Deep Brain Stimulation Promising for OCD

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SAVANNAH, GA. — Deep brain stimulation may have potential for treating geriatric psychiatric disorders, particularly treatment-resistant depression and obsessive-compulsive disorder.

Deep brain stimulation (DBS), already shown to be an effective therapy for Parkinson's disease and essential tremor, may hold promise for treatment of geriatric psychiatric disorders, Dr. Paul Holtzheimer said in a symposium on neuromodulation therapies.

Research into DBS for treatment-resistant depression (TRD) and obsessive-compulsive disorder (OCD), as well as for other psychiatric disorders, has been advancing, noted Dr. Holtzheimer of the department of psychiatry and behavioral sciences at Emory University, Atlanta. But more studies into efficacy, mechanisms of action, and side-effect profile—and especially long-term effects—are needed.

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DBS delivers targeted electrical stimulation into the brain through a device that consists of an electrode connected to an insulated wire, inserted through a small opening in the skull. The wire is run under the skin of the head, neck, and shoulder, connecting the electrode to an implantable pulse generator (a "pacemaker") implanted near the collarbone.

One advantage of a DBS device is that it can be tuned, Dr. Holtzheimer said. The electrode has four contacts, allowing the stimulation level to be adjusted. Implantation is a relatively safe procedure with a low complication rate (around 10%). The most common complication is infection; stroke is a less common but far more worrisome one, he said.

Research into psychiatric applications is advancing quickly. Thus far, however, studies largely have been limited to a few open-label studies conducted over a few months.

Early research in TRD suggests efficacy and safety for subcallosal cingulate, ventral capsule/ventral striatum (VC/VS), and nucleus accumbens targets. Dr. Holtzheimer called the results so far "reasonably positive." Multicenter trials are underway for the subcallosal cingulate and VC/VS targets.

The OCD data also suggest reasonable efficacy and safety for the VC/VS, inferior thalamic peduncle, and subthalamic nucleus targets, but not the nucleus accumbens. In 2009, the FDA approved a humanitarian device exemption for the use of DBS to treat OCD (VC/VS target).

All of the progress is encouraging, but the lack of randomized, placebo-controlled data means that long-term safety and efficacy have yet to be established, Dr. Holtzheimer cautioned. Moreover, safety and efficacy have yet to be tested in geriatric populations, and those patients are not part of the ongoing trials.

There's no reason to believe that DBS would be less safe or effective in geriatric populations, observed another member of the neuromodulation panel, Dr. William McDonald, professor of psychiatry and behavioral sciences at Emory University.

Dr. Holtzheimer also pointed out that it may take months of DBS therapy before it becomes effective. It does not replace medications or psychotherapy, but it may enhance other therapeutic approaches, such as cognitive behavioral therapy, he said.

Meanwhile, researchers are starting to look at other psychiatric indications for DBS. For example, research is underway in Toronto to explore its use in dementia, Dr. Holtzheimer said. ■

Disclosures: *Dr. Holtzheimer is a consultant for St. Jude Medical: Neuromodulation, a site of one of the trials for DBS in TRD.*