MDedge Psychiatry

Cortical surface changes tied to risk for movement disorders in schizophrenia

Publish date: June 21, 2021

By Heidi Splete

Clinical Psychiatry News

FROM SCHIZOPHRENIA RESEARCH

Schizophrenia patients with parkinsonism show distinctive patterns of cortical surface markers, compared with schizophrenia patients without parkinsonism and healthy controls, results of a multimodal magnetic resonance imaging study suggest.

Dr. Robert Christian Wolf

Sensorimotor abnormalities are common in schizophrenia patients, however, “the neurobiological mechanisms underlying parkinsonism in [schizophrenia], which in treated samples represents the unity of interplay between spontaneous and antipsychotic drug-exacerbated movement disorder, are poorly understood,” wrote Robert Christian Wolf, MD, of Heidelberg (Germany) University, and colleagues.

In a study published in Schizophrenia Research (2021 May;231:54-60) <https://www.sciencedirect.com/science/article/abs/pii/S0920996421001237?via%3Dihub> , the investigators examined brain imaging findings from 20 healthy controls, 38 schizophrenia patients with parkinsonism (SZ-P), and 35 schizophrenia patients without parkinsonism (SZ-nonP). Dr. Wolf and colleagues examined three cortical surface markers: cortical thickness, complexity of cortical folding, and sulcus depth.

Compared with SZ-nonP patients, the SZ-P patients showed significantly increased complexity of cortical folding in the left supplementary motor cortex (SMC) and significantly decreased left postcentral sulcus (PCS) depth. In addition,

In a regression analysis, the researchers examined relationships between parkinsonism severity and brain structure. They found that parkinsonism severity was negatively associated with left middle frontal complexity of cortical folding and left anterior cingulate cortex cortical thickness.

“Overall, the data support the notion that cortical features of distinct neurodevelopmental origin, particularly cortical folding indices such as [complexity of cortical folding] and sulcus depth, contribute to the pathogenesis of parkinsonism in SZ,” the researchers wrote.

The study findings were limited by several factors, including the cross-sectional design, the potential limitations of the Simpson-Angus Scale <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC555761/> in characterizing parkinsonism, the inability to record lifetime antibiotics exposure in the patient population, and the inability to identify changes in brain stem nuclei, the researchers noted. However, the results were strengthened by the well-matched study groups and use of multimodal MRI, they said.

Consequently, “these data provide novel insights into different trajectories of cortical development in SZ patients evidencing parkinsonism,” and suggest a link between abnormal neurodevelopmental processes and an increased risk for movement disorders in schizophrenia, they concluded.

The study was funded by the German Research Foundation and the German Federal Ministry of Education and Research. Dr. Wolf and colleagues disclosed no conflicts.