Medical Xpress

Transcranial magnetic stimulation shows promise in treating stroke, dementia and migraines

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Antonio H. Iglesias, MD. Credit: Loyola Medicine

Transcranial magnetic stimulation (TMS) has shown significant efficacy in treating major depressive and obsessive compulsive disorders. A newly published literature review by Antonio H. Iglesias, MD, a Loyola

Medicine neurologist and assistant professor at the Loyola University Chicago Stritch School of Medicine, highlights the compelling scientific and clinical data supporting further studies into the use of TMS to treat a broader range of common neurological conditions, including stroke, acute migraines and dementia.

A TMS device is made of one or two copper coils, positioned on an external, targeted area of a patient's scalp, which produces brief, magnetic pulses to an estimated depth of approximately 2 to 2.5 centimeters. The magnetic field triggers changes in neuronal activity and communication, which can alter unwanted activity within the brain.

"TMS can work as a stimulant or an inhibitor of cerebral activity, or both," says Dr. Iglesias. In addition, different sized coils and varying magnetic impulses can impact outcomes, depending on a patient's neuroplasticity—the capacity for neurons and the nerve cells to change and compensate for injury and disease.

"Most importantly, TMS is well-tolerated by most patients with few side effects," says Dr. Iglesias.

Transcranial magnetic stimulation is approved by the Food and Drug Administration (FDA) to treat major depression and obsessive compulsive disorder (OCD). According to the article, appearing in the February 4, 2020 journal *Current Neurology and Neuroscience* Reports, there are 1,641 studies underway utilizing TMS to treat a broad array of other neurological disorders, including more than 60 trials alone studying the effects of TMS to diminish or reverse the effects of early dementia. The most promising results are in the treatment of acute migraines and primary progressive aphasia (PPA), and the effects of stroke.

"TMS has now opened the field of neurology in multiple areas," says Dr. Iglesias. "And, there are many variables that could be studied and

arranged to improve brain functionality and network connections."

Loyola Medicine is already successfully utilizing TMS in the treatment of depression and OCD, and "it is my hope that we can begin to explore utilizing this treatment for dementia, and specifically the early effects of PPA, which can rapidly diminish language and other cognitive skills," says Dr. Iglesias.

More information: Antonio H. Iglesias, Transcranial Magnetic Stimulation as Treatment in Multiple Neurologic Conditions, *Current Neurology and Neuroscience Reports* (2020). DOI: 10.1007/s11910-020-1021-0

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