

Structural Brain Changes in First Episode Psychosis - a Longitudinal Mri Study

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Background: First-episode psychosis (FEP) patients show structural brain abnormalities. Whether the changes are progressive or not remain under debate, and the results from longitudinal magnetic resonance imaging (MRI) studies are mixed. We investigated if FEP patients showed a different pattern of regional brain structural change over a one-year period compared to healthy controls, and if putative changes correlated with clinical characteristics and outcome.

Methods: MRIs of 79 FEP (SCID-I verified diagnoses: schizophrenia, psychotic bipolar disorder, or other psychoses, mean age 27.6 (SD 7.7), 66% male) and 82 healthy controls (age 29.3 (SD 7.2) 66% male) were acquired from the same 1.5T scanner at baseline and one-year follow up as part of the TOP study, Oslo, Norway. Scans were automatically processed with the longitudinal stream in FreeSurfer. General linear models were used to analyze longitudinal change in a wide range of subcortical volumes and detailed thickness and surface area estimates across the entire cortex, and associations to clinical characteristics.

Results: FEP and controls did not differ significantly in annual percentage change in cortical thickness or area in any cortical region, or in any of the subcortical structures after adjustment for multiple comparisons. Within the FEP group, duration of untreated psychosis, age at illness onset, antipsychotic medication use, and remission at follow-up were not related to longitudinal brain change.

Conclusion: We found no longitudinal brain changes over a one-year period in FEP compared to controls. Our results do not support early progressive brain changes in psychotic disorders.