

New treatment eases tremors

Duke team reports electrical pulses prove promising approach for Parkinson's symptoms.

By Sarah Avery

savery@newsobserver.com

Posted: Friday, Mar. 20, 2009

Parkinson's disease is a brain disorder that results from a deficiency of the brain chemical dopamine, which is necessary for the body's muscles to move smoothly.

Symptoms include tremor, stiffness, balance problems, muffled speech and depression.

It occurs most often in people over the age of 65, but in 15 percent of cases, it hits before the age of 50.

Medicines that replace or mimic dopamine production help ease Parkinson's symptoms.

Stimulating the spinal column with electrical pulses shows early promise in easing much of the stiffness and shaking of Parkinson's disease, scientists at Duke University reported Thursday.

The findings, featured as the cover story in the journal *Science*, resulted from studies on laboratory mice and rats. The approach will now be tested on primates, and could move to humans within a year, researchers said.

"This has a chance to evolve very quickly," said Dr. Miguel Nicolelis, a neuroscientist at Duke and senior study investigator. He said the spinal column therapy could use technology that is already available for treating chronic pain.

But patients and advocates urged caution, noting that the research has a long way to go before it proves beneficial in humans.

"I think it's interesting, but how it relates to the real human condition is another question," said Dr. Michael Okun, a neurologist and medical director for the National Parkinson Foundation. He said studies involving laboratory animals often appear encouraging, only to fail in humans.

Parkinson's disease, which afflicts 1.5 million Americans, occurs when nerve cells in the brain quit producing a chemical called dopamine, a neurotransmitter that is essential for the body to move smoothly. People with Parkinson's typically have tremors, walk stiffly, become forgetful and addled, and suffer depression.

The Duke team approached the disease from the standpoint that dopamine deficiency causes the electrical currents from the brain to go haywire, pulsing all at once. The Duke team reasoned that electrical stimulations along the spinal cord might reset that faulty brain-body signal.

It's not an entirely new idea. A current strategy for Parkinson's patients uses a similar tactic, but directly targets the brain for the electrical signal. As a result, deep brain stimulation requires an invasive brain surgery, and is only recommended as a last resort for a small portion of Parkinson's patients.

No surgery needed

Stimulating the spinal column can be done without any surgery and has been used to treat patients with chronic pain. But it wasn't clear that the approach was viable for a neurological disease such as Parkinson's.

“It's a big deal that we found it to work,” Nicolelis said.

If spinal stimulation works similarly with humans, Nicolelis said, it could extend the period of time that current medicines work.