Abstract

AIM:
Findings on neurophysiological alterations in attention-deficit/hyperactivity disorder (ADHD) have been proposed to underlie ADHD symptoms, with different etiological pathways for different patient biotypes. We aimed at determining whether neurophysiological deviations confirm distinct neurophysiological profiles in ADHD, thus providing direct evidence for the endophenotype concept.

METHODS:
Neurophysiological biotypes were investigated in 87 adult patients with ADHD using cluster analysis. Parameters fed into the analysis comprised both hemodynamic and electrophysiological data. To validate results, the independent variables of the clusters were compared with healthy controls.

RESULTS:
Cluster analysis yielded three neurophysiologically based ADHD biotypes showing 1) above-average functioning in attention allocation, 2) difficulties in attention allocation and inhibitory control but elevated frontal activation during a working memory task, and 3) functional impairments in state-regulation.

CONCLUSION:
Classifying patients with ADHD into neurophysiological biotypes sheds light on etiological pathways, with implications for diagnostics and (individualized) treatment options.