



Hôpital général juif
Jewish General Hospital



McGill

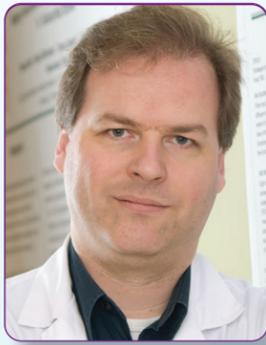
Institut Lady Davis de recherches médicales | Lady Davis Institute for Medical Research

PAPER OF THE MONTH • AUGUST 2020



Anna Zumbansen, PhD

Post-doctoral Fellow, Lady Davis Institute



Alexander Thiel, MD

Director, Neuroplasticity Research Program,
Lady Davis Institute

Professor, Department of Neurology & Neurosurgery,
McGill University

Director, Comprehensive Stroke Centre,
Jewish General Hospital



European Stroke Journal

Non-invasive brain stimulation as add-on therapy for subacute post-stroke aphasia: a randomized trial (NORTHSTAR)

Anna Zumbansen, Sandra E Black, Joyce L Chen, Dylan J Edwards, Alexander Hartmann, Wolf-Dieter Heiss, Sylvain Lanthier, Paul Lesperance, George Mochizuki, Caroline Paquette, Elizabeth A Rochon, Ilona Rubi-Fessen, Jennie Valles, Heike Kneifel, Susan Wortman-Jutt, Alexander Thiel, on behalf of the NORTHSTAR-study group*

This is the first publication of results by the international study group NORTHSTAR (NON-invasive Repeated THERapeutic STimulation for Aphasia Recovery). It tested, in a randomized controlled trial, whether adding non-invasive brain stimulation (NIBS) to speech therapy could improve recovery from post-stroke aphasia. Aphasia is an impairment in the use of language caused by damage to language-related areas of the brain, such as Wernicke or Broca's area in the left cerebral hemisphere. It affects 15 to 40% of patients with acute stroke and is an independent predictor of prolonged hospitalization and poor outcomes.

Sixty-three patients received ten days of speech therapy while receiving one of two different kinds of inhibitory NIBS over the right homologue of Broca's area or sham stimulation. There was no significant difference in language recovery between NIBS and sham stimulation immediately after treatment. However, one month later, the recovery of the ability to name objects was significantly greater in patients who had received repetitive transcranial magnetic stimulation (rTMS). A subgroup analysis showed that this effect was only significant in patients whose lesion spared Broca's area. One important finding is the possible lesion location-specific effect on the response to NIBS. Compared to sham, the study protocols tended to boost overall language improvement in patients with intact Broca's area, but tended to slow recovery in patients with damage to this region.

The findings support the clinical relevance of rTMS and encourage further research towards tailored stimulation according to lesion location.

doi.org/10.1177/2396987320934935