Workshop: brain changes in early onset psychosis

W020

Structural brain abnormalities in early onset psychosis: results from the norment eop cohort

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Introduction Cortical brain abnormalities are frequently observed in adults with psychotic disorders, but few studies have investigated adolescents with early-onset psychosis (EOP). A previous magnetic resonance imaging (MRI) study from the NORMENT group in Norway, found widespread cortical thinning and smaller subcortical volumes in adult patients with psychotic disorders, particularly schizophrenia, compared to healthy controls.
Methods Participants from the ongoing NORMENT adolescent EOP-study, 30 patients (age: 13.3–18.3 years, mean age: 16.5, 66% female) and 45 healthy adolescents (age: 13.6–18.8 years, mean age: 16.2, 58% female), underwent 3 T MRI on the same scanner. Surface-based morphometric analyses were performed using FreeSurfer version 5.3.0. Group differences in vertex-wise cortical volume, thickness and surface area were investigated by fitting general linear models at each vertex on the surface. Age, sex and group were entered as covariates, and a non-parametric cluster-wise correction method for multiple comparisons was applied and cluster-forming and cluster-wise threshold set at 0.05.
Results Preliminary results show thinner cortex in the left medial frontal lobe and smaller surface area in the left temporoparietal junction in EOP patients compared to healthy controls after correction for multiple comparisons.
Conclusion Surface-based analysis is sensitive to alterations in cortical morphology in an adolescent EOP sample. The regions exhibiting reduced cortical thickness and area in EOP overlap with findings in an adult psychosis sample. Large-scale studies are warranted to better identify the pattern of abnormalities and clarify effects of age, diagnosis and medication.
Disclosure of interest The authors have not supplied their declaration of competing interest.

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W021

Frontostriatal dysconnectivity in adolescent onset schizophrenia and its associations with cognition: An MRI volumetric and diffusion tensor imaging study

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Background Adolescent-onset schizophrenia (AOS) is associated with cognitive impairment and poor clinical outcome. Cognitive dysfunction is thought to reflect functional dysconnectivity between the frontal cortex and the striatum, Previous work [1] has shown frontostriatal dysconnectivity in large WM tracts explain core cognitive deficits, with processing speed, which is affected by alterations in WM connectivity, being an intermediary variable.
Objective To undertake a follow-up MRI study using whole-brain structural connectomics to track topological changes in the follow-up (1st episode versus follow-up), in order to characterize the early stages (evolution of the first two years) of the disorder.
Design A follow-up study of 25 AOS subjects and 25 age and sex-matched healthy subjects.
Outcome Network theory will be applied to identify topological alterations in structural networks, including frontostriatal white matter (WM) tracts in relation to cognition and outcome measures.
Disclosure of interest The authors have not supplied their declaration of competing interest.
Reference

[1] James A, Joyce E, Lunn D, Hough M, Kenny L, Ghataorhe P, et al. Abnormal frontostriatal connectivity in adolescent-onset schizophrenia and its relationship to cognitive functioning. Eur Psychiatry 2016;35:32–8.

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W022

Auditory cortex characteristics in early onset psychosis and its associations with auditory hallucinations: A structural MRI Study

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Introduction Smaller auditory cortex volume in schizophrenia patients with auditory hallucinations (AH) may be a result of reduced cortical surface area and/or cortical thickness. A neuro–imaging study from our group demonstrated that adult schizophrenia spectrum patients with AH had significantly thinner cortex in the left side Heschl's gyrus (HG), compared to patients without AH, and healthy controls (HC).
Objectives This study aims to investigate if adolescents with early-onset psychosis (EOP) and AH demonstrate thinner cortices in HG, as found in Mørch-Johnsen et al. in 2016, compared to EOP patients without AH, and HC.
Methods EOP patients (schizophrenia spectrum, psychotic disorder not otherwise specified) ($n = 29$) underwent MRI. Mean volume, cortical thickness and surface area in auditory cortex regions (HG, superior temporal gyrus [STG]) were compared between patients with AH ($n = 20$) and without AH ($n = 9$), measured with item P3 from the Positive And Negative Syndrome Scale (PANSS), and 48 HC.
Results Preliminary results show no significant differences between patients with and without AH and HC in mean volume, cortical thickness, or surface area in HG or STG. There were no significant side differences across hemispheres for these structures.
Conclusions AH in EOP were not related to smaller volume, thinner cortex or reduced surface area in auditory cortex regions. To overcome the limitation of having a relatively small sample size, the sample will be expanded with other EOP cohorts. Investigations into HG structure variation in relation to AH in EOP will also be conducted.
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