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Safety and Efficacy of Transcranial Magnetic Stimulation (TMS) and Repetitive Transcranial Magnetic Stimulation (rTMS) in Treatment of Major Depressive Disorder: Systematic Reviews and Meta-Analysis

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Review Article

Abstract

Background: Prevalence of major depressive disorder allocated significant contribution of disease burden in developed and developing countries because of involving active and productive age groups and communities in recent decades. Different methods are used to manage and treat this disorder that one of them is Transcranial Magnetic Stimulation (TMS). The purpose of this study was assessment of safety, effectiveness and cost-effectiveness of Transcranial Magnetic Stimulation and Repetitive Transcranial Magnetic Stimulation (rTMS) technology in treatment of major depressive disorder.

Methods: In order to gather evidence, main databases [Cochrane Library, Centre for Reviews and Dissemination (CRD), PubMed, Scopus, Trip, Embase, Inahta, PsycINFO, Google Scholar] were searched with appropriate keywords and strategies. After quality assessment of studies, consequences of safety and efficacy of the technology were extracted and Stata 12 software was used, if needed, for meta-analysis.

Findings: From a total of 273 studies, 43 studies were entered firstly and 8 studies were selected after final review. The amount of standardised mean difference (SMD) was equal to -0.3 with a %95 confidence interval of -0.82 to 0.23 for rTMS-treated group versus sham group with a substantial rate and significant heterogeneity ($P < 0.001$, I-Squared = 81.9%).

Conclusion: Repetitive Transcranial Magnetic Stimulation is a method with significant and high safety. On other side, its efficacy, compared to sham group, is not very significant.

Keywords: Major Depression, Repetitive Transcranial Magnetic Stimulation (rTMS), Safety, Efficacy

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