



Dual-hemisphere repetitive transcranial magnetic stimulation for rehabilitation of poststroke aphasia: a randomized, double-blind clinical trial.

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Abstract:

Abstract BACKGROUND: Recent neuroimaging studies on poststroke aphasia revealed maladaptive cortical changes in both hemispheres, yet their functional contribution in language recovery remains elusive. The aim of this study was to evaluate the long-term efficacy of dual-hemisphere repetitive transcranial magnetic stimulation (rTMS) on poststroke aphasia. **METHODS:** Thirty patients with subacute poststroke nonfluent aphasia were randomly allocated to receive real or sham rTMS. Each patient received 1000 rTMS pulses (1 Hz at 110% of resting motor threshold [rMT] over the right unaffected Broca's area and 1000 pulses (20 Hz at 80% rMT) over the left affected Broca's area for 10 consecutive days followed by speech/language training. The language section of the Hemispheric Stroke Scale (HSS), the Stroke Aphasic Depression Questionnaire-Hospital Version (SADQ-H), and the National Institutes of Health Stroke Scale (NIHSS) were measured before, immediately after the 10 sessions, and 1 and 2 months after the last session. **RESULTS:** At baseline, there were no significant differences between groups in demographic and clinical rating scales. However, there was a significantly greater improvement in the HSS language score as well as in the SADQ-H after real rTMS compared with sham rTMS, which remained significant 2 months after the end of the treatment sessions. **CONCLUSION:** This is the first clinical study of dual-hemisphere rTMS in poststroke aphasia. Combining dual-hemisphere rTMS with language training might be a feasible treatment for nonfluent aphasia; further multicenter studies are needed to confirm this result.

Keywords:

Broca's area; aphasia; cortical plasticity; hemispheric role; neurorehabilitation; stroke; transcranial magnetic stimulation (TMS)

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