

S34-04 - GENETIC AND NON-GENETIC INFLUENCES ON BRAIN FUNCTION IN SCHIZOPHRENIA: AN FMRI STUDY IN TWINS

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Introduction: Altered neurocognitive function in schizophrenia could reflect both genetic and illness-specific effects.

Objectives: To use functional magnetic resonance imaging to discriminate between the influences of the genetic risk for schizophrenia and environmental factors on the neural substrate of verbal fluency, a candidate schizophrenia endophenotype using a case control twin design.

Methods: We studied 23 monozygotic twin pairs: 13 pairs discordant for schizophrenia and 10 pairs of healthy volunteer twins. Groups were matched for age, gender, handedness, level of education, parental socio-economic status, and ethnicity. Behavioural performance and regional brain activation during a phonological verbal fluency task were assessed.

Results: Relative to healthy control twins, both patients and their non-psychotic co-twins produced fewer correct responses and showed less activation in the medial temporal region and inferior frontal gyrus. Twins with schizophrenia showed greater activation than both their non-psychotic co-twins and controls in right lateral temporal cortex, reflecting reduced deactivation during word generation while their non-psychotic co-twins showed greater activation in the left temporal cortex.

Conclusions: Both genetic vulnerability to schizophrenia and schizophrenia were associated with impaired verbal fluency performance, reduced engagement of the medial temporal region and dorsal inferior frontal gyrus. Schizophrenia was specifically associated with an additional reduction in deactivation in the right temporal cortex.