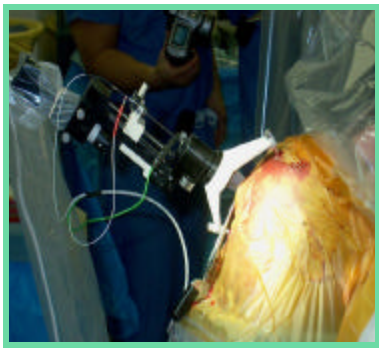
REPORTER

Technological Advances Spark Neurosurgery

By Clinton Colmenares

Excerpts from: Colmenares, Clinton. **"Technological Advances Spark Neurosurgery."** The Reporter February 08, 2002. Vanderbilt Medical Center. March 01, 2002, <http://www.mc.vanderbilt.edu/reporter/index.html?ID=1935> Excerpts reprinted with permission of The Reporter.



The excitement of two surgical "firsts" mingled in the near-sterile air of OR 14 recently as a neurosurgery team [prepared to implant] two deep-brain stimulators, one into each hemisphere of Jennifer Allison's brain, to stop the quaking tremors and frozen state of Parkinson's disease.

On Jan. 12, Vanderbilt became the first major medical center* in the country to offer patients such as Allison [this] revolutionary device. The MicroTargeting[R] Platform, designed by FHC is a custom-fit tripod not much larger than a hand that anchors to the patient's head and allows precision placement of electrodes into the target brain tissue, where faulty firing sparks the tremors.

Allison also was the first patient at Vanderbilt to receive bilateral stimulators following FDA approval of the two-shot strategy for Parkinson's disease. Vanderbilt was among the first medical centers in the United States to study the use of deep-brain stimulators, both unilaterally and bilaterally, said Dr. David Charles, assistant professor of Neurology, who programs the leads in stimulators such as Allison's.

Prior to the FDA blessing, insurance companies fought payment, creating a long debate that kept some patients waiting a year or more for the surgery, Charles said. The approval should eliminate that battle and create the opportunity for many more patients to receive them. Konrad estimates 10,000 to 20,000 people are candidates for the stimulators, and expects to stay busy with about one procedure a week now.

The FHC platform's "frameless technology" weighs about 3 ounces and replaces the bulky, 5-10 pound stereotactic frames that screw to the patient's head, then to the operating table for support. Last year [FHC] representatives approached Konrad at a meeting, wanting to marry their technology to one of Vanderbilt's creations: bone markers, plastic posts screwed into the patients skull that become fixed reference points for planning the operation.

With the FHC device, the patient comes in a week before surgery to have the bone markers fitted as an outpatient procedure. CT and MRI images are combined, Konrad plans the trajectory of attack and sends the data to FHC, where a MicroTargeting[R] Platform is custom made for the patient. In the OR, the bone markers become anchors for the platform.

For the patient, the microTargeting[R] Platform eliminates the need for cumbersome, intimidating, and uncomfortable stereotactic frames worn before, and during surgery.

Allison, diagnosed with Parkinson's disease in 1994 at age 38, also was excited about the surgical firsts. "The pictures I saw of the old head frame were pretty scary, and the surgery is bad enough," she said. With the halo, Allison said, "I probably would have jumped off the bed and said, 'enough of this.'"

Yet another first in Allison's surgery was a teleconference of the operation with FHC. Franklin and others at the company watched live as the team used their device. "Teleconferencing makes collaborations such as this one easier and more efficient, which helps us build stronger relationships with companies like FHC," Konrad said.

** The first surgical use of the microTargeting[R] Platform was by Dr. Joel Franck, Chief of Neurosurgery at St. Mary's Hospital in Lewiston, Me. Dr. Franck and FHC engineer, Ron Franklin developed the technology called STarFix[TM] guidance.*

L015-20 3/02 Printed in U.S.A.