and dealing with the follow-up care.

Robert U. Davis, MD, is an epileptologist (a neurologist who specializes in epilepsy) at Central Memorial Hospital, and his interest in epilepsy is based on his belief that it's one of the most treatable neurological conditions. "I haven't seen anything in neurology which is as well treatable as epilepsy, especially when it comes to epilepsy surgery," says Dr. Davis.

Dr. Davis is director of the hospital's Comprehensive Epilepsy Center, which is designated a Level 4 regional and national referral center by the National Association of Epilepsy Centers. It provides the most advanced and comprehensive services available to patients with epilepsy and seizure disorders.

Dr. Davis explains that about 30% of epilepsy patients are unable to control their condition completely with medications. Surgery may be an option, and the task, says Dr. Davis, is to select the 20% to 30% of these patients with intractable epilepsy who are surgical candidates.

"Among the patients who don't respond to medications satisfactorily, there are about a third that are fortunate that their epilepsy is related to a single focus in their brain," explains Dr. Davis. "If we can identify that focus and say that it can be safely removed, we can actually cure these patients."

If a high-resolution MRI scan of the brain with special epilepsy protocols identifies an underlying structural lesion which would explain the epilepsy, Dr. Davis confers with Dr. Rocetti and the rest of the functional neurosurgery team. They discuss the case, and the team decides on the best surgical intervention. Dr. Davis and Dr. Rocetti then talk with the patient, and if the patient agrees, they move forward with surgery.

Dr. Davis says the cure rates for epilepsy surgeries, in many cases, are between 50% and 80%, but they can range as high as 70% to 80%. "That is obviously huge," he says, "and if you compare that to any other type of surgery for pain or heart attacks, they are not cured in eighty percent of the cases."

HENRY'S STORY

Thirty-nine-year-old Henry Gannus was first diagnosed with epilepsy when he was around 28 years old. A heavy grand mal seizure prompted him to see a neurologist.

"I went through about seven different types of medication, in doses going up and down," he recalls. "It seemed to control it but not completely control it. I was still having seizures."

After five years of trying to manage his epilepsy with medications, Henry went to a world-renowned medical center for a second opinion. "They recommended that I have surgery and I said, 'Thanks, but no thanks.'

Henry continued to try different medications but two years later, he was still having seizures, even with medications at extremely high doses. After suffering another grand mal seizure, he reconsidered having surgery and sought help at Central Memorial Hospital.

"The minute I met Dr. Rocetti," remembers Henry, "I felt comfortable enough in his understanding and his opinion and his recommendations to go ahead and let him do what he can do."

Henry underwent surgery in January 2004. "I have not had a seizure since I had my surgery," he reports," and I'm on half the medicine I was on before. It's incredible! Dr. Rocetti is the man!"

Today, Henry is happy to share his story with other patients who aren't able to control their epilepsy with medication. "Dr. Davis has brought me in to speak to a couple of his patients who are considering having surgery. I think it's really important that people have the opportunity to consider it."

Dr. Rocetti agrees that having epilepsy patients talk with other patients who have had surgery can be very beneficial: "I think patients are tremendously reassured. They get to see exactly how other epilepsy patients have come through the procedure and what life is like afterwards."

PARKINSON'S AND OTHER MOVEMENT DISORDERS

Janet Martinez, MD, FRCPC, MSc, a Parkinson's disease neurologist, is a member of the multidisciplinary team at the Parkinson's Disease and Movement Disorders Center at Central University. Dr. Martinez says Parkinson's disease is one of the most common movement disorders they see.

Initially, Parkinson's disease is managed with medications. Eventually, though, complications develop. "The medications continue to work but you get what's called motor complications," explains Dr. Martinez, "and so you get fluctuations. A patient may go from being *on*, meaning that their medication is working, to being *off*, and that may be very predictable or it may be unpredictable.

"They can also get adventitious movements called dyskinesias, which can also be very, very troublesome to patients, so you get stuck between a rock and a hard place with the medications. You increase their medications so you make their *on* time better but then you give them more dyskinesias. You try to reduce their medication and give them fewer dyskinesias but then they're *off* more, so it's a very unpredictable lifestyle.

"For many patients, it's a huge problem because when they're *off*, they can't do anything and so they start not wanting to do anything. They don't want to go out; they don't even want to walk to the end of the block because they don't know if they might 'turn off' in the middle of that walk."

When a patient's therapy can no longer be optimized through medication alone, surgical management of the patient is considered. What the surgery does, explains Dr. Martinez, is reduce those fluctuations so the patient has a much more stable response throughout the day and spends much more time in the *on* state without dyskinesias.

Dr. Martinez works with Dr. Rocetti and the rest of the functional neurosurgery team to decide which Parkinson's patients are candidates for Deep Brain Stimulation (DBS). Dr. Rocetti performs the surgery to implant a neurostimulator and then Dr. Martinez does all of the programming of the neurostimulator.

"It's an amazing process for these patients because we really do give them back years on their quality of life by doing this procedure," says Dr. Martinez.

BECKY'S STORY

In 2000, Becky Waites began having problems with her arms that made it difficult to do daily tasks like carrying a laundry basket or bags of groceries. She talked with her family practitioner. The physician documented that Becky had lost some dexterity and muscle strength, and she referred Becky to a neurologist. The neurologist diagnosed Becky with Parkinson's disease.

Over the next seven years, Becky tried approximately twelve different medications and only two of them worked; the others gave her severe side effects. One of the medications Becky tried was Sinemet. "I was very dystonic on the tablet," she says. "I was taking only half a tablet three times a day – most people take much more – and I was still totally dystonic for at least an hour after taking it. I have a very sensitive reaction to all medications, and there were no more medications left for me to try."

