Neurological care tailored for children

Sue Miller never truly appreciated having a world-class hospital minutes from her home. That is, until she rushed her 10-year-old son to UVA’s emergency room. Charlie was having trouble walking, was nauseous and dizzy, and had persistent numbness in his left arm. Pediatric neurologist Denia Ramirez-Montealegre, MD, PhD, was determined to figure out what was wrong. She pulled together a team of specialists—including stroke, neurosurgery, and neuro-oncology—to help diagnose Charlie’s condition. The team discovered that Charlie had suffered a stroke from a blood clot that traveled to his cerebellum, perhaps caused by a fall or sports injury weeks earlier.

Because the stroke happened in the cerebellum, Charlie lost his coordination. UVA’s doctors worked closely with Charlie and his entire family to tailor a treatment plan that has restored his motor skills and strength, and will help fight against the possibility of another stroke.

Children with neurological disorders often need treatment that’s different from adult care. The pediatric neurologists at UVA are experts in the special needs of young people, and have a long history of providing comprehensive, family-centered care to children with neurological disorders ranging from fetal and developmental neurology to neuromuscular diseases and traumatic injury.

For example, pediatric patients with epilepsy have unique needs. Howard Goodkin, MD, PhD, director of the Division of Pediatric Neurology, and Russell Bailey, MD, have established an inpatient pediatric epilepsy monitoring unit within UVA Children’s Hospital. Outfitted with the most advanced technology available, this unit helps neurologists better understand the nature of the spells, more accurately diagnose a patient’s type of epilepsy, and treat their seizures more appropriately.

UVA’s expansion of the pediatric neurology program means our patients have greater access to tailored treatments. What’s more, since our physicians have different research interests and areas of expertise, we are able to address the specific needs of each child—and help ensure a brighter future for all our patients.
very family in America is directly or indirectly touched by Alzheimer’s disease or related dementias. If we can find ways to diagnose the disease earlier, we can better help patients.

Researchers at UVA are studying dozens of treatment strategies that have the potential to change the course of the disease. Within the next 10 years, investigators expect to introduce pioneering new drugs and treatments that will offer real hope for patients. Erin Foff, MD, PhD, and B. J. Purow, MD, have hypothesized that small regulatory RNAs may drive the development of many forms of neurodegeneration, as well as ALS and Huntington’s—and act as a target for new therapies. George Bloom, PhD, and John Lazo, PhD, apply novel screening strategies to pave the way for possible new treatments. And Roberto Fernandez, MD, characterizes early changes in brain function—measured through deficits in visual perception—that may lead to new tools for early diagnosis and help identify unfit drivers among mildly impaired individuals.

At the same time, UVA is developing novel systems of care so that patients can receive what they need—even before advanced symptoms occur. In fact, the more we learn about Alzheimer’s, the more it becomes clear that heart and brain health are closely linked. It’s now apparent that the same risk factors that lead to heart disease—high cholesterol, high blood pressure, obesity—also put individuals at risk for dementias. Carol Manning, PhD, director of UVA’s Memory Disorders Clinic, is looking at how these factors relate to the dementia process in order to identify those at increased risk. UVA is also initiating a “rapid access” clinic for early onset dementias, which will improve patients’ access to our multidisciplinary teams and facilitate clinical research.

Today, every discovery UVA makes gives doctors more opportunity to change the progression of a patient’s disease before significant deficits have occurred, positively impacting the quality of life for patients and giving them a valuable gift—more time to spend with their loved ones.
REVOLUTIONIZING STROKE CARE

IF YOU OR A LOVED ONE has a stroke, every minute counts. After a stroke, brain cells surrounding the blocked artery begin to die. Rapid evaluations are essential to providing the right treatment to maximize recovery.

But what happens when a patient lives in a rural area and faces long transport times to receive care? UVA’s Andrew Southerland, MD, MSc, is leading a novel program to provide stroke consultation to rescue squad personnel through iPads, helping diagnose patients before they reach the hospital.

UVA has always been a pioneer in stroke care. Our physicians helped lead the first clinical trials for TPA, the single FDA approved drug for acute ischemic stroke on the market today. They developed many of the techniques and devices used in interventional care. And we were the first to advocate for rapid response teams to care for patients—the standard now for hospitals worldwide.

But we can do better.

