

S34-02 - HERITABILITY OF CORTICAL THICKNESS CHANGE OVER TIME IN SCHIZOPHRENIA PATIENTS AND THEIR DISCORDANT CO-TWINS

N. van Haren, R. Brans, C. van Baal, H. Schnack, R. Kahn, H. Hulshoff Pol

University Medical Centre Utrecht, Department of Psychiatry, Rudolf Magnus Institute of Neuroscience, Utrecht, The Netherlands

Introduction: Structural brain abnormalities have consistently been found in schizophrenia, with increased familial risk for the disease associated with these abnormalities. Some brain volume changes are progressive over the course of the illness.

Objective: To investigate whether these progressive brain volume changes are mediated by genetic or disease-related factors.

Methods: We carried out a 5-year follow-up study in monozygotic (MZ) and dizygotic (DZ) twin pairs discordant for schizophrenia (DISC) and healthy comparison (HC) twin pairs using brain magnetic resonance imaging. A total of 92 participants completed the study (DISC: 9 MZ and 10 DZ; HC: 14 MZ and 13 DZ). Percentage volume changes of the whole brain and cerebral gray and white matter were estimated. Structural equation modeling was applied to estimate contributions of additive genetic and common and unique environmental factors.

Results: Significant decreases over time in whole brain volume was found in patients with schizophrenia and their unaffected co-twins compared with control twins. Bivariate structural equation modeling using cross-trait/cross-twin correlations revealed significant additive genetic influences on the correlations between schizophrenia liability and progressive whole brain (66%; 95% confidence interval [CI], 51%-100%), frontal lobe (76%; 95% CI, 54%-100%), and temporal lobe (79%; CI, 56%-100%) volume change.

Conclusions: The progressive brain volume loss found in patients with schizophrenia and their unaffected co-twins is at least partly attributable to genetic factors related to the illness.