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Cost-effectiveness of transcranial magnetic stimulation in the treatment of major depression: a health economics analysis

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Abstract

Introduction: Transcranial magnetic stimulation (TMS) is a novel antidepressant therapy shown to be effective and safe in pharmacotherapy-resistant major depression. The incremental cost-effectiveness and the direct cost burden compared with sham treatment were estimated, and compared with the current standard of care.

Methods: Healthcare resource utilization data were collected during a multicenter study (n=301) and a decision analysis was used to stratify the 9-week treatment outcomes. A Markov model with an acute-outcome severity-based risk of relapse was used to estimate the illness course over a full year of treatment follow-up. These model estimates were also compared to best estimates of outcomes and costs of pharmacotherapy treatment, using the published STAR(*)D outcomes. The cost-effectiveness of TMS was described using an incremental cost-effectiveness ratio (ICER) per quality-adjusted life year (QALY) gained and on a direct cost per patient basis across a varying range of assumptions. The model's sensitivities to costs due to losses in work productivity and to caregiver time were also examined.

Results: Compared with sham treatment and at a cost of US\$300 per treatment session, TMS provides an ICER of US\$34,999 per QALY, which is less than the "willingness-to-pay" standard of US\$50,000 per QALY for a new treatment for major depression. When productivity gains due to clinical recovery were included, the ICER was reduced to US\$6667 per QALY. In open-label conditions, TMS provided a net cost saving of US\$1123 per QALY when compared with the current standard of care. In the open-label condition, cost savings increased further when the costs for productivity losses were included in the model (net savings of US\$7621). The overall cost benefits of treating MD using TMS were greater in those patients at the earliest levels of treatment resistance in the overall sample.

Conclusion: TMS is a cost-effective treatment for patients who have failed to receive sufficient benefit from initial antidepressant pharmacotherapy. When used at earlier levels of treatment resistance, significant cost savings may be expected relative to the current standard of care.

Trial registration: ClinicalTrials.gov NCT00104611.

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- Antidepressive Agents

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- ClinicalTrials.gov/NCT00104611

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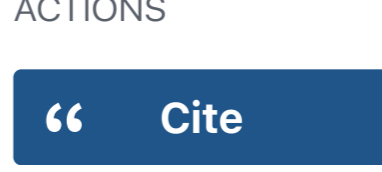
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