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# Progressive brain volume changes in the first year of illness predict five-year outcome of schizophrenia

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## Introduction

In first-episode schizophrenia progressive brain volume changes have been found after the first year of the illness. This study examined associations between early progressive brain volume changes and five-year outcome in schizophrenia.

## Method

Thirty-one first-episode patients with schizophrenia were included in this longitudinal study. MRI brain scans were obtained at inclusion (T0) and after 1-year (T1). Intracranial, total brain, cerebral gray and white matter, cerebellar, lateral and third ventricle volumes were measured. After a follow-up period of 5.3 (SD = 0.8) years global outcome was measured with the Camberwell Assessment of Need (CAN) and clinical outcome was measured with the Positive and Negative Syndrome Scale (PANSS). To examine associations between early progressive brain volume changes (T1 minus T0) and five-year outcome Pearson product-moment correlations were performed with intracranial volume and age as covariates.

## Results

Total brain volume decreases over the first year correlated significantly with negative symptoms ($r = -0.38$, $df = 27$, $p = 0.04$) at five year follow-up. Gray matter volume decreases correlated significantly with positive symptoms ($r = -0.40$, $df = 27$, $p = 0.03$) and negative symptoms ($r = -0.54$, $df = 27$, $p = 0.002$). Lateral ventricle volume increases correlated significantly with the total score of the CAN ($r = 0.54$, $df = 27$, $p = 0.003$).

## Conclusion

These findings suggest that medium-term symptomatic and global outcome is predicted respectively by early gray matter loss and lateral ventricular enlargement. It furthermore underscores the importance examining dynamic rather than static changes in brain structures in relation to predicting outcome of schizophrenia.