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TMS Cost-effective for Resistant Depression

Megan Brooks | May 07, 2014

NEW YORK — Transcranial magnetic stimulation (TMS) is a cost-effective treatment option for patients with resistant major depressive disorder (MDD), according to a new economic analysis.

"It's mainly cost-effective because it's not really that much more expensive than drug therapy, and it has a very large improved effect over drug therapy," Kit Simpson, DrPH, professor of health and science research, Medical University of South Carolina, in Charleston, told *Medscape Medical News.*

The findings were presented here at the American Psychiatric Association's 2014 Annual Meeting.

The analysis focused on the NeuroStar TMS system (Neuronetics, Malvern, Pennsylvania), a noninvasive therapy that delivers MRI-strength pulsed magnetic fields to induce an electric current in a localized region of the cerebral cortex.

It was approved by the US Food and Drug Administration (FDA) in October 2008 for the treatment of antidepressant-resistant MDD, as reported by *Medscape Medical News* at that time.

Prior studies have shown that TMS can provide long-lasting relief of antidepressant-resistant MDD and significantly improve patients' quality of life (QoL) and functional status.

Dr. Simpson and colleagues conducted a cost-utility analysis using data from prior studies using the NeuroStar TMS system.

They used propensity score matching to create a "pseudo-randomized comparison" between 307 patients who had TMS and an equal number treated with medication in the Sequenced Treatment Alternatives to Relieve Depression (STAR*D) study.

For TMS patients, the model assumed an average of 29 acute treatment sessions plus 6 sessions during the taper phase at $181 per session. For STAR*D patients, the model assumed use of a single antidepressant drug for 6 weeks plus augmentation for nonremitters.

The analysis showed that TMS provides an incremental cost-effectiveness ratio of $36,383 per quality-adjusted life-year (QALY), which is less than the usually accepted "willingness-to-pay" standard of $50,000 and shows that it is "good value for money," Dr. Simpson said.

In the model, the mean average annual costs are $11,886 for TMS and $10,888 for STAR*D patients (medication) — an added cost per year for TMS of $998.

The researchers also calculated the payment per member per month (PMPM) cost for a moderate-sized payor comprising 6 million covered lives and assuming a 2% incidence of patients failing to benefit from initial medication and a utilization of TMS of 15% among these patients.

Under these conditions, the PMPM cost increment was $0.25 during a 2-year period of treating a patient with TMS compared with drug therapy, the researchers say.

This analysis shows that TMS is "cost-effective compared to standard drug treatment" for treatment-resistant MDD, Dr. Simpson told *Medscape Medical News.*

She noted that these are treatment-resistant patients are "who are very sick and who would normally otherwise be on 2 or 3 antidepressant drugs, and in many cases that still doesn't work. They really have no other options except

electroshock therapy, which has side effects, while TMS has no real side effects."

Dr. Simpson said she would like to "see more patients treated with this, but it's a fairly new treatment, and many patients still just go to their primary care doctor and get a prescription for an SSRI [selective serotonin reuptake inhibitor]."

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