A systematic review of the clinical relevance of repetitive transcranial magnetic stimulation.

Repetitive transcranial magnetic stimulation (rTMS) is an approved treatment for depression. The clinical relevance of its efficacy is unclear. The clinical relevance of findings in the rTMS literature was assessed by translating Hamilton Depression Rating Scale (HAMD) data into Clinical Global Impression-Improvement scale (CGI-I) scores. We performed electronic searches of MEDLINE, Embase, PsycINFO, PubMed and Cochrane Central Register of Controlled Trials for RCTs and non-RCT trials on rTMS using Hamilton Depression Rating Scale (HAMD). Articles were included if published in English before January 2014. We translated HAMD scores into nominal CGI-I scores for rTMS for depression and for treatment-resistant depression (TRD). About 960 abstracts were retrieved. Sixty-three studies were included, yielding 130 study arms. For depression, the mean percentage change in HAMD scores in all sham-controlled rTMS treatment arms was 35.63 (SD 16.35) and for sham-rTMS 23.33 (SD 16.51). For TRD, active rTMS in sham-controlled studies showed a mean HAMD percentage reduction of 45.21 (SD 10.94) versus 25.04 (SD 17.55) for sham-rTMS. When aggregated scores were translated into notional CGI-I scores, for the treatment of depression, the notional CGI-I score difference between rTMS and sham-rTMS was 0.5 in favour of rTMS; for TRD, it was 0.75 in favour of
rTMS. Differences between rTMS and sham-rTMS were bigger when all study arms were combined. Whilst rTMS appears to be efficacious for both non-refractory and treatment-resistant depression, the clinical relevance of its efficacy is doubtful.