

Magnetic brain stimulation treats depression independent of sleep effect

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While powerful magnetic stimulation of the frontal lobe of the brain can alleviate symptoms of depression, those receiving the treatment did not report effects on sleep or arousal commonly seen with antidepressant medications, researchers say.

"People's sleep gets better as their depression improves, but the treatment doesn't itself cause sedation or insomnia," said Dr. Peter B. Rosenquist, Vice Chair of the Department of Psychiatry and Health Behavior at the Medical College of Georgia at Georgia Health Sciences University.

The finding resulted from a secondary analysis of a study of 301 patients at 23 sites comparing the antidepressive effects of the Neuronetics Transcranial [Magnetic Stimulation](#) Therapy System to sham (placebo) treatment in patients resistant to antidepressant medications. TMS sessions were given for 40 minutes, five days a week for six weeks. Initial findings, published in the journal *Biological Psychiatry* in 2007, were the primary evidence in the Food and Drug Administration's approval of TMS for depression. The secondary review reaffirmed TMS's effectiveness in depression but revealed no differences in rates of insomnia or sleepiness among those who got actual and sham (placebo) therapy. Patients in the treatment group were also no more likely to request medication for insomnia or anxiety.

"It's important for us to understand the full range of the effects of any treatment we give," said Rosenquist, corresponding author of the study in the journal *Psychiatric Research*. The new findings will assuage worries of sleep-related side effects and remind physicians to remain alert to residual insomnia in depressed patients they are treating with TMS, the researchers report.

[Sleep problems](#) are a common side effect of major antidepressants: some drugs sedate patients while others stimulate them and increase insomnia.

Insomnia occurs in 50-90 percent of patients with [major depressive disorder](#). Other depressed patients complain they sleep too much. The good news is that TMS does not contribute to insomnia or oversleeping.

"One of the many bad things about depression is that often patients cannot sleep. We think it's a significant symptom," Rosenquist said. "If patients can't sleep, it really adds to their distress, and even increases the likelihood of suicide. We need antidepressant treatments that patients can tolerate so that they will stay with the treatment, which takes weeks to fully achieve. Our study adds to the evidence showing that TMS has remarkably few side effects." Patients often seek TMS as an option or adjunct to medication to avoid medication side effects.

"Mood disorders are associated with widespread structural and functional changes in the human brain, which can be reversed with successful treatment," Rosenquist said. "Clinical researchers are working to find the optimal way to restore normal brain function."

TMS targets the prefrontal cortex of the brain, involved in mood regulation as well as other higher-order functions like planning, evaluating and decision-making. In this procedure, patients sit in a recliner and receive brief pulses of a MRI strength magnet held against the front of the head. The magnetic energy of TMS causes the brain cells closest to the surface of the brain to increase their activity which in turn influences the activity of the brain as a whole.

Major [Depressive Disorder](#) affects approximately 14.8 million, or about 6.7 percent of American adults in a given year, according to the National Institute of Mental Health. It's the leading cause of disability in ages 15 to 44. Despite the numbers, Rosenquist concedes that it's not clear what causes depression or exactly how antidepressants and

other therapies, such as TMS, work. "It's an important puzzle and the work continues. We are excited to be a part of this effort at Georgia Health Sciences University."

Provided by Georgia Health Sciences University

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