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New Hope for Children with CP

By Liz Finch

The Polish clinic Euromed and the US-based Europeds offer alternative treatment for young cerebral palsy patients.

When the Euromed Rehabilitation Center opened in Mielno, Poland, in 1994, it was the first private clinic to open in Poland after the fall of Communism. However, Euromed remains the only private clinic in the world licensed to use a therapeutic device called the Adeli suit to treat patients with infantile cerebral palsy (CP) disorder and other neurological disorders. This innovative treatment has since drawn patients from around the world, kept Euromed booked years in advance, and inspired the opening of a clinic in the United States.

The Adeli suit is based on a cosmonaut's space uniform developed in 1971 to prevent the detrimental effects of hypokinesia in weightless conditions. Long-term research carried out by a team from the Russian Federation Academy of Medical Sciences indicated the effectiveness of the suit in rehabilitation of CP patients, and there are now about 100 clinics within Russia using the method.



"However," says Richard Kowalczyk, the director of Euromed, "the clinics in Russia are government-run, and so they only admit Russian patients. The program of rehabilitation there is also very limited because of the limited capital outlay."

Euromed, on the other hand, has an extensive rehab program that has admitted more than 1,800 patients from all over the world. The center treats approximately 43 patients a month, and is staffed by 24 clinicians, half of whom have a specialization degree, while the other half are without secondary special education, and three nurses. Part-time employees of the center include a neuropathologist/scientific consultant, who oversees the children's rehabilitation treatment; two orthopedic consultants; a pediatrician; and specialists in psychology, logopedics, music therapy, and ergotherapy.

The rehabilitation center is based in a four-story building in Mielno on the Baltic coast. Patients share a large furnished apartment with their parents or guardian. There are 10 halls in the Euromed center for individual treatment, and each is equipped with various devices for rehabilitation, including mirrors on the walls to facilitate correction of posture, wall bars, devices and trainers for balance exercises, training in walking, mats, and various rehabilitation balls.

The Adeli Suit

Euromed's signature treatment is the use of the Adeli suit, which consists of a system of elastic cords attached to a wide belt that is worn at the hips. The belt is connected to shoes and kneepads, and a cap can be provided for patients with poor head control. The system of adjustable elastic cords topographically mirrors the arrangement of flexor and extensor muscles, the trunk rotators, and lower limbs, and special cords correct the position of feet, shoulders, and other parts of the body. The suit does not limit the voluntary movements of the patient, but it does require more effort in order to create desired movements.

The majority of patients treated with the suit are children suffering from CP, a permanent injury to the part of the brain that controls motor function. The Adeli suit works to lessen the severity of impairment and increase function by aligning the patient's body properly and providing stability. Treatment in the suit stimulates the restarting of the development process of the vestibular system, which integrates all other functional systems of the body. This in turn stimulates postnatal development of the central nervous system, which determines the normalization of motor development, speech, and cognitive development.

While wearing the suit, the patient participates in a variety of activities, including exercises, gait training, and playing, with rests between each task. Each patient participates in a 28 day-course of rehabilitation, which includes 6 days of exercises each week with 1 day of rest. Therapy sessions take place in 4- to 6-hour intervals every day, depending on the abilities of the patient. Patients initially wear the suit for 20 minutes to an hour, with a progression to 2 hours. The length of time the exercises are performed in the suit depends on the child's physical endurance, the existence of other complications, and the child's adaptation to the method. "It is a very intensive regimen," Kowalczyk says.

During the exercises, a physical therapist observes the patient's head position, gait pattern, and weight bearing on feet, and corrects the tension and placement of cords as necessary. The goal is to balance all of the acting forces in order to attain the most appropriate body alignment and gait pattern. In children with speech difficulties, the therapist also stimulates dialogue through counting, singing, and rhyming.

"Anywhere from 33% to 40% of the daily therapy is performed in the Adeli suit," Kowalczyk says. "The rest of each day's program consists of individually adapted therapeutic exercises for each patient. According to our statistical data, 84% of the patients return for further treatment. Some of the patients repeat the sessions six to seven times and some patients from Poland have completed as many as 17 sessions."

Results

The impact of the Adeli suit on a patient's condition varies, but generally during the first session, pathological signals in patients decrease or cease altogether, new elements of stability and intended movement occur, and the intensity of unintended movement decreases. There is a decrease of intensity of dysarthria in later stages of the session, as well as improvement in blood circulation and in bioelectrical muscle function. Patients begin to see normalization of the footstep and proper responses during the process of stepping. Laboratory tests also show an increase in the calcification of bones and an improvement in their mechanical characteristics.

