

## S34-01 - GRAY MATTER VOLUME IN MONOZYGOTIC TWINS CONCORDANT AND DISCORDANT FOR SCHIZOPHRENIA

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**Introduction:** Alterations in gray matter volume (GMV) are a robust feature of schizophrenia. However, it is not clear to what extent these abnormalities are correlates of the genetic liability to the disorder, as opposed to environmental factors and the disorder itself.

**Objectives:** We investigated the influence of genetic risk and illness on GMV in monozygotic (MZ) twin pairs concordant and discordant for schizophrenia.

**Method:** Total and regional GMVs were measured from magnetic resonance images of 80 twins: 14 MZ pairs concordant for schizophrenia, 9 pairs discordant for schizophrenia, and 17 healthy MZ twin pairs. The three groups were matched for age, gender, handedness, level of education, parental socioeconomic status, and ethnicity.

**Results:** Total GMV was smaller in twins with schizophrenia ( $t=-3.17$ ,  $p=0.003$ ) and non-psychotic co-twins from discordant pairs ( $t=-2.66$ ,  $p=0.011$ ) than in healthy control twins. Twin pairs concordant for schizophrenia displayed reduced regional GMV in the inferior frontal, medial frontal, and anterior cingulate gyri, the caudate, lingual gyrus and cerebellum relative to healthy twins ( $p<0.05$ , corrected). Within discordant pairs, twins with schizophrenia had less GMV than their non-psychotic co-twins in the insula, superior/medial frontal, pre/postcentral, cingulate and superior temporal gyri, and the paracentral lobule. There were no significant differences in regional GMV between non-psychotic co-twins and healthy controls.

**Conclusions:** The presence of schizophrenia was specifically related to reduced GMV in frontal, insular, cingulate, medial parietal and temporal cortex, over and above effects of genetic risk for the disorder.