Safety and tolerability of navigated TMS for preoperative mapping in neurosurgical patients.

Navigated transcranial magnetic stimulation (nTMS) is a non-invasive technique for pre-surgical motor and language mapping in patients with brain lesions. This study examines the safety and tolerability of nTMS in a large, multi-center cohort of neurosurgical patients. Functional mapping with monopulse and repetitive nTMS was performed in 733 patients. In this cohort, 57% of patients had left-sided tumors, 50% had frontal tumors, and 50% had seizures secondary to the lesion. Side effects and pain intensity related to the procedure were documented. Patients undergoing monopulse stimulation underwent an average of 490 pulses while those undergoing repetitive stimulation received an average of 2268 pulses. During monopulse stimulation, 5.1% reported discomfort (VAS 1-3), and 0.4% reported pain (VAS>3). During repetitive stimulation, 23.4% reported discomfort and 69.5% reported pain. No seizures or other adverse events were observed. nTMS is safe and well-tolerated in neurosurgical patients. Clinicians should consider expanding nTMS to patients with frequent seizures, but more evaluation is necessary to evaluate this risk fully. nTMS is safe and well-tolerated, even in neurosurgical patients with persistent occasional seizure secondary to a lesion. It should be considered in any patient with a lesion in a presumed...
peri-eloquent or eloquent brain region.

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