P01-06

FRONTO-STRIATAL BRAIN DYSFUNCTION IN ADULTS WITH HYPERACTIVE/INATTENTIVE BEHAVIOURS FOLLOWED UP FROM CHILDHOOD IN TASKS OF MOTOR INHIBITION AND COGNITIVE FLEXIBILITY

A. Cubillo[1], R. Halari[1], E. Taylor[1], K. Rubia[1], V. Giampietro[2]

[1]Department of Child Psychiatry, Institute of Psychiatry, King's College, London, [2]Brain Image Analysis Unit, Institute of Psychiatry, King's College, London, UK

Attention Deficit Hyperactivity Disorder (ADHD) in children has been associated with functional abnormalities in fronto-striatal brain regions during tasks of inhibitory control. In adults with ADHD, however, no functional magnetic resonance imaging (fMRI) study has investigated the neurofunctional correlates of the most compromised cognitive functions of motor response inhibition or cognitive flexibility.

fMRI was used combined with a tracking Stop task of motor response inhibition and a cognitive Switch task to compare brain function between 11 medication-naïve adults (26-30 yrs) with inattentive/hyperactive behaviours and 14 age-matched healthy controls. Patients were followed up from childhood ADHD, recruited from a 20-year prospective longitudinal epidemiological study. All met criteria for inattentive/hyperactive behaviours on an Adult Hyperactive Interview, but only 8 met clinical diagnostic criteria for ADHD. Whole brain regression MR analyses were furthermore conducted within patients to correlate symptoms with brain activation. Functional connectivity analyses for group differences in fronto-striatal connectivity will be presented at the conference.

Despite comparable task performance, adults with persistent inattentive/hyperactive behaviours showed reduced activation compared to controls in inferior prefrontal cortex, caudate and thalamus during both tasks, as well as in parietal lobes during the Switch task. Regression analyses furthermore showed a linear negative correlation between behavioural symptoms and overlapping, but more extensive fronto-striatal, parietal and cerebellar brain dysfunction. The findings demonstrate for the first time the persistence of the typical childhood ADHD pattern of fronto-striatal dysfunction during tasks of cognitive control in adults with persisting behavioural symptoms, suggesting stability/continuity of neurofunctional abnormalities between childhood and early adulthood.

https://doi.org/10.1016/S0924-9338(09)70627-3 Published online by Cambridge University Press