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Long-term Antipsychotic Treatment, Brain Volumes and Clinical Outcomes of Midlife Schizophrenia in the Northern Finland 1966 Birth Cohort

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Objectives: Midlife progression of schizophrenia shows evidence of longitudinal brain volume decrease and heterogeneous outcomes.

Aims. We analyzed the relation between brain volume changes, lifetime antipsychotic medication and clinical outcomes.

Methods: Psychotic members (n= 41) and non-psychotic controls (n=75) of the Northern Finland 1966 Birth Cohort were invited for a MRI brain scan and clinical and cognitive assessment at the age of 34 years (mean 10 years after onset of illness). A follow-up was 9 years later at age 43.

Results: Clinical outcomes were heterogeneous and generally poor: 10% were recovered. The mean annual whole brain volume reduction was 0.69% in schizophrenia and 0.49 % in controls, especially in temporal lobe and periventricular area. Symptom severity, functioning level, and decline in cognition were generally not associated with volume reduction. However, decline in social and occupational function was associated with supramarginal gyrus reduction and was independent from antipsychotics exposure. Larger amount of antipsychotics over the follow-up associated significantly with larger brain volume loss. Higher doses of lifetime antipsychotic medication were associated to larger decrease of verbal learning change in a 9-year follow-up.

Conclusions: Brain volume and verbal learning reduction occurs in schizophrenia long after the onset of illness. Antipsychotics may contribute to these reductions. We do not know the real effectiveness and benefits/risks of antipsychotic drugs in schizophrenia from longitudinal and lifespan view. New data does not change current care guidelines but may expand clinical decision making into lower doses, even medication discontinuation in selected groups, and biopsychosocial care.