Research into the effectiveness of the Adeli suit in treatment of CP patients has been carried out by Russian and American teams. A pilot test performed in

1997 by investigators at the University of Minnesota in collaboration with the staff of the Courage Center, Golden Valley, Minn, involved treating six children and adults with either cerebral palsy or stroke for 3 weeks. The study concluded that though the Adeli suit treatment program is very intensive and concentrated, "in the long run, it may prove to be highly cost-effective.... Positive feedback motivates the individual to work hard during subsequent treatment sessions and between sessions; thus, the commitment to follow through with the program increases over the treatment interval, and the patient develops greater stamina. The positive changes in motor function after such combined massage and suit therapy procedures also enhance mood and self-confidence."¹

Euromed's own research on 620 patients showed improvement in 604 cases. Of these, 196 patients experienced a small improvement, 312 had intermediate improvement, and 112 showed a large improvement. Approximately 64% of the patients showed increases in speech fluency. Euromed's research also showed the percentage of children unable to walk before their second treatment with the suit to be around 63%. The percentage who still could not walk after their third treatment dropped to 38%; the remainder were by then able to walk either with crutches, in parallel bars, with walkers, or without support.

The Establishment of Euro-Peds

Physical therapists Richard and Izabela Koscielny have decades of cumulative experience working with children, but when their daughter, Kaya, was born premature at 26 weeks and was diagnosed with spastic quadriplegia CP, their implementation of traditional methods of therapy made few improvements to her condition.

The family left its home country of Poland and came to the United States to seek more progressive treatments, only to learn later about Euromed. After being on Euromed's waiting list for 8 months, the Koscielnys were able to take Kaya back to Poland for treatment, and on her third week in the Adeli suit, she was able to stand independently for 5 to 6 seconds.

Soon hundreds of parents began contacting the Koscielnys requesting information about Euromed, and the couple agreed to become the official representatives for the Euromed clinic. Since doing so, they have helped 167 children receive treatment in Poland, but the cost of the treatment is still out of reach of many families. Though Euromed does provide all the necessary documentation needed for third party payors, reimbursement is not guaranteed. So the Koscielnys approached North Oakland Medical Centers (NOMC) in Pontiac, Mich, and asked them to open a center inspired by Euromed.

Richard took care of the administrative end of starting the program while Izabela hired and trained the staff, and on October 4, 1999, the Euro-Peds clinic opened. The clinic's concept allows for follow-up care and therapy for those who have already had sessions with the Adeli suit in Poland. Izabela serves as the program coordinator and Richard is the director; they also serve as spokespeople for the clinic.

"This is not a second Euromed, but is patterned after that model without the suit," Richard stresses. "It will help to maintain improvements that the children gain from Euromed."

"There is insufficient research data on the Adeli suit," explains Izabela, the only therapist with a certificate of training in the suit in the United States. "We cannot use it in the American clinic because the insurance companies would call

it investigational and reject the payment. We had to adopt our Polish therapy to American standards for insurance purposes."

Treatment at Euro-Peds

Euro-Peds provides individualized and goal-oriented treatment for each of its patients, and the clinic currently offers orthotic consultation and services, and consultations with a developmental pediatrician and other pediatric specialists.

In-state Euro-Peds patients undergo three 2-hour physical therapy sessions per week with one or two therapists. Out-of-state patients undergo ten 4-hour treatment sessions for 2 weeks. As a result of the intensity of treatments, there are three teams of physical therapist seeing 14 children per day, and Euro-Peds is booked solid months in advance. Currently, Euro-Peds has 456 patients on its waiting list—109 from Michigan, 333 from other states, and 14 from other countries. There are plans to offer occupational and speech therapy in the future, as well as expansion plans to meet the needs of more patients.

"Our future goals are to open satellite clinics in other states; to build a new pediatric clinic providing service for the patients, and education for parents and other health care professionals; and to conduct more research on the Adeli suit, Spider, hyperbaric oxygen therapy, and other alternative therapies for children with CP," Richard says.

For more information, visit Euromed's Web site: www.euromed.bptnet.pl or Europeds' site: www.europeds.org.

Liz Finch is a contributing writer for Rehab Management International.

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