P01-175

META-ANALYSIS OF MAGNETIC RESONANCE IMAGING STUDIES IN BIPOLAR DISORDER AND SCHIZOPHRENIA

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Introduction: Several MRI studies have identified structural abnormalities in association with bipolar disorder. The literature is however heterogeneous and there is remaining uncertainty about the brain areas pivotal to the pathogenesis of the condition. The aim of this study was to identify, appraise and summarise volumetric MRI studies of brain regions comparing bipolar disorder with an unrelated control group and/or patients with schizophrenia.

Methods: A systematic review and random-effects meta-analysis was carried out to identify key areas of structural abnormality in bipolar disorder and whether the pattern of affected areas separated bipolar disorder from schizophrenia. Excessive variability was explored using meta-regression analyses.

Results: Seventy two reports met inclusion criteria. Subjects with bipolar disorder showed significant whole brain and prefrontal lobe volume reductions, and also increases in the volume of the globus pallidus. Enlargement of the lateral ventricles in bipolar disorder was confirmed, although the magnitude of enlargement was smaller than in schizophrenia. Subjects with schizophrenia, but not bipolar disorder, showed significant reductions in right amygdala volumes. Heterogeneity was statistically significant for many of the analyses and could amongst others be explained by age, duration of illness and year of publication.

Conclusion: There appear to be robust changes in brain volume in bipolar disorder compared with healthy volunteers. Age and duration of illness appear to be key issues in determining the magnitude of observed effect sizes.

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