As her disease progressed, she developed very debilitating cramps, and if they occurred while she was outside, she would be completely stuck wherever she was.

A physician at the Rehabilitation Institute of Glenville referred Becky to Dr. Rocetti, who said that Becky was a candidate for DBS. "I was optimistic because I'd had such a bad experience with most of the medications," says Becky. "I was more concerned *not* to have the surgery than to have it. If it was successful, Dr. Rocetti said it would eliminate the side effects from the Sinemet. I had bad dystonia in my feet. It would eliminate that, too, and I'd be able to move much more fluidly."

Becky underwent DBS surgery in September 2007. She says DBS took away the cramps in her feet and the dystonia, and she noticed she wasn't dragging her leg any longer and her arms were moving more fluidly.

"I'd say my life is probably eighty to eight-five percent easier for me now," says Becky. "Before, I couldn't even walk down to the corner for fear that I would get a cramp in my foot. Now, I can walk anywhere I want to go without any assistance, and all the side effects from the Sinemet are gone."

Becky speaks highly of DBS, saying that she would do it all over again. She also speaks highly of Dr. Rocetti: "He's very compassionate. He helps to ease the anxiety. He has a great sense of humor. He was convinced I would be better, and he was right."

COMPREHENSIVE PHYSICIAN RESOURCE

The functional neurosurgery program at Central Memorial Hospital has achieved its goal to be a highly valued resource for the physician community throughout the tri-county area

"The physicians I've interacted with have almost uniformly expressed their appreciation that we are here as a resource, and vice versa," says Dr. Rocetti. "A lot of the referring physicians in the community act as resources for me. If a patient has traveled a distance to see me – and many of them do – it's gratifying for me to have an established network of excellent physicians in the community to whom I can send these patients if they don't have a primary physician in the area and need one for me to partner with."

Dr. Davis believes part of the strength of the neurosurgery program lies in Central Memorial Hospital as an entity, with the multiple subspecialties that work with and contribute to successful neurosurgical outcomes.

"I think the other thing that makes it strong and rewarding, particularly for me," he adds, "is the fact that Dr. Rocetti is a functional neurosurgeon. He is trained to place stereotactic electrodes in the brain with extreme safety and accuracy, and he works with the most modern functional neurosurgical techniques."

As enthusiastic as the response from physicians has been, it's unlikely to match the enthusiasm from the patients who have benefited from the leading-edge surgical treatments Dr. Rocetti offers at Central Memorial Hospital.

"Imagine what it's like to have a disorder that severely affects your ability to live life the way you want," states Dr. Rocetti, "and then you go through something – sometimes at great effort and a decent amount of risk – and you come through the other side with excellent results. I think these patients are incredibly grateful for what we've been able to do for them, and we're lucky enough to have a group of these folks who really are wonderful advocates for the program and who serve as great ambassadors for what we do."

EDUCATION AND RESEARCH

Dr. Rocetti believes too few patients, primary physicians, and specialists understand the benefits he and other functional neurosurgeons can offer for pain management, movement disorders, and epilepsy, and he dedicates much of his practice to educating them.

"One of the pleasures I get is educating groups of patients and groups of physicians about the options that are available, the benefits they can provide, and the realistic outcomes from them," says Dr. Rocetti, who is on the Board of Advisors for the Epilepsy Foundation of Greater Polk Valley. "We have hosts of patients that come in and

say, 'Gosh, if only I knew about this four or five years earlier, I wouldn't have suffered for those years.'"

Dr. Rocetti's passion for education is equaled by his passion for doing research: "From the research side, the things that get me fired up most are developing new techniques and applications. For instance, we have research projects focused on developing brain-computer interface; projects developing new methods of targeting structures in the brain that allow us to perform operations with increased ease, increased patient comfort, and decreased time in the operating room; and projects enabling us to do our surgery more accurately.

"We're working on several projects looking at the interface between imaging and surgery, both preoperatively and postoperatively, helping to take our data from the operating room, integrate it with our imaging, and allow us to better and more precisely define targets within the brain to work on."

WHAT PHYSICIANS SHOULD KNOW

"The main things I'd like to communicate to referring physicians," says Dr. Rocetti, "are that one, the functional neurosurgery program is here as a resource to partner with them; two, there is a wide range of neurological dysfunctions we can address; and three, we have the ability to work with them on a interdisciplinary, coordinated plan for each patient.

"We've accumulated a unique talent pool of individuals here, all of whom are committed to the same high standards across clinical care, research, and education, and we've been brought together in an environment that is uniquely conducive to excellence."

Central Memorial Hospital is located at 445 E. Park Street, Columbus, OH 78431. To contact one of the physicians featured in this story, call Central Memorial Hospital's Physician Referral Services at (401) 555-7893. Additional information about Central Memorial Hospital is available at www.website.com.

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Jacob A. Rocetti, MD, FACS, received his Doctor of Medicine degree from Yale University School of Medicine and completed the first year of his residency in Neurological Surgery at Westhaven Medical Center from 1997 to 1998. He served as Chief Resident in the Department of Neurological Surgery at St. Paul's Hospital and Medical Center of California from 1998 to 1999, then returned to Westhaven Medical Center to complete his last two years of residency. Dr. Rocetti completed a research fellowship with Arthur Treacher, MD, PhD, in the Department of Neurology at Weill-Cornell Medical College in New York City. From 2001 to 2002, he served as Chief Resident in the Department of Neurological Surgery at Westhaven Medical Center. In 2003, Dr. Rocetti completed a Fellowship in Stereotactic and Functional Neurosurgery in the Department of Neurosurgery at the Mayo Clinic. Dr. Rocetti is board certified in neurosurgery by the American Board of Neurological Surgery.

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