Motor cortex excitability in attention-deficit hyperactivity disorder (ADHD): A systematic review and meta-analysis.

Dutra TG, Baltar A, Monte-Silva KK.


Abstract

BACKGROUND:
The core characteristic of attention deficit hyperactivity disorder (ADHD) is a persistent pattern of inattention and/or hyperactivity-impulsivity that causes developmental or functional impairment. Observational studies have investigated neurophysiological features in individuals with ADHD using transcranial magnetic stimulation (TMS) to identify which intracortical mechanisms are associated with the symptoms. This systematic review aimed to assess the quality of these studies and present meta-analyses of the available neurophysiological measures.

METHODS:
This systematic review searched the PubMed, Scopus, Web of Science, with no date restrictions. The methodological quality of observational studies was assessed utilizing the Agency for Healthcare Research and Quality (AHRQ) criteria for observational studies. The analysis of the mean and standard deviation of the neurophysiological measurements was performed using the RevMan software version 5.0 for the meta-analyses of studies.

RESULTS:
Nine publications that met the inclusion criteria were evaluated. Most of the AHRQ criteria were satisfied, indicating the good quality of the studies. On comparing subjects with ADHD and controls, the forest plot profiles were similar in respect to the resting motor threshold (RMT), and silent period (SP) but a significant difference was found for short intracortical inhibition (SICI).

CONCLUSION:
This meta-analysis found reduced SICI in individuals with ADHD, when compared with controls. Given the small number of studies, it is important that further studies be conducted for a more robust conclusion to be formed.