Program Takes Innovative Approach to Pediatric Spasticity

Physicians and surgeons at Morgan Stanley Children's Hospital of NewYork-Presbyterian/Columbia University Medical Center are providing children with spasticity enhanced care and individualized treatment as part of a newly implemented multidisciplinary approach. Using treatment teams comprised of pediatric neurosurgeons, pediatric neurologists, orthopedists, physical therapists, occupational therapists, nurse practitioners, social workers, and specialists in bracing, the Hospital is offering children with these complex disorders an expanded arsenal of potential treatments. Often, numerous specialists are consulted as parents attempt to find the right combination of treatments to allow their child optimal function and quality of life, and the response to the program thus far has been overwhelming. The team is frequently asked to give talks to a variety of groups, including other health care practitioners and support organizations.

Photo courtesy of Claudia A. Chiriboga MD, MPH.

(Left to right): Dean Morgan, PT, Mary Maksomski, OT, and Claudia A. Chiriboga MD, MPH, examine a child in the spasticity clinic.

"Within 6 months, the waiting list had grown so long that we doubled the number of clinics to 4 times per month. This was clearly the right thing to do. These children have complex needs. Multidisciplinary care permits specialists to work together to provide more comprehensive solutions to problems," said Richard Anderson, MD.

More than 180 patients are now being followed by the team, and the number is growing. Typically, the specialists not only collaborate to determine the best approach to each patient's problem but also offer different aspects of care that together produce an optimal outcome.

For example, "one child may benefit from a tendon release to improve range of motion, but their ability to improve function may also depend on physical therapy or physical therapy in combination with pharmacologic therapy, such as Botox injections or muscle relaxants," said Dr. Anderson. "There is not usually just one solution."

A substantial proportion of the patients have cerebral palsy, but a broad spectrum of disorders can result in spasticity. Improving mobility and function may involve treatments that address nerves, tendons, muscles, bones, or some combination of these. In certain cases, the specialists on the team are able to offer approaches that are not widely available. One of the procedures offered by Dr. Anderson is selective dorsal rhizotomy (SDR). All other centers in the tristate area perform SDR by removing 5 to 6 levels of bone. At the Morgan Stanley Children's Hospital, however, Dr. Anderson performs a minimally invasive SDR by removing only one level of bone. According to Dr. Anderson, randomized clinical trials have shown that many children with spasticity benefit significantly from this operation.

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—Richard Anderson, MD

"The procedure, guided by ultrasound, involves only a 1-inch incision at the bottom of the spinal cord," he explained. "At our Center, the procedure is performed with a physical and occupational therapist in the operating room. The therapists maintain contact with target muscles in order to help identify abnormal responses when an electrical stimulus of the nerve root is generated. This allows real-time physiologic feedback that provides intraoperative guidance on which nerve rootlets to cut."

Typically, the physical therapist has been working with the patient before the procedure and is therefore intimately acquainted with the precise muscle targets. The goal of a multidisciplinary approach is to develop the most effective plan through the consensus of multiple experts. A variety of innovations have been made during the past couple of decades for the treatment of spasticity, and all are considered. For example, whereas intramuscular injections of botulinum toxin type A, which provides excellent but temporary muscle relaxation, may be sufficient for some individuals, others may need an implantable and programmable intrathecal baclofen pump, which delivers a muscle relaxant directly into the spinal fluid and provides continuous action.

"There are advantages and disadvantages to many of these options, and we work with children and their parents to identify an approach with which they are comfortable," Dr. Anderson explained. He emphasized that control of spasticity is the focus of the multidisciplinary clinic, but spasticity is often only one of several clinical issues that the team is equipped to handle. In general, spasticity cannot be cured, but its effects can be reduced in the context of comprehensive care that addresses concomitant health issues.

"Surgery can be an important component of treatment, but the [members of the] multidisciplinary team learn from each other about how to collaborate in addressing problems," said Dr. Anderson.

Contributing faculty for this article:
Richard Anderson, MD.