Focus on Pediatric Neurology and Neurosurgery

NewYork-Presbyterian Hospital provides medical and surgical care for benign and malignant pediatric neurological disorders based on the latest medical advances.

Morgan Stanley Children’s Hospital Leads City in Treatment of Neuromuscular Disorders

One in 50 people are carriers of the gene associated with the disease. It’s the number one genetic killer of infants and toddlers. It’s spinal muscular atrophy (SMA), which affects up to one in 10,000 births worldwide.

Traditionally, children with SMA are treated with supportive care that, depending on the severity of their illness, may include a feeding tube or other nutritional support, respiratory therapy (such as ventilation), and physical therapy. But much has been learned about the genetics of the disease, leading to new therapeutic targets.

At NewYork-Presbyterian Morgan Stanley Children’s Hospital, clinicians and scientists are developing and assessing new treatments for SMA at the nation’s primary clinical research site for the disease. These efforts are bolstered by a robust and internationally renowned motor neuron research program based at NewYork-Presbyterian/ Columbia University Medical Center which continues to glean new insights into the biology of SMA and related diseases.

A Long-Established History

The Pediatric Neuromuscular Disease Clinic dates back to 1979. It was established by Darryl C. De Vivo, MD, Sidney Carter Professor of Neurology and Pediatrics at Columbia University College of Physicians and Surgeons and Co-Director, Motor Neuron Center. The program provides comprehensive multidisciplinary care for children with SMA, muscular dystrophy, and other neuromuscular disorders, including diagnostic assessment, care management and therapy recommendations, orthotics design, equipment recommendations, and genetic and nutritional counseling. The SMA program has been funded since 2004 with generous support from the SMA Foundation.

Patients who come to the clinic have the vast resources of Morgan Stanley Children’s Hospital at their disposal, including the expertise of pediatric neurologists, pulmonologists, cardiologists, orthopedists, gastroenterologists, genetic counselors, physical therapists, ortho-

Komansky Center Treats Emergent Neurological Needs of Young Patients

When the brain or spinal cord has been injured, time is of the essence. Treatment must begin immediately not only to stabilize the patient, but to prevent secondary neurologic injury. At NewYork-Presbyterian Phyllis and David Komansky Center for Children’s Health/Weill Cornell Medical Center, three beds in the Pediatric Intensive Care Unit are dedicated to young patients in immediate need of intensive neurologic care, either due to trauma or following complex neurosurgery. The only such unit in New York City, this center of excellence designated by the Adam Williams Initiative affords a level of surveillance and monitoring that is unparalleled, giving children and adolescents the best chance of achieving a full recovery.

The Pediatric Neuro ICU at the Komansky Center for Children’s Health is one example of the commitment the hospital makes to providing comprehensive care to pediatric patients. Our neurologists and neurosurgeons care for children with the full range of neurological diseases and disorders, including epilepsy, concussion, brain and spine trauma, brain and spinal tumors, autism, stroke, craniofacial deformities, and others.

Our multidisciplinary approach ensures that children are offered optimal treatment plans — taking into account not only the disease, but also its lifetime implications. This perspective offers pediatric neurology and neurosurgery patients the best opportunity to enjoy a normal transition from childhood to adulthood. Once children reach adulthood, we also provide transitional care, connecting them with the specialists at NewYork-Presbyterian/Weill Cornell who can continue to meet their healthcare needs.
Morgan Stanley Children’s Hospital Offers Leading Program for Neuromuscular Disorders (continued from page 1)

A Shared Commitment

Such progress was made possible by a staff of dedicated SMA scientists affiliated with the Motor Neuron Center, which is comprised of some 40 laboratories all focused on the challenge of motor neuron diseases. It is translational medicine at its best. “There is cross-fertilization here between the laboratory and the clinic that brings out the best in everybody and lets us move forward at a rapid clip,” Dr. De Vivo noted. “It is the most able group of people anywhere in the world committed to solving the problem of SMA and other motor neuron diseases.”

Porgress against muscular dystrophy is moving in the same direction, with promising molecular therapies on the table. A technique known as “snooping” is under study to convert Duchenne muscular dystrophy (DMD) muscle into a less-severe form like Becker muscular dystrophy. The approach, if deemed effective, may enable patients to live longer and with fewer cardiopulmonary deficits.

“Both SMA and muscular dystrophy have new therapeutics on the horizon that came about from advances gained during the molecular genetic era,” concludes Dr. De Vivo. “For those of us who have been trying to help these patients for so long, with not many effective tools in our tool box, it’s very exciting.”

For more information or to refer a patient, call (212) 342-0263 or visit nyp.org/kids/morganstanley.

Kominsky Center Meets Medical and Surgical Neurological Needs of Young Patients (continued from page 1)

Exceptional Pediatric Neurocritical Care

Pediatric critical care specialists at the Kominsky Center for Children’s Health have extensive experience treating children who have sustained a head injury, spinal cord injury, status epilepticus, encephalitis, meningitis, and coma. The rapid availability of neuromonitoring studies and physicians who can review and interpret them and skilled staff to design a child’s care is necessary to achieve an optimal outcome.

