Non-Invasive Brain Stimulation Techniques for the Treatment of the Behavioural and Psychological Symptoms of Severe Dementia: Clinical Effectiveness
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Research Question

What is the clinical effectiveness of non-invasive brain stimulation techniques for the behavioural and psychological symptoms of dementia?

Key Findings

Ten systematic reviews (seven with meta-analyses), eight randomized controlled trials, and five non-randomized studies were identified regarding non-invasive brain stimulation techniques for the treatment of the behavioural and psychological symptoms of severe dementia.

Methods

A limited literature search was conducted on key resources including PubMed, The Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. Methodological filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, and non-randomized studies. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2014 and April 15, 2019. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

| Population | Older adults with behavioural and psychological symptoms of dementia (all forms of dementia, including Alzheimer disease, Lewy body dementia, Parkinson's dementia, etc.) Possible subgroups: 65 to 79; 80 years and older |
| Intervention | Emerging non-invasive brain stimulation techniques (such as repetitive transcranial magnetic stimulation (rTMS), magnetic seizure therapy (MST), theta burst stimulation (sometimes called intermittent transcranial brain stimulation (iTBS)), transcranial direct current stimulation, transcranial alternating current stimulation, non-invasive vagal nerve stimulation, cranial electrostimulation) |
| Comparators | Usual Care Any therapeutic intervention (e.g., antipsychotic drugs; physical restraints; environmental and behavioural therapies); Sham stimulation Before and after |
| Outcomes | Clinical effectiveness in reducing behavioural and psychological symptoms of dementia (e.g. agitation, aggression, confusion, insomnia, anxiety, psychomotor agitation, depression, cognitive function, mood); Safety |
| Study Designs | Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies |
Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, economic evaluations, and evidence-based guidelines.

Ten systematic reviews (seven with meta-analyses), eight randomized controlled trials, and five non-randomized studies were identified regarding non-invasive brain stimulation techniques for the treatment of the behavioural and psychological symptoms of severe dementia. No relevant health technology assessments were identified regarding non-invasive brain stimulation techniques for the treatment of the behavioural and psychological symptoms of severe dementia.

Additional references of potential interest are provided in the appendix.

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses


Randomized Controlled Trials


Non-Randomized Studies


Safety Studies

Appendix — Further Information

Randomized-Controlled Trials

Alternative Population


Alternative Outcome


Protocol Papers


Non-Randomized Studies - Alternative Population


Review Articles

