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Health Care: Stroke of Fortune

Bothell's Ekos Corp. has a new treatment that could improve patients' recovery from strokes. But the company needs more funding to make it happen.

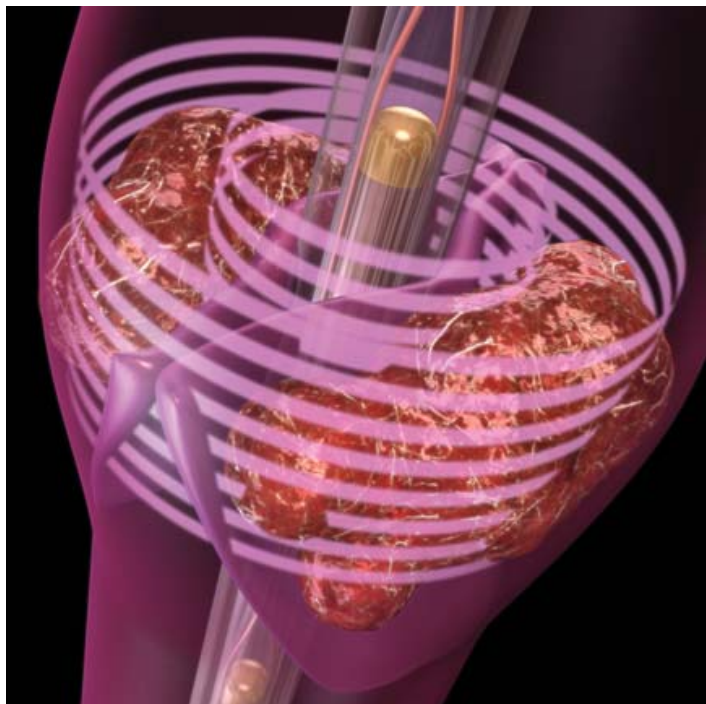
By Wes Simons

Illustration courtesy of Ekos Corp.

Stroke is the leading cause of adult disability in the United States, and for many patients, depending on the type of stroke, there is less than a 20 percent chance of surviving one. With limited treatment options, patients are usually forced to wait and hope they can recover with minimal brain damage.

Ekos Corp., a Bothell-based company that has pioneered the use of miniaturized ultrasound emitters to help treat blood clots in the arms and legs, now sees promise for the technology in treating hard-to-reach blood clots in the brain. Early research indicates that medication paired with ultrasound can greatly increase a patient's chances of recovering from a stroke and living a normal life.

Ekos' ultrasound technology was originally developed to treat clots in the peripheral areas of the body, especially in the legs. Its technology, called the EkoSonic Endovascular System, was launched in 2006 and is in use by vascular surgeons, cardiologists and radiologists across the country to treat thrombosis. The company holds 25 patents related to the use of the system to treat clots in the brain and legs.



Ekos Corp. has developed a new method of breaking up blood clots with ultrasound. Already being used on clots in the legs, the next step is to target clots in the brains of stroke victims.

Traditional clot busting involves feeding a guide wire into a vein and through the clot. A catheter is then fed over the wire and medication is released. This method works slowly because the thickness of the clot prevents the medication from completely permeating it.

With the EkoSonic system, the guide wire is replaced by an ultrasound emitter. The ultrasound loosens the clot. Almost twice as much medication then permeates the clot through the second hour of treatment. This allows a smaller amount of medication to be used, reducing the length of the procedure and the risk of complications. In studies, the system was shown not to cause the clot to break free, which can lead to a distal embolism in the patient.

The intravenous ultrasound emitter was an early success for Ekos, which has sold more than 16,000 of the disposable units at around \$2,500 each. They are used in conjunction with Ekos' control unit, which has a price tag of \$20,000. Already, the ultrasound emitters have been sold to more than 325 hospitals in the United States and Europe that have already purchased the control unit.

Bob Hubert, the president and CEO of Ekos, predicts the company will be profitable by the first half of 2011. The majority of Ekos' early funding came from private investors, but Hubert says that it is unlikely the company will seek further investment. "We need funding for work beyond the peripheral vascular stuff, but we don't want to dilute ourselves," Hubert explains.

Ekos has spent the last year-and-a-half raising its fourth funding round, totaling \$15 million. That plus an \$18 million venture capital raised in 2005 has kept the company going as it seeks new markets for its technology.

The company is applying for grant money to finance design of a more specialized ultrasound emitter for use in the brain. It would help treat the 100,000 people who suffer from bleeding-related strokes each year.

Ekos and Dr. David Newell of the Swedish Neuroscience Institute recently conducted a nine-person study to test the effectiveness of coupling ultrasound with medication to treat clots in the brain. The study found that blood clots in the brain dissolved about four times faster when anticoagulation drugs were combined with ultrasound therapy than when the drugs were used alone.

One patient in particular, a 38-year-old police officer, experienced an almost unheard-of recovery. He underwent treatment with Newell and was back on the police force within a month.

Mark Hertle, the senior program officer for the Washington State Life Sciences Discovery Fund, which funded the trial, says that Ekos' technology has the potential to help a large number of people. "We're talking about thousands of people across the United States and hundreds of people in Washington," he says. "There aren't many other options and this treatment could give people the chance to change their prognosis from terminal to fairly good."

A fully developed, cost-effective product isn't available yet, and Ekos needs grant money to fund the program. The study with Dr. Newell provided positive results, which could help secure the necessary funding to push the project into the next stage. "The research is

done. We need funding for development and a larger trial,” Hubert says. “This is a hugely unmet need.”

HEALTH CARE

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