Electrophysiological correlates of reading in children with attention deficit hyperactivity disorder.

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Abstract

AIMS:
To investigate whether or not the deficits in executive functions in the attention deficit hyperactivity disorder (ADHD) affect reading comprehension and identify a potential biological marker of this neuropsychological endophenotype through event-related potentials (ERP). The phenotypic association between reading comprehension and the specific functions of inhibition and working memory is studied.

SUBJECTS AND METHODS:
The sample consisted of 52 children with ADHD (8-13 years) divided in two groups according to the presence (TDAH-; n = 27; percentile < 30) or the absence (TDAH+; n = 25; percentile > 50) of reading comprehension deficits and a control group (n = 27). The executive functions were evaluated. The ERPs were assessed during a task in which anaphoric sentences of different lengths were presented, recording the ERP in the last adjective of the sentence that required a gender agreement.

RESULTS:
Working memory and inhibition were associated to reading comprehension performance. The ADHD+ group and the control group seem to detect the disagreement at 100 ms, while the ADHD- group does not activate its working memory until 250 ms.

CONCLUSIONS:
The delay in the implementation of the working memory mechanisms helps us to understand the deficits in reading comprehension of the ADHD- group.