Canadian Platform for Trials in Non-Invasive Brain Stimulation (CanStim)
Consensus Recommendations for Repetitive Transcranial Magnetic Stimulation in
Upper Extremity Motor Stroke Rehabilitation Trials

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RATIONALE AND BACKGROUND

Guidelines for therapeutic rTMS post-stroke are Level B for inhibitory contralesional 1Hz only⁴

Large-scale RCTs lacking

Lack of consensus limits trial design

OBJECTIVE

To develop consensus recommendations for the use of rTMS as an adjunct intervention for upper extremity motor recovery in stroke rehabilitation trials.

METHODS AND RESULTS

1. Convened CanStim Working Group
2. Literature review for consensus themes
3. Consensus decision items (max 5) identified for each theme

4. Weighted dot-voting procedure
5. a. low voting agreement (<40%) = eliminated
b. high voting agreement (>60%) = accepted
c. moderate agreement (40-60%) = additional discussion to achieve consensus

RECOMMENDATIONS AND LEVEL OF EVIDENCE		
I. Patient Population		
1	Sub-acute stroke patients between 2 weeks and 3 months of stroke onset	C
2	Cortical and subcortical stroke patients	C
3	All patients eligible for and able to participate in a standard of care upper extremity therapy program	D
4	Structural and electrophysiological biomarkers for baseline assessment (SSRI Roundtable)	D
II. Rehabilitation Intervention		
1	Usual care replaced a specific therapy for upper limb rehabilitation	D
2	GRASP rehabilitation paired with rTMS for upper extremity therapy	B
3	120 minute intervention session (30 min rTMS + 90 min GRASP) per day for 3 weeks (22.5 h of therapy)	B
III. Outcome Measures		
1	Validated, objective core measures of function, activity and impairment for primary outcome	B
2	Subjective and real-world measures as secondary outcomes	C
IV: rTMS Stimulation Parameters		
1	1Hz frequency (inhibitory) rTMS administered over contralesional M1	B
2	Suprathreshold intensity (120% RMT) once daily for 1800 pulses over 30 minutes for 15 sessions (3 weeks)	C
3	MRI-guided stereotaxic neuronavigation to identify M1	D

CONCLUSION

The CanStim Platform and consensus recommendations are a first step toward the translation of non-invasive brain stimulation technologies into clinic trials to determine efficacy to enhance stroke recovery

References

1. Koganemaru et al. Brain. 2010;133(11):3373-84.

2. Corti et al. Am J Phys Med Rehabil. 2012;91(3):254-70

3. Lefaucheur et al. Clin Neurophysiol. 2014;125(11):2150-206..