

Wonder pump hits the spot

IMPLANTABLE DEVICE BRINGS RELIEF FROM SPASMS

David Lupash was getting ready for his last race of the day in the junior lifeguard competition at Long Beach, California.

Having lived just five miles from the beach most of his life, becoming a lifeguard was a logical next step for this California teenager.

It had been a post card kind of day that July 15, 1988—sunny and warm with a cool breeze coming off the ocean. The beach was filled with family, friends, and spectators watching the competition.

David, then age 13, was participating in a relay with five other people including his twin brother, Daniel.

As his turn approached, he quickly visualized the drill: Run down the beach into the ocean, do the crawl stroke out and around the buoy, swim back to shore, and race back up the beach to tag the next team member.

Simple. No big deal.

But what happened next was anything but routine, for while he was running through the water, David stepped into a hole and his body was propelled forward. Although unknown for sure, it is believed David hit his head on a sandbar or a trench. All David knew was that suddenly, he was under water and could not move. He was holding his breath so he didn't drown.

"I couldn't feel my body," David remembers. "I had lost all sensation.

For that moment, I couldn't feel anything except a pulsating pain in my face."

And what began as a fun day with hopes of winning the competition ended with a life-threatening scenario because of a broken neck.

For the brief time while waiting for help, David remembers thinking he was going to die. However, over the next few hours, something changed. "I had this assurance that everything was going to work out. I knew God would take care of everything. I didn't know what was in store, but I knew it would be okay."

In the instant when he became a quadriplegic, his world changed—leaving him paralyzed for the rest of his life. Following his accident he was in the hospital for nearly a year, enduring two surgeries, recovery, and rehabilitation.

Later, he began having muscle spasms. Although they were random, the spasms would make his legs or arms shoot straight out with no warning.

The intensity of the spasms varied. Often they were so strong that he couldn't sleep, and it made him more dependent upon others. Early in 1991, he had such a severe leg spasm that his leg broke. This put him back in the hospital for several months of traction.

In an attempt to reduce the spasms, David had been on oral medication. But because it relaxed the muscles, he couldn't take very much since it would also make him drowsy. Consequently, the percentage

of medication that actually took effect was minimal.

While in the hospital with his broken leg, one of the physicians told him about a new implantable device which directly administers spasm medication to the spine. This pump, however, was only available at a few institutions in the United States.

That summer, David went to the Craig Hospital in Denver, Colorado, which specializes in spinal cord injury rehabilitation, and received the pump. Although not completely event free, receiving the pump has made "an unbelievable difference in my spasms, and ultimately, my life," David says. Since 1995, David has been receiving outpatient treatment for his spasticity at Loma Linda.

Spasticity Clinic opens at LLUMC

To help people with disabling spasms, the Spasticity Clinic at Loma Linda University Physical Medicine and Rehabilitation was established for specialized evaluation and management of patients who are chronically disabled by spasticity.

Spasticity is a condition affecting muscles causing them to be rigid and stiff, according to Murray E. Brandstater, MD, PhD, medical director of the Rehabilitation Institute. Spasticity can occur with or without paralysis or muscle weakness. Spastic paralysis is the inability to move a part of the body, accompanied by rigidity of the muscles, which may hold the limb frozen in one position, Dr. Brandstater explains.

Spasticity develops as a complication of many common conditions. Some of the frequent causes of spasticity are: cerebral palsy, brain injury, spinal cord injury, multiple sclerosis, and stroke.

Therapies for spasticity

There are many different forms of treatment used to reduce spasticity, and each has its particular value for specific kinds of problems. Some of the treatments for spasticity are: physical therapy, occupational therapy, use of splints or

casts, local nerve blocks, phenol intramuscular neurolysis, intramuscular botulinum (Botox) injections, medications, and the intrathecal baclofen therapy.

Pump brings relief from spasms

Intrathecal baclofen therapy, which David Lupash receives, is a new form of therapy involving the use of a pump which is surgically implanted and then slowly infuses the drug baclofen into the spinal fluid. The drug is very effective in reducing spasticity because it is delivered directly to the nerve cells in the spinal cord responsible for the spasms. The drug achieves muscle relaxation through inhibition of certain nerve cells in the spinal cord.

“The new treatment is not a cure, but because the therapy allows spastic muscles to relax, patients are able to move more freely and improve their quality of life,” Dr. Brandstater reports.

Spasticity of spinal cord origin affects approximately 330,000 to 575,000 Americans each year, according to Paddy Garvin, RN, MN, CRRN, clinical coordinator at the Spasticity Clinic.

In addition to multiple sclerosis, the major causes of spinal cord spasticity are motor vehicle accidents, diving injuries, other sporting mishaps, and results of violence such as gunshot and stab wounds.

“The success of this new therapy has been nothing short of incredible,” says Kevan Craig, DO, medical director of the pediatric rehabilitation program at Loma Linda University Children’s Hospital, “with 97 percent success for patients suffering from spasticity of spinal cord origin and 87 percent success for those suffering from cerebral origin spasticity.”

The intrathecal baclofen therapy was developed by Medtronic, Inc., a Minneapolis-based medical device company, and has been used for more than six years in treating patients with spinal cord injuries and multiple sclerosis. It has recently been approved for use in patients with cerebral palsy, brain injuries, and strokes. The system is programmed by

David Lupash appreciates his family’s support since his accident. Pictured (clockwise from left) are his sister Ruth, mother Cornelia, father Ti, twin brother Daniel, and David.



At a press conference held on August 9, 1996, Murray E. Brandstater, MD, PhD, medical director of the Rehabilitation Institute, explains how intrathecal baclofen therapy allows muscles to relax, thus helping certain patients to move and maintain posture.

an external computer to dispense the drug precisely and accurately based on the needs of each patient. The implantable pump’s reservoir needs to be refilled only once every one to three months.

Today, David is in his junior year at the University of Southern California, double majoring in philosophy and economics. The 21-year-old has plans for graduate school after he finishes at USC.

Says David, “I’ve grown a lot as a person. I look at life differently because of the accident. I think it’s for the best, not that I would wish this upon anyone, but it has brought me closer to my family and to God.”

➤ SCOPE



Paddy Garvin, RN, MN, CRRN, clinical coordinator at the Spasticity Clinic, scans a previously implanted baclofen therapy pump during a patient’s follow-up visit.