

targeting mitochondrial 18 kDa translocator protein (TSPO) to determine microglial activation and a T1 MRI scan to study structural brain characteristics including brain volume, cortical thickness, and hippocampal shape. **Results:** Using a vertex-wise analysis, we observed a significant microglial activation-by-diagnostic group interaction in morphological measures across the left hippocampus. We observed associations between microglial activation and outward and inward morphological alterations in the dorsal and ventro-medial portions of the left hippocampus, respectively. These associations were only observed in first-episode psychosis group. There was no association between [18F]FEPPA binding and other structural brain characteristics.

Discussion: Our results, for the first time, suggest a connection between microglial activation and morphological alterations in hippocampus of first-episode psychosis.

S170. AMYGDALA SUBNUCLEI VOLUMES IN FIRST-EPIISODE PSYCHOSIS: ASSOCIATION WITH CHILDHOOD ADVERSITY

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Background: The amygdala volume is reduced already in the first episode of psychosis. The amygdala is a key region in emotional processing, and its volume reduction has been associated with severity of childhood adversity in psychotic patients. Since the amygdala is comprised of separate subnuclei with distinct anatomy and function we wanted to study whether these effects are present in some subnuclei more than others in first episode of psychosis.

Methods: We studied amygdala subnuclei volumes in 68 first-episode psychosis (FEP) patients (mean age = 27.1 ± 6.2 , 35 females) and 65 healthy controls (mean 28.9 ± 6.5 , 33 females) randomly selected from the general population. Subjects underwent a T1-weighted MRI with 1mm isotropic resolution (Philips Ingenuity 3T). The subnuclei volumes were generated with a new automated algorithm in FreeSurfer. Childhood adversity was measured using the Trauma and Distress Scale Scores (TADS). Baseline group differences in the amygdala subnuclei volumes were tested using repeated measures general linear model. The analyses were restricted to the four largest subnuclei: the lateral, basal, accessory basal, and the corticoamygdaloid transition area with volumes > 100 mm³. There were no differences between hemispheres nor group by hemisphere interactions so left and right hemispheres were averaged. All group comparisons were corrected for age, sex, and total intracranial volume. Association between the volumes and the TADS scores in the FEP group were also corrected for cumulative exposure to antipsychotic medication.

Results: We found that amygdala subnuclei were smaller in the FEP patients than in the controls with regional specificity (subnucleus ROI*Group $p = 0.015$). In the FEP, the most robust reductions were in the lateral nucleus (Bonferroni corrected $p = 0.036$, $\beta = -64.15$). No statistically significant difference was observed in the basal nucleus, the accessory basal nucleus or the corticoamygdaloid transition area. The FEP patients had in average higher TADS total score (19.00 ± 13.56) compared to the HC (7.68 ± 7.07) ($p < 0.001$, $t = 5.84$).

We found that particularly the TADS physical abuse score (FEP(n)=63, HC(n)=59) associated significantly differently with some subnuclei in patients and control group (ROI*Group*Physical abuse $p = 0.016$). The difference was significant only in the lateral nucleus (Group*Physical abuse $p = 0.048$, $\beta = -34.97$). However, there was an overall nonsignificant trend of the negative association between lateral nucleus volume and all TADS scores in the FEP. Similar trend was not seen in the controls.

Discussion: We show that the amygdala subnuclei are differently affected already in the first episode of psychosis. Compared to the controls, the FEP patients had smaller lateral nucleus volume, but not basal, accessory basal nucleus or corticoamygdaloid transition area. The lateral nucleus volume was

also negatively associated with childhood traumatic experiences, particularly physical abuse in the FEP patients. These findings suggest the involvement of the lateral nucleus of amygdala in the association between childhood traumatic experiences and psychotic disorders. This is well in agreement with studies suggesting that the lateral nucleus of the amygdala is associated with fear learning, recovery from fear and regulation of fear expression.

S171. ALTERED WHITE MATTER CONNECTIVITY IN PATIENTS WITH SCHIZOPHRENIA USING PUBLIC NEUROIMAGING DATA FROM SCHIZCONNECT

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Background: Several studies have produced a large body of evidence for white matter abnormalities related to schizophrenia. The literature has yet to achieve a state of consistency and reproducibility, and reported low integrity of white matter tracts vary between studies. Whole brain image study with large sample size is needed to address this issue. We investigated white matter integrity in connections between regions of interests (ROI) in the same hemisphere in patients with schizophrenia and healthy controls with public neuroimaging data from SchizConnect (<http://schizconnect.org>).

Methods: A final data set was consisted of 129 healthy controls and 122 schizophrenia patients. For each diffusion weighted image (DWI), a two-tensor full-brain tractography was performed, and DWI images were parcellated by processing and registering the T1 images with FreeSurfer and the Advanced Normalization Tools. We extracted a total of 36 tracts in the both hemisphere connecting ROIs in the same hemisphere with white matter query language. We compared means of diffusion measures between patients and controls, and evaluated correlations with Letter-number sequencing (LNS) test, Vocabulary test, letter fluency test, category fluency test, and trails A of the Trail Making Test (TMT). The Benjamini-Hochberg procedure with false discovery rate (FDR) of 0.05 was used to correct for multiple comparisons.

Results: We found a significant RD and TR increase of the left thalamo-occipital tracts and the right uncinate fascicle (UF), and a significant RD increase of the right middle longitudinal fascicle (MDLF), and the right superior longitudinal fascicle (SLF) ii in schizophrenia. There were correlations between the TR in the left thalamo-occipital tracts and letter fluency test, and the RD in the right SLF ii and LNS test, which did not survive after correction for multiple comparisons.

Discussion: These results indicate widespread abnormalities of white matter fiber tracts in schizophrenia, contributing to the pathophysiology of schizophrenia.

S172. BRAIN METABOLITES AND THE RELATION WITH COGNITION AND PSYCHOTIC SYMPTOMS IN MEDICATION-FREE PSYCHOSIS AND CONTROLS: A PHARMACOLOGICAL MAGNETIC RESONANCE SPECTROSCOPY STUDY

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