Article: 0297
Topic: EPO02 - e-Poster Oral 02: Cultural Psychiatry, Epidemiology and Social Psychiatry, Forensic Psychiatry and Neuroimaging

Gray Matter Reductions in Cortical Midline Structures Related to Basic Self Disturbances in People at "ultra High Risk" for Psychosis

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Introduction: Basic Self disturbances (BSD), including changes of the 'pre-reflexive' sense of self and the loss first-person perspective, are characteristic of the schizophrenic spectrum disorders and highly prevalent in subjects at 'ultra high risk' for psychosis (UHR). The current literature indicates that cortical midline structures (CMS) may be implicated in the neurobiological substrates of the 'basic self' in healthy controls.

Objectives: Neuroanatomical investigation of BSD in a UHR sample

Aims: To test the hypotheses :(i) UHR subjects have higher 'Examination of Anomalous Self Experience, EASE' scores as compared to controls, (ii) UHR subjects have neuroanatomical alterations as compared to controls in CMS, (iii) within UHR subjects, EASE scores are directly related to structural CMS alterations.

Methods: 32 HR subjects (27 antipsychotics-naïve) and 17 healthy controls (HC) were assessed with the 57-items semi-structured EASE interview. Voxel-Based Morphometry (VBM) was conducted in the same subjects, with a-priori Region of Interests (ROIs) defined in the CMS (anterior/posterior cingulate and medial-prefrontal cortex).

Results: Despite high variability in the HR group, the overall EASE score was higher (t-test <0.01, Cohen's *d* =2.91) in HR (mean=30.15, SD=16.46) as compared to HC group (mean=1.79, SD=2.83). UHR subjects had gray matter reduction in CMS as compared to HC ($p<0.05$ FWE-corrected). Across the whole sample, lower gray matter volume in the anterior cingulate was correlated with higher EASE scores ($p<0.05$).

Conclusions: This study provides preliminary evidence that gray matter reductions in the CMS are correlated with BSD in UHR people.

https://doi.org/10.1016/S0924-9338(15)30239-X Published online by Cambridge University Press