P02-350

FUNCTIONAL BRAIN CONNECTIVITY AND DEACTIVATION IN NEW ONSET SCHIZOPHRENIA: A PILOT STUDY

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Background/ introduction: There has been previous evidence of aberrant functional connectivity in the so-called “default-mode” network (DMN) in patients with schizophrenia.
Objective: The purpose of this study was to test whether such aberrant connectivity, if existent, can be modulated by a task involving the challenge of attention, working memory and executive functioning.
Methods: A functional magnetic resonance imaging (fMRI) experiment alternating between periods of “rest” and periods of visual stimulation with successive series of pictures extracted from the Wechsler Adult Intelligence Scale-III was carried out in seven patients with new onset schizophrenia according to the DSM-IV criteria and in six healthy control subjects matched for sex, age, and education. The DMN was extracted by using independent component analysis (ICA). The degree of deactivation during periods of stimulation was tested by means of a correlation analysis. To determine the existence of differences in deactivation between patients and controls, we used a non-parametric statistical test.
Results: An overall increased activation of the DMN in patients with schizophrenia relative to control subjects seems to occur. There was also an almost significant difference in the degree of deactivation between the two groups (controls>patients, $p=0.05$).
Conclusions: Aberrant connectivity of the DMN is indeed a consistent feature in schizophrenia. An altered deactivation of the DMN during a highly demanding task in patients with schizophrenia confirms previous results suggesting an abnormal behaviour of networks in the transition from “rest” to goal-directed activity.

https://doi.org/10.1016/S0924-9338(11)72651-7 Published online by Cambridge University Press