specificity=86.9%) at the baseline and BAC of 79.7% (sensitivity=75.9%, specificity=83.6%) at the follow-up. In the NFBC 1966 schizophrenia patients, we found that SVM decision scores varied as a function of timepoint into the direction of more schizophrenia-likeness at the follow-up (paired T-test, Cohen's d=0.58, P=0.004). The same was not true in controls (Cohen's d=0.09, P=0.49). The SVM decision score difference*timepoint interaction related to the decrease of hippocampus and medial prefrontal cortex. The SVM models' performance was also validated at the two replication samples (BAC of 77.5% in the CNP and BAC of 69.1% in the NMorphCH). In the NFBC 1966 the strongest clinical variable correlating with the trajectory of SVM decision scores over the follow-up was poor performance in the California Verbal Learning Test. This finding was also replicated in the CNP dataset. Further, in the NFBC 1966, those schizophrenia patients with a low degree of SVM decision scores had a higher probability of being in remission, being able to work, and being without antipsychotic medication at the follow-up. The generalization of the SVM models to MDD was worse compared to schizophrenia classification (DeLong's tests for the two ROC curves: P<0.001).

Discussion: The degree of schizophrenia-related neurodiagnostic fingerprints appear to magnify over time in schizophrenia. By contrast, the discernibility of these fingerprints in controls does not change over time. This indicates that the NF captures some schizophrenia-related progressive neural changes, and not, e.g., normal aging-related brain volume loss. The fingerprints were also generalizable to other schizophrenia samples. Further, the fingerprints seem to have some disorder specificity as the SVM models do not generalize to depression. Lastly, it appears that a low degree of schizophrenia-related NF in schizophrenia might possess some value in predicting patients' future remission and recovery-related factors.

T158. NO ALTERATION OF PITUARY VOLUME IN PATIENTS WITH FIRST-EPISODE SCHIZPHRENIA BUT A TREND OF ENLARGEMENT IN NON-PSYCHOTIC FIRST-DEGREE RELATIVES

Min-yi Chu*[1], Simon S. Y. Lui[2], Karen S. Y. Hung[3], P. C. Sham[4], Henry K. F. Mak[4], Eric F. C. Cheung[3], Raymond C. K. Chan[5]
[1]Translational Neuropsychology and Applied Cognitive Neuroscience Laboratory, Shanghai Mental Health Centre, Shanghai Jiao Tong University School of Medicine; [2]Castle Peak Hospital, CAS Key Laboratory of Mental Health, Institute of Psychology, Chinese Academy of Sciences; [3]Castle Peak Hospital; [4]University of Hong Kong; [5]CAS Key Laboratory of Mental Health, Institute of Psychology, Chinese Academy of Sciences, Translational Neuropsychology and Applied Cognitive Neuroscience Laboratory, Shanghai Mental Health Centre, Shanghai Jiao Tong University School of Medicine

Background: There is growing evidence suggesting that the abnormal pituitary volume (PV) may be an essential deficit in schizophrenia spectrum disorders, and PV may change depending on the stage of the illness. However, previous studies assessing PV in schizophrenia spectrum disorders, especially in ultra-high risk individuals, were confounding. The present study aimed to assess whether there would be alteration of the PV in patients with first-episode schizophrenia and their non-affected first-degree relatives.

Methods: This study recruited 147 subjects, including subjects with 62 first-episode schizophrenia (31 man, 31 female), 25 non-psychotic first-degree relatives (11 male, 14 female), and 60 healthy controls (30 male, 30 female). All of them underwent a T1 weighted image magnetic resonance imaging using 3T MRI Scanner (Siemens, Germany). All volumes were examined with the 3D-Slicer 4.10.1 (Surgical Planning Laboratory, Brigham and Women's Hospital, USA; http://www. slicer.org/). The PV was traced in all coronal slices with well-defied boundaries (such as diaphragma sellae (superiorly), the sphenoid sinus (inferiorly), the cavernous sinuses(bilaterally)). The infundibular stalk was excluded while the bright posterior pituitary was included. All images were tranced manually by a trained rater who was blind to the participants' group assignment. In a random subset of 24 cases, both the inter-rater reliability (intraclass correlation coefficient r=0.916, p<0.001) and the intra-rater reliability (intraclass correlation coefficient r=0.924 p<0.001) were high. We conducted MANCOVA with gender, and whole brain volumes (WBV) as covariates to compare the PV among the groups.

Results: We found no significant differences in gender ratio, age, and WBV (p>0.05) among the three groups, but patients with first-episode schizophrenia showed shorter length of education than healthy controls (p<0.001). As expected, we found that male participants in general (Mean ± SD: 486.85 ± 100.24) exhibited a prominently smaller PV than female participants (Mean ± SD: 562.13 ± 102.90) after controlling for WBV (t=25.087, p<0.001). Findings from MANCOVA analysis showed that although first-episode schizophrenia patients (Mean ± SD: 523.81 ± 116.41) and healthy controls (Mean ± SD: 513.17 ± 103.57) showed no significant difference in PV (F=0.581, p=0.447), there was a trend of statistical significance in their non-psychotic first-degree relatives (Mean ± SD: 557.85 ± 93.58) compared with healthy controls (F=3.334, p=0.072). We also found a negative correlation between the duration of treatment and PV in female schizophrenia patients (r=-0.398, p=0.029), whose mean duration of treatment was 4.71 months (SD=2.18 months). No significant correlation was observed in male patients.

