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Transcranial low voltage pulsed electromagnetic fields in patients with treatment-resistant depression.

Randomized controlled trial

Martiny K, et al. Biol Psychiatry. 2010.
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Abstract

BACKGROUND: Approximately 30% of patients with depression are resistant to antidepressant drugs. Repetitive transcranial magnetic stimulation (rTMS) has been found effective in combination with antidepressants in this patient group. The aim of this study was to evaluate the antidepressant effect of a new principle using low-intensity transcranially applied pulsed electromagnetic fields (T-PEMF) in combination with antidepressants in patients with treatment-resistant depression.

METHODS: This was a sham-controlled double-blind study comparing 5 weeks of active or sham T-PEMF in patients with treatment-resistant major depression. The antidepressant treatment, to which patients had been resistant, was unchanged 4 weeks before and during the study period. Weekly assessments were performed using both clinician-rated and patient-rated scales. The T-PEMF equipment was designed as a helmet containing seven separate coils located over the skull that generated an electrical field in tissue with orders of magnitude weaker than those generated by rTMS equipment.

RESULTS: Patients on active T-PEMF showed a clinically and statistically significant better outcome than patients treated with sham T-PEMF, with an onset of action within the first weeks of therapy. Effect size on the Hamilton 17-item Depression Rating Scale was .62 (95% confidence interval .21-1.02). Treatment-emergent side effects were few and mild.

CONCLUSION: The T-PEMF treatment was superior to sham treatment in patients with treatment-resistant depression. Few side effects were observed. Mechanism of the antidepressant action, in light of the known effects of PEMF stimulation to the brain, is discussed.

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