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A Colorado company helps deliver relief to post-surgical patients

Pumped up to fight pain

By Marsha Austin

Denver Post Business Writer

Michael Ellsworth felt something go terribly wrong in the middle of a World Cup wrestling match in Kazakhstan last fall.

"My shoulder came out of the socket," said Ellsworth, who gritted through the pain and wrestled several more opponents even though he was injured.

It was the pain that followed re-constructive surgery a month later that Ellsworth couldn't bear, though.

The 31-year-old downed handfuls of pain pills, but nothing killed the hurt until a doctor inserted a tiny catheter into a nerve in his neck and numbed his shoulder.

This new technology, being developed in part by Wheat Ridge device-maker McKinley Medical, an affiliate of The Broe Companies,

is helping patients like Ellsworth better manage their pain.

Small pumps that bathe nerves and wound sites with local anesthetics are an alternative to anesthetics that wear off hours after surgery. They also help patients avoid the unpleasant side effects of opiates and narcotics.

Patients are able to leave the hospital sooner and stay pain free for longer, surgeons say.

"They aren't writhing in pain anymore," said Dr. Kerry Perloff, an orthopedic surgeon at Kaiser Permanente in Denver who is using the technology on his patients.

Drug companies are racing to develop the next generation of pain medications, but so far no one has been able to produce a pill or injection that can eliminate pain without decreasing patients' mobility, said Dr. John Armstrong, assistant professor of anesthesiology at the University of Colorado School of Medicine.

"They're looking for better drugs that last longer with fewer side effects," Armstrong said. "The next thing is to get something that blocks the pain where it is."



Special to The Denver Post / Matthew Staver

Dr. Steven Clendenen of Colorado Springs' Surgery Center at Premier holds a pump that manages post-surgical pain developed in part by Wheat Ridge-based McKinley Medical.



The Denver Post / Glen Martin

And that's where pain pumps combined with local anesthetic drugs are making huge inroads.

First developed for cancer patients, pain pumps are popular among orthopedic surgeons who use the devices to bathe joints with local anesthetics after what can be excruciatingly painful bone surgery.

More recently, anesthesiologists have begun using the devices to block pain before surgery begins, eliminating the need during surgery for morphine or heavy-duty narcotics that often disorient and nauseate patients.

Last week, anesthesiologist Dr. Steven Clendenen, who is participating in a clinical study of pain pumps at Colorado Springs' Surgery Center at Premier, threaded a tiny catheter tube into the back of Kathryn Lacerte's thigh. He knew he had hit the right spot on her sciatic nerve when her toes began to twitch. He then injected a local anesthetic into the tube.

"This will last through surgery," Clendenen said.

Surgeons would completely rebuild Lacerte's foot that day, taking out screws inserted two years ago and shaving off the bone that grew around them. They cut into five joint areas.

After her first surgery two years ago, Lacerte spent five days recovering in the hospital. This time, she went home a few hours after her operation.

The day after her surgery, Lacerte was resting at home with a small plastic pump feeding anesthetic to the nerve in her leg. If she felt pain, she just pushed a button to feed more medicine into the tube.

"I've only had to push that once," Lacerte said Wednesday.

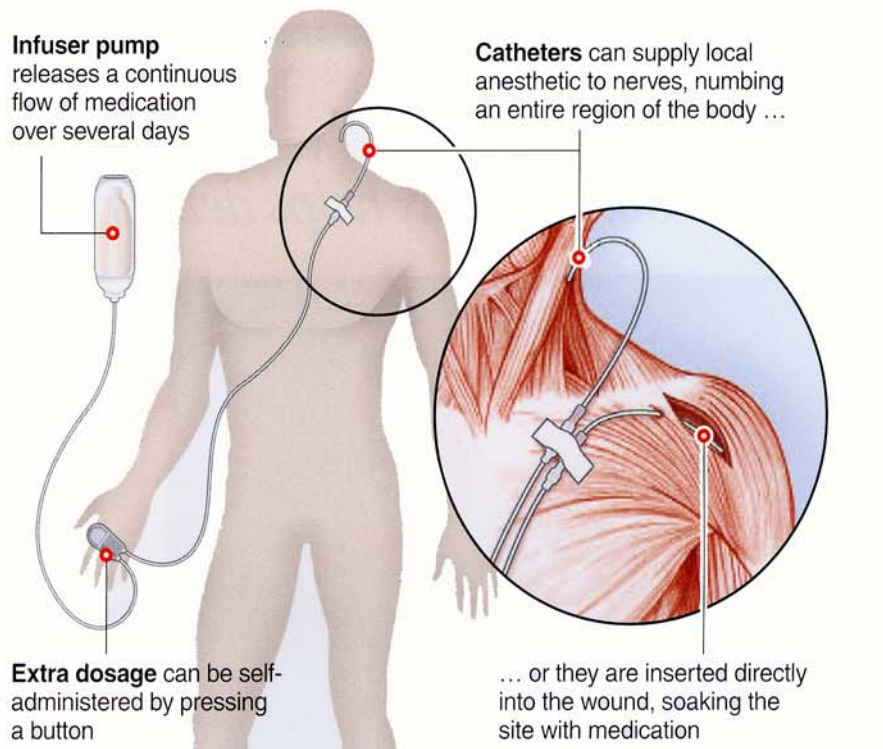
The surgery center in Colorado Springs is studying pain levels and recovery time in patients undergoing arthroscopic shoulder surgery.

Doctors also are using the pumps for everything from back surgery to breast reconstruction, Clendenen said. Surgeons at the University of Colorado Sports Medicine clinic are using the technology for shoulder and knee surgeries.

Manufacturers are eager to capitalize on the technology's rapidly growing popularity.

Hitting pain where it lives

New technology being developed in part by a Colorado company helps patients cope with post-surgical pain without the side effects of opiates like morphine or narcotic pain pills. The devices were first designed for cancer patients but are now used primarily for patients recovering from orthopedic surgery. Doctors are starting to use pain pumps for plastic surgery, cardiology and obstetrics.



Source: McKinley Medical

The Denver Post / Thomas McKay

McKinley Medical chief executive Randy Hoffman estimates pain pumps would be useful in a third of the 60 million surgical procedures performed in the U.S. each year.

In 2003, McKinley and competitors Stryker Corp., I-Flow Corp. and dj Orthopedics sold 500,000 devices. Hoffman expects that number to grow by 60 percent to 800,000, boosted by use in plastic surgery, obstetrics and cardiology.

McKinley, a small private company with 25 employees, controls about 8 percent of the market, and is working to reach a 20 percent market share by the end of this year.

The biggest hurdle is persuading health plans and government health programs to pay for the technology.

"We've had to fight insurance companies that didn't want to cover these services," Clendenen said.

Compared with traditional anesthetics, pain pumps ultimately save about \$4,100

per patient, Hoffman said. Pumps are a few hundred dollars, plus the physician fee to insert the device and the cost of the painkilling medication. A pain pump plus medication costs a tenth of the price for one night in the hospital, he said.

Clendenen said wrestler Ellsworth would have been admitted to the hospital had he not gotten a pain pump.

"There's \$60 billion to \$80 billion a year in savings if all patients that could have it had it," Hoffman said.

Some surgeons fear the device may expose patients to infection or prevent them from feeling swelling or other dangerous complications around their wound, said Dr. Eric McCarty, an orthopedic surgeon at the clinic and associate professor at the CU School of Medicine.

"There have been some good studies, but the jury's still out," said McCarty, a shoulder specialist. "Nobody has documented the complications well."