Discussion: Our findings found no alteration of PV in first-episode schizophrenia patients but a trend of enlargement was observed in their non-psychotic first-degree relatives. Moreover, female schizophrenia patients with longer duration of treatment exhibited smaller PV. These findings suggested that the enlarged PV might be an early detection signal for individuals with potentially high risk of developing into schizophrenia, and such an enlargement of PV might be responsive to antipsychotic medications.

T159. STRUCTURAL BRAIN ABNORMALITIES IN SCHIZOPHRENIA IN ADVERSE ENVIRONMENTS: EXAMINING THE EFFECT OF POVERTY AND VIOLENCE IN SIX LATIN AMERICAN CITIES

Nicolas Crossley*[1], Andre Zugman[2], Francisco Reyes-Madrigal[3], Leticia Czepielewski[4], Mariana Castro[5], Ana María Diaz-Zuluaga[6], Julián Pineda-Zapata[7], Ramiro Reckziegel[4], Ary Gadelha[2], Andrea Jackowski[2], Cristiano Noto[2], Luz Maria Alliende Serra[1], Bárbara Iruretagoyena[8], Tomas Ossandon[1], Juan Pablo Ramirez-Mahaluf[1], Carmen Paz Castañeda[8], Alfonso Gonzalez-Valderrama[8], Ruben Nachar[8], Pablo León-Ortiz[3], Juan Undurraga[8], Carlos Lopez-Jaramillo[6], Salvador M. Guinjoan[5], Clarissa Gama[4], Camilo de la Fuente-Sandoval[3], Rodrigo Bressan[2]
[1]P. Universidad Catolica de Chile; [2]Federal University of Sao Paulo; [3]Instituto Nacional de Neurología y Neurocirugía; [4]Federal University of Rio Grande do Sul; [5]FLENI - UBA - CONICET; [6]Universidad de Antioquia, Medellín; [7]Instituto de Alta Tecnología Médica; [8]Instituto Psiquiatrico Jose Horwitz Barak

Background: Social and environmental factors such as poverty or violence, modulate the risk and course of schizophrenia, but how they affect the brain in patients with psychosis remains unclear. We here studied how they

are related to brain structure in schizophrenia and healthy controls in Latin America, where these factors are large and unequally distributed.

Methods: This is an MRI multi-center study in patients with schizophrenia and healthy controls from six Latin American cities: Buenos Aires, Medellin, Mexico City, Santiago, Sao Paulo and Porto Alegre. Total and voxel-level gray matter volumes obtained from T1-weighted MRI images and their relationship with income and homicide rates were analyzed using a general linear model.

Results: 334 patients with schizophrenia and 262 controls were included. Income was differentially related to total gray matter volume in the two groups (P=0.006). Controls showed a positive correlation between total gray matter volume and income (R=0.14, P=0.02). Surprisingly, this relationship was not present in schizophrenia (R=-0.076, P=0.17). Voxel-level analysis confirmed that this interaction was widespread across the cortex. After adjusting for global brain changes, income was positively related to prefrontal cortex volumes only in controls. Conversely, the hippocampus in patients, but not in controls, was relatively larger in affluent environments. There was no significant correlation between environmental violence and brain structure.

Discussion: Our results highlight the interplay between the environment, particularly poverty, and individual characteristics in psychosis. This is particularly important for harsh environments such as those from low and middle-income countries: potentially less brain vulnerability (less gray matter loss) is sufficient to become unwell in adverse (poor) environments. The development of algorithms exploring clinically-useful information from structural brain images in psychosis should include representative samples from low and middle-income countries.

T160. HIGH-RESOLUTION WHOLE BRAIN MR SPECTROSCOPIC IMAGING IN YOUTHS AT CLINICAL HIGH RISK FOR PSYCHOSIS: A PILOT STUDY

Paul Klauser*[1], Antoine Klauser[2], Martine Cleusix[1], Jean-Baptiste Ledoux[3], Kerstin von Plessen[3], Francois Lazeyras[2], Patric Hagmann[3], Philipp Conus[3], Alessandra Solida[3], Kim Do[1]
[1]Center for Psychiatric Neuroscience, Lausanne University Hospital; [2]University of Geneva; [3]Lausanne University Hospital,

Background: In general, MR spectroscopy (MRS) studies report alterations of both glutamatergic indices and NAA not only in first episode psychosis and established schizophrenia but also in high risk populations, suggesting that altered excitatory neurotransmission and loss of neuronal integrity are early pathophysiological processes. However, interpretation of these findings is limited by the region-of-interest approach of current MRS techniques, limiting the measurement of metabolites to delimited cerebral volumes, selected by a priori hypotheses. In that context, we developed and implemented a new technique including specific MR sequence and data reconstruction that allows for whole brain high-resolution MRS imaging (MRSI) in two or three dimensions. The results enable the mapping of main metabolites in all brain regions (cortex, white matter, deep grey matter) of youths at clinical high risk for psychosis (CHR-P).