Researcher Kevin Lee, PhD, is developing novel ways to deliver therapeutics straight to the brain—treatments that may result in meaningful recovery. Brad Worrall, MD, MSc, is harnessing what we are learning from the Human Genome Project to design new drug compounds. His investigation into the mechanics of stroke may one day give healthcare providers the ability to intervene before a stroke even happens.

A significant number of stroke patients have high blood sugar, and these patients often have worse outcomes after treatment. Karen Johnston, MD, MSc, leads a national NIH-NINDS funded clinical trial to determine the best treatment for high glucose levels in stroke patients. Johnston wants to maximize recovery for these patients, and the trial will set the standard for care moving forward. At the same time, E. Clarke Haley, MD—who helped develop UVA’s first Acute Stroke Teams—now is advancing new techniques and technologies in interventional stroke care along with Doctors Lee Jensen, Avery Evans, Kenneth Liu, and Webster Crowley.

UVA has changed the way we think about stroke care so that healthcare providers have options to maximize a patient’s recovery and quality of life.

FOCUS Designing new treatments for brain tumors

IMPACT Improve the quality of life for patients and their families

Current therapies for brain tumors are inadequate. At UVA, we are bringing together clinicians, researchers, and neurosurgeons to change that. Neurosurgeon Ashok Asthagiri specializes in the precise surgical removal of non-malignant, debilitating tumors and the treatment of genetic disorders such as neurofibromatosis. He works closely with neurologist David Schiff and other clinicians to ensure smooth transitions from surgery to post-op care. Schiff and his team are exploring cancer vaccine research that harnesses the body’s own immune system to shrink glioblastomas, the most aggressive brain tumors in adults that are almost always fatal. He is also starting clinical trials of a non-toxic drug to increase the effectiveness of standard chemotherapy for brain cancer. Each avenue brings new hope to patients.

DAVID SCHIFF, MD & ASHOK ASTHAGIRI, MD

University of Virginia Health System
OVERCOMING TRAUMATIC BRAIN INJURY

IN JUST A FEW SECONDS, traumatic brain injury (TBI) can change a person forever. It can alter who the person is, how they act, and even how they feel.

Accurately diagnosing and treating TBI is difficult. Standard scans are only able to identify alterations to the brain’s structure such as bruising, tissue tears, or blood accumulation. However, most changes to the brain that result in sometimes debilitating symptoms are typically only visible at the cellular or molecular level.

UVA is leading the way in creating new understanding about TBI. Jeffrey Barth, PhD, has been studying the effects of brain injuries since the 1980s. He helped develop the baseline cognitive testing model widely used in sports concussion management today. James Stone, MD, PhD, has led a translational TBI research effort at UVA since 2000. His research program explores the underlying disease processes responsible for TBI, develops new imaging strategies for TBI, and studies the application of advanced imaging approaches in military personnel at risk for TBI. At the same time, Jason Druzgal, MD, PhD, uses advanced imaging techniques to identify changes that may occur in the brains of athletes.

Helping patients recover is the mission of UVA’s Brain Injury and Sports Concussion Clinic. Directed by Michael Jaffee, MD, and Donna Broshek, PhD, the clinic brings together brain injury specialists from across the Health System in an integrated approach to patient care. Our doctors regularly perform evaluations for athletes of all ages to help manage their return to sports. We also help manage the recovery of men and women injured in military service, whether they are returning to active duty or to their communities.

At least 1.7 million TBI cases occur each year in the U.S. UVA’s expertise will lead to new therapies and more effective ways to diagnose, or even prevent, TBI.

WHAT DOES IT TAKE?

Specialized Patient & Program Support
Funding for Innovative Research
Support for Labs & Personnel

BEFTER TREATMENT FOR PARKINSON’S DISEASE

BINIT SHAH, MD

DR. BINIT SHAH’S investigation into Parkinson’s disease has the potential to change the way this debilitating disease is treated.

Shah works closely with Jeff Elias, MD, to examine the efficacy of focused ultrasound—a scalpel-free surgical procedure—to treat tremors associated with Parkinson’s. The first of its kind in the world, this clinical trial resulted in reduced symptoms and promising outcomes for patients. The team is also collaborating on a project to utilize drug delivery to better understand and treat common symptoms of Parkinson’s disease, such as stiffness and slowness.

“There are more than one million Americans living with Parkinson’s disease today,” Shah says. “The more tools we have to treat Parkinson’s the better.”

TO LEARN MORE OR MAKE A GIFT

go to uvahealthfoundation.org

OR CALL

(434) 243-GIVE or (800) 297-0102.