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Cytokine abnormalities, inflammation and psychosis in the Northern Finland 1966 Birth Cohort

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Cytokines are regulators of inflammation that exert effects in the periphery and the brain. Interleukin-6 (IL-6) is a cytokine produced by leukocytes, and CNS microglia and astrocytes. Converging evidence suggests that IL-6 may play a role in the pathophysiology of schizophrenia. Previous studies have found that IL-6 levels have been associated with smaller left hippocampal volume and greater cognitive impairment in patients with schizophrenia. We will perform a case-control study of blood IL-6 levels, and longitudinal changes in cognition and hippocampal volume in subjects from the Northern Finland 1966 Birth Cohort. In n=33 patients with schizophrenia and =71 controls, blood IL-6 levels were measured at age 31, and MRI scans and cognitive assessments were completed at ages 34 and 43. We will test hypotheses that 1) at age 31, patients with schizophrenia have higher blood IL-6 levels than controls, controlling for multiple potential confounding factors, and 2) within schizophrenia, a) higher IL-6 levels at age 31 are associated with greater impairments in verbal learning and memory and smaller hippocampal gray matter volume at age 34, and b) higher IL-6 levels predict greater cognitive decline and reduction in hippocampal volumes over follow-up from age 34 to 43. Schizophrenia is also associated with impaired cognition, which persists despite current treatments, and is an important determinant of quality of life and overall function. This study will improve our understanding of the complex interactions between the immune system and the brain, including a core dimension of psychopathology for which available pharmacologic treatments are inadequate.

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