The management of children with traumatic brain injury requires the collaboration of our neurocritical care, neurosurgery, neuroradiology, neurointensivists, critical care nurses, respiratory therapists, and rehabilitation team. “From the moment a child is admitted to the PICU, we assemble a plan of care to maximize his or her potential to recover,” said Barry Kosofsky, MD, PhD, Professor of Pediatrics and Honor W. Goldsmith Foundation Professor of Pediatrics. “This unit allows us to conduct state-of-the-art monitoring that provides more information about brain function and the potential for recovery,” added Mark Souweidane, MD, Director of Pediatric Neurological Surgery and Professor of Neurological Surgery.

Moreover, we take a family-centered approach to care, which ensures that parents are always actively involved in their child’s care. As part of our ongoing effort to achieve even higher levels of excellence, the PICU is participating in a number of cutting-edge research programs designed to advance our diagnostic capabilities, and to develop new strategies to improve outcomes further after brain injury.

Early Assessment and Ongoing Management for Concussions

Apparatus early in the assessment process is necessary to identify children with post-concussive syndrome to develop a program for appropriate management of symptoms, and timely reintroduction into everyday activities. The Pediatric Concussion Clinic at the Kominsky Center for Children’s Health is staffed by a team of medical professionals, including neurologists, neurosurgeons, intensive care physicians, and neuroradiologists, working closely with experts in neuropsychology. Children are seen quickly to facilitate rapid diagnosis and treatment, enabling a speedy return to their regular activities.

“The evaluation is aimed at helping each family to understand what they can expect as their child begins to recover, and at assisting them and the child in making the best possible adjustment to return to schoolwork does not aggravate their concussion symptoms. We quickly and continuously evaluate each child’s brain function after injury to determine the best course of care.”

Since the effect of concussion cannot be fully visualized using MRI, CT, or other tests, our Concussion Program employs neuropsychological evaluations to assess the presence and extent of any functional deficits and to develop safe return-to-school and return-to-play recommendations. We work closely with schools to evaluate children who have sustained a concussion to make sure their return to schoolwork does not aggregate their concussion symptoms.

Restoring Craniofacial Form and Function

The Kominsky Center for Children’s Health is world-renowned for our Craniofacial Program, which brings together a team of experts who offer the latest nonoperative and surgical treatments for children with congenital or acquired abnormalities of the face, mouth, ears, and skull — such as craniosynostosis, cleft lip/palate, and hemifacial microsomia, and children who are affected by burns, trauma, or cancer. Because such disorders can impact more than just the child’s appearance, comprehensive evaluation, genetic analysis, and family planning are available to patients and their families.

Children treated in the Kominsky Center receive input from a multidisciplinary team of specialists from a variety of disciplines, including pediatric neurosurgery, otolaryngology, dentistry, oral surgery, orthodontics, and speech therapy, genetics, social work, plastic and reconstructive surgery, anesthesiology, and occupational and physical therapy. Minimally invasive approaches are used when- ever possible, such as endoscopic neurosurgery for children with sinusitis.

The team safely performs advanced procedures aimed at improving deformities, optimizing functional capacity, and ultimately reducing social sequelae.

Because such treatment may be a lengthy process and involves the input of multiple individuals, patients and families in the program benefit from the services of a Care Coordinator who helps the family organize all aspects of the child’s care. “Having this person in place paves the path for our patients and makes this journey easier for them and their families,” said Dr. Souweidane.

Tackling the Most Challenging Tumors

Brain tumors are the most common solid tumors in pediatric patients. The Children’s Brain Tumor Project, founded in 2011 at the Weiss Cornell Pediatric Brain and Spine Center, will offer physicians the unprecedented ability to quickly identify a brain tumor’s “fingerprints” at the molecular level, yielding genomic data that allow for personalized tumor therapy. The project is powered by families of children, adolescents, and young adults diagnosed with these tumors.

Armed with individual genetic information, researchers hope to identify alternative delivery methods and drugs that specifically target the cancerous brain tumor. This project’s research investigations into these innovative delivery systems and agents — such as anticancer agents delivered directly to tumors via microcarriers — dovetails seamlessly with the genetic research of Jeffrey Greenfield, MD, PhD, Assistant Professor of Neurological Surgery. Such clinical research is being supplemented by others on our team pursuing experimental studies in animal models of pediatric brain tumors.

Through this collaboration and using these tools, pediatric neuroradiologists and neur-oncologists at the Kominsky Center for Children’s Health are taking on the most challenging cancer patients. “We’re going to tackle the beasts of the beasts, with the goal of offering patients something they can’t get elsewhere,” concluded Dr. Souweidane. “Incredible” is a word we will attempt to strike from the record.”

For more information or to refer a patient, call (212) 746-3278 for Child Neurology or (212) 746-4864 for Pediatric Neurosurgery, or visit nyp.org/kids/kominsky.

NewYork-Presbyterian Kominsky Center for Children’s Health/Weill Cornell Medical Center 525 East 68th Street, New York, NY 10065

Focus on Pediatric Neurology and Neurosurgery