Altered event-related potentials in adults with ADHD during emotional faces processing

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Clinical Neurophysiology, Available online 27 June 2014, ISSN 1388-2457
http://dx.doi.org/10.1016/j.clinph.2014.06.023.

Objective
This study investigated behavioral and neural correlates of emotional processing in adults with ADHD using scalp-recorded Event-Related Potentials (ERPs).

Methods
We used a visual-emotional oddball paradigm, in which subjects were confronted with neutral and emotional faces (happy and angry). Responses to target and non-target stimuli were compared across groups of 17 adults with ADHD and 20 control subjects.

Results
Participants with ADHD had slower RTs than controls in response to happy but not to angry faces. ADHD participants, but not controls, responded faster to angry than to happy faces. ERP results indicated that Group significantly interacted with the type of facial expression. P1 was significantly increased for the ADHD group compared with controls, but only to emotional (and not to neutral) faces. In the ADHD group, but not in controls, P1 was greater in response to emotional compared with neutral faces. N170 was more pronounced to angry than to happy faces in the ADHD group, while in the control group N170 was more pronounced to happy than to angry faces. Participants with ADHD showed a pronounced reduction in P3 to both emotional and neutral faces.

Conclusions
The current results provide indication of altered behavioral responses as well as altered P1, N170 and P3 to emotional faces in adults with ADHD compared with healthy controls.

Significance
Behavioral and brain function measures of emotion processing may provide valuable additional tools for clinical assessment of ADHD in adulthood.