

ABSTRACT

The cognitive energetic theory proposes that ADHD children show impairments in their state regulation which affect their phasic responding and physiological tonic readiness to respond. Impaired readiness to respond in ADHD children was evidenced by their poorer behavioral and physiological performances on the vigilance task in comparison to normal children. It was postulated that the revised instructions would facilitate arousal regulation and enhance the performances of children with ADHD. This hypothesis gained preliminary support in a pilot study using CPT-AX (Yang, 2009), in which ADHD children showed normalization in both behavioral performance and parietal P300 component in comparison to the conventional instructions. Our current study aims to modify the paradigm design of the pilot study to improve the insufficient number of trials for ERP analysis. Seven children with and without ADHD undertook the CPT-AX while electroencephalographic (EEG) data were obtained. In terms of behavioral results, the current study reproduced the results of the pilot study. In terms of electrophysiological results, shortening the inter-stimulus interval in the present study was successful in increasing the number of trials for ERP analysis, however, the results were inconsistent with the pilot study. Due to the pilot nature of our study, further investigations need to be done to verify the effect of instructions on the performances of children with ADHD. Strengths and challenges related to the current experimental paradigm were presented in the discussion section.