Methods: An FID-MRSI (Henning et al. NMR Biomed 2009) sequence with a 3D phase encoding accelerated by compressed-sensing was implemented on a 3T Prisma fit MRI (Siemens, Erlangen, Germany). The echo time (TE) was 0.65 ms, repetition time (TR) was 355 ms and the flip angle 35 degree. FID was acquired with 4 kHz bandwidth. The size of the excited Volume of Interest (VOI) was (A/P-R/L-H/F) 210 mm by 160 mm by 95 mm with a matrix of 42 x 32 x 20 resulting in 5 mm isotropic resolution. After reconstruction (Klauser A et al. Magn Reson Med. 2018), 3D MRSI data were quantified with LCModel to produce 3D metabolite maps. Concentration for total N-acetyl aspartate (tNAA), total creatinine (tCre), choline-containing compounds (Cho), myo-inositol (Ins), glutamate and glutamine (Glx) were calculated in every single voxel. A T1-weighted

MPRAGE anatomical scan was acquired for positioning of the 3D MRSI and for the segmentation of the brain. For each participant, brain tissue was segmented into gray and white matter. Cerebral lobes and deep grey mater structures were also delineated using Freesurfer software package. CHR-P individuals were recruited in the service of child and adolescent psychiatry and in the service of general psychiatry, department of psychiatry at Lausanne university hospital. They were help-seeking adolescents and young adults aged between 14 and 35, who presented a psychosis-risk syndrome or basic symptoms as assessed by the Structured Interview for Psychosis-Risk Syndromes (SIPS) and the Schizophrenia Proneness Instrument, Adult (SPI-A) or Child & Youth version (SPI-CY). Healthy controls matched for age and sex were recruited in the general population.

Results: Three-dimension MRSI provides spatial specificity by allowing main metabolites (i.e., tNAA, tCre, Cho, Ins and Glx) to be reliably mapped in the volume of the entire brain. The resulting contrast allows the recognition of brain compartments and subcortical structures. Individual brain segments, cerebral lobes and subcortical structures were registered to 3D MRSI data and the mean concentration in each structure was computed to allow group comparisons between CHR-P and HC.

Discussion: In general, there is a strong need to develop new tools for the identification and stratification of CHR-P populations. Alterations of gross brain anatomy are relatively late events but early and subtle neurochemical changes and especially those reflecting oxidative stress and concomitant synaptic remodeling are promising candidates. This pilot study illustrates the potential of three-dimension MRSI to detect such alterations in the whole brain and with a good spatial resolution.

T161. THE RELATIONSHIP BETWEEN FRONTAL CORTICAL VOLUME AND STRIATAL DOPAMINE SYNTHESIS CAPACITY IN PSYCHOSIS

Abstract not included.

T162. THICKER PREFRONTAL CORTEX IS ASSOCIATED WITH SUBCLINICAL NEGATIVE SYMPTOMS IN SCHIZOTYPY - AN ENIGMA CONSORTIUM META-ANALYSIS

Matthias Kirschner*[1], Benazir Hodzic-Santor[1], Tilo Kircher[2], Igor Nenadic[2], Alex Fornito[3], Melissa Green[4], Yann Quide[4], Christos Pantelis[5], Udo Dannlowski[6], Pamela DeRosse[7], Raymond Chan[8], Martin Debbané[9], Wulf Rössler[10], Irina Lebedeva[11], Haeme Park[12], Jan-Bernard Marsman[13], James Gilleen[14], Anne-Kathrin Fett[15], Theo van Erp[16], Jessica Turner[17], Paul Thompson[18], Andre Aleman[19], Gemma Modinos[20], Stefan Kaiser[21], Alain Dagher for the ENIGMA Schizotypy Working Group[1]
[1]Montreal Neurological Institute, McGill University; [2]Marburg University; [3]Monash University; [4]University of New South Wales; [5]Melbourne Neuropsychiatry Centre, University of Melbourne; [6]Münster University; [7]Zucker Hillside Hospital; [8]Institute of Psychology, Chinese Academy of Sciences; [9]University of Geneva; [10]University of Zurich; [11]Moscow State University; [12]University of Auckland; [13]University of Groningen; [14]Roehampton University; [15]City University of London; [16]University of California Irvine; [17]Georgia State University; [18]University of Southern California; [19]University Medical Center Groningen; [20]Institute of Psychiatry, Psychology & Neuroscience, King's College London; [21]Geneva University Hospitals, Chemin du Petit-Bel-Air; 1225 Chêne-Bourg

Background: Negative symptoms can be seen to represent a continuum from subclinical manifestations in the general population to severe symptoms in