



- Title** **Transcranial Magnetic Stimulation in Depression**
- Agency** SMM, The Norwegian Centre for Health Technology Assessment
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Aim

To undertake a critical and systematic review of the clinical effectiveness of repetitive transcranial magnetic stimulation (rTMS) in depression and obsessive-compulsive disorder. rTMS has been offered to patients with major depression who do not respond to other treatment modalities (resistant and refractory depressions). Electroconvulsive treatment (ECT) is an established treatment option for these patients. ECT requires general anesthesia and muscle relaxation and is an expensive procedure. Legal constraints also restrict the application of ECT. In contrast, rTMS can be used without sedatives to patients. rTMS is delivered in daily sessions for a duration of weeks. An important question in this review has been whether rTMS can replace or supplement ECT.

Methods

Studies were identified by searches in Medline and Embase (up to February 2001) and from handsearching selected journals. Outcome measures were mainly psychometric scales that assess mood and vegetative symptoms.

Results and Conclusions

The 12 included studies were small and varied in scientific quality. The subjects were often inadequately characterized as regards previous depressive illness and treatment, diagnosis, and therapeutic setting.

- Three of 12 scientific studies found no clinical effects from rTMS on depressions. Seven studies reported clinical effects of limited magnitude (less than 50% reduction in depression). Two studies demonstrated a good clinical response to treatment with rTMS (more than 50% reduction in depression).
- None of the studies documented the effect of rTMS beyond the treatment period.
- Two studies compared rTMS with ECT. These studies found differences in favor of ECT. The patients were not followed after the treatment period.
- The cost of ECT and rTMS treatment was comparable.
- rTMS was well tolerated and had few side effects.

In summary, clinical documentation is insufficient to justify rTMS in widespread management of depressed patients. Antidepressive efficacy is low in most studies, and treatment gains were not sustained beyond the treatment period. To maintain the antidepressive efficacy, daily treatment seems to be required. Indeed, the antidepressive efficacy was not consistent. Comparisons with ECT indicate superiority for ECT with respect to clinical effects. Some patients had good, albeit short-lived, responses to rTMS. The value of such a response can be to give hope in an otherwise hopeless situation, but beyond this there is no certain clinic