Follow-up study supports the long-term benefits of transcranial magnetic stimulation for depression

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In a study to determine the durability and long-term effects of transcranial magnetic stimulation (TMS), psychiatric researchers at Rush University Medical Center have found the non-invasive, non-drug therapy to be an effective, long-term treatment for major depression. Results of the study were published in the October 2010 issue of *Brain Stimulation*.

TMS therapy is a non-invasive technique that delivers highly focused magnetic field pulses to a specific portion of the brain, the left prefrontal cortex, in order to stimulate the areas of the brain linked to depression. These pulses are of a similar intensity to the magnetic field produced during an MRI imaging scan. The repeated short bursts of magnetic energy introduced through the scalp excite neurons locally and in connected areas in the brain.

TMS received clearance from the U.S. Food and Drug Administration (FDA) in October 2008. This novel treatment option is a safe and effective, acute antidepressant therapy, but there is limited information on its long-term benefits.

“This is the only prospective, maintenance, follow-up study which assesses the durability of acute TMS benefit in patients with major depression,” said Dr. Philip G. Janicak, study principal investigator and professor of psychiatry at Rush University Medical Center.

In the study, 301 patients suffering from major depression were randomly assigned to receive active or sham TMS in an acute, six-week, controlled trial. Patients who responded then underwent a three-week, transition period where they were tapered off of active or sham TMS treatment and started on a standard antidepressant for maintenance. After any successful acute treatment for depression such as TMS, antidepressant medications or electroconvulsive (ECT) therapy, it is usual practice to introduce maintenance medication to lessen the chance of relapsing.

In the acute, randomized trial, 142 patients who received active TMS therapy responded and entered the three-week, transition phase. One hundred twenty-one patients completed this phase without relapse. Of those patients, 99 (81.8 percent) then agreed to be followed for an additional 24-week period during which only 10 patients relapsed.

In addition, TMS was successfully used as an intermittent rescue strategy to preclude impending relapse in 32 of 38 (84 percent) patients. This indicated that the therapeutic effects of TMS are durable in the majority of acute responders and that reintroduction of TMS as an adjunct to medication was effective and safe in preventing relapse.

“The results of the follow-up study further support TMS as a viable treatment option for patients with major depression who have not responded to conventional antidepressant medications,” said Janicak. “After acute response to TMS, a standardized regimen of antidepressant medication maintained the acute benefit in the majority of patients over a six-month period.”

The FDA-approved TMS device was developed by Neuronetics, Inc. Patients treated with TMS therapy do not require anesthesia or sedation and remain awake and alert. It is a 40-minute outpatient procedure that is prescribed by a psychiatrist and performed in an outpatient setting.

The treatment is typically administered daily for four-to-six-weeks.

Depression affects at least 14 million American adults each year. Researchers estimate that by the year 2020, depression will be the second leading cause of disability worldwide. About two-thirds of those who experience an episode of depression will have at least one other episode in their lives. Depression is a debilitating illness, and existing treatment options are frequently ineffective or intolerable due to side effects. Current antidepressant therapies are not beneficial for at least a third of depressed individuals, leaving many with a lack of adequate treatment options.

Provided by Rush University Medical Center