NIH Study Shows WalkAide Device by Hanger Orthopedic Group Significantly Improves Walking Ability In Children With Cerebral Palsy

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AUSTIN, Texas, Dec. 12, 2011 /PRNewswire/ -- There is new hope for children with a form of lower leg paralysis known as "foot drop" due to cerebral palsy (CP). At the 65th Annual Meeting of the American Academy of Cerebral Palsy Developmental Medicine on Saturday, October 15, researchers from the National Institutes of Health (NIH) presented a study that shows the WalkAide System successfully improves mobility by significantly increasing ankle control during walking in children with foot drop due to CP. This is the first study presenting the group results of a commercially-available foot drop stimulator in children with cerebral palsy.

Participants in this study experienced increased ability to raise their feet (known as ankle dorsiflexion). Participants also continued to experience improvements after four months of use compared to one month of use, suggesting improved response to the WalkAide's functional electrical stimulation over time. This is a finding that would not be expected with conventional orthotic bracing such as the ankle-foot-orthosis (AFO), a rigid L-shaped stabilizing brace.

Additionally, when given a choice between the WalkAide and their previous treatment protocol (an AFO or no device at all), 95% of the children in the study chose to continue with the WalkAide, which is encouraging given the challenge of compliance with AFOs in this population.

"While we are fortunate to see firsthand how the WalkAide improves the lives of our patients everyday, it is very encouraging to see additional documented validation of the efficacy of our technology – especially when it comes out of the NIH, a world-renowned medical institution known for quality, integrity, and clinical excellence," said Aaron Flores, Ph.D., general manager of Innovative Neurotronics, the Hanger Orthopedic Group subsidiary that developed the WalkAide System.

About the study design – Titled "Short-term effects of the WalkAide functional electrical stimulator on gait in individuals with cerebral palsy" by NIH's Laura Prosser, PT, Ph.D., Lindsey Bellini, MS, Katharine Alter, MD, and Diane Damiano, PT, Ph.D., the study collected dimensional lower extremity motion data for 19 children with CP ranging in age from 7 to 20 years old using a 10-camera computerized motion-capture system. The children's gait patterns were documented walking with and without the WalkAide at speeds they chose on their own and then at their fastest speed. At both speeds with the WalkAide, dorsiflexion (or raising) of the impaired ankle increased significantly during swing phase.

About foot drop and other treatment options – Foot drop is a condition of weakness or motor control that interferes with a person's ability to flex the ankle, lift the foot, and walk with a normal heel-toe pattern. In many cases, the toes touch the ground before the heel, which can affect walking stability on that leg. Also, when children swing the leg forward to take a step, the toes can catch or drag on the ground, causing them to stumble and trip. Typically, children are prescribed a rigid plastic L-shaped brace called an ankle-foot-orthosis (AFO) that secures the ankle and foot in one stable position. While the AFO braces the foot, it provides only passive control, not movement; it is bulky and often requires a larger different size shoe to be worn to accommodate the foot with the brace. Other disadvantages of AFOs are that they may be hot or uncomfortable to wear, may limit some function such as squatting or running, and are not cosmetically appealing to some children. Consequently, compliance is a problem. Before the WalkAide, if the child rejected the AFO, there was no other non-invasive treatment option.

How the WalkAide works – The WalkAide applies low level electrical currents directly to the peroneal nerve (i.e. the motor nerve that controls the movement of the ankle and foot), prompting a muscle contraction which lifts the foot at the appropriate time during the gait cycle. The device uses an embedded accelerometer, which is similar sensor technology to that used in Wii video gaming systems, to determine the appropriate timing for stimulation with every step. A Pediatric WalkAide with a smaller cuff and smaller electrodes was also recently launched to allow for a secure fit on small legs, precise electrode placement, and lower pulse-width settings for gentle electrical stimulation options that can be adapted as the child grows and matures into adulthood. In addition to CP, the WalkAide is also indicated for those with lower leg paralysis or weakness resulting from central nervous system disorders such as stroke, multiple sclerosis, incomplete spinal cord injury, and traumatic brain injury.

About Hanger – Hanger Orthopedic Group, Inc., headquartered in Austin, Texas, is the world's premier provider of services and products that enhance human physical capability. Hanger provides orthotic and prosthetic patient care services, distributes O&P devices and components and provides therapeutic solutions to the broader post-acute market. Hanger is the largest owner and operator of orthotic and prosthetic patient care centers, with in excess of 680 O&P patient care centers located in 45 states and the District of Columbia. Hanger, through its subsidiary Southern Prosthetic Supply, is also the largest distributor of branded and private label O&P devices and components in the United States. Hanger provides therapeutic solutions through its subsidiaries Innovative Neurotronics and Accelerated Care Plus. Developer of the WalkAide, Innovative Neurotronics introduces emerging neuromuscular technologies developed through independent research in a collaborative effort with industry suppliers worldwide. Accelerated Care Plus is a developer of specialized rehabilitation technologies and the nation's leading provider of evidence-based clinical programs for post-acute rehabilitation, serving more than 4,000 long-term care facilities and other sub-acute rehabilitation providers throughout the U.S.

For more information on Hanger, visit www.hanger.com. For more information on the WalkAide, visit www.walkaide.com.

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