

Background: Negative symptoms are core contributors to social deficits in psychosis. However, currently available interventions do not significantly ameliorate negative symptoms or social outcomes in individuals at Clinical High Risk of Psychosis (CHR-P). Given its critical role in human social behaviour and cognition, the oxytocin (OT) system is a promising target for the treatment of social impairments in CHR-P subjects.

Methods: In a double-blind, placebo-controlled, crossover design, 30 CHR-P males were studied using functional magnetic resonance imaging (fMRI) on two occasions, once after 40IU intranasal OT and once after placebo. A modified version of the Sally-Anne task was used to record brain activation during inferring others' beliefs (cognitive empathy) and social emotions (emotional empathy). The Reading the Mind in the Eyes Test was acquired to test whether OT effects were mediated by baseline social-emotional abilities.

Results: OT did not modulate behavioural task performance but reduced activation in the bilateral inferior frontal gyrus compared with placebo during emotional empathy. Furthermore, the relationship between brain activation and task performance after OT administration was mediated by baseline social-emotional abilities; while task accuracy during emotional empathy increased with decreasing activation in the left inferior frontal gyrus in CHR-P individuals with low social-emotional abilities, there was no such relationship in CHR-P individual with high social-emotional abilities.

Discussion: These findings suggest that OT enhances neural efficiency in inferring others' social emotions in those people at clinical high risk for psychosis with attenuated emotional empathy.

T140. PERSONALITY AND NEUROCOGNITIVE CORRELATES OF PSYCHOTIC-LIKE EXPERIENCES

Scott Blain^{*1}, Rachael Grazioplene², Longenecker Julia³, Yizhou Ma¹, Aisha Udochi¹, Bonnie Klimes-Dougan¹, Colin DeYoung¹

¹The University of Minnesota; ²Yale University; ³University of Pittsburgh

Background: Positive symptoms of schizophrenia and its extended phenotype—schizotypy—are characterized by the inclusion of novel, erroneous mental contents. These positive symptoms occur across those with a variety of diagnoses, including schizophrenia, personality disorders, and depression and bipolar with psychotic features. One promising transdiagnostic framework for explaining positive symptoms involves “apophenia,” or the tendency to perceive meaningful patterns where none, in fact, exist. Though hallucinations and delusions represent extreme instances of apophenia, it also occurs throughout the population and can include any instance of a false positive cognition, including such benign occurrences as seeing animals in the clouds or hearing your name in noise. Importantly, apophenia may be the result of heightened pattern seeking in both perception and belief, a tendency that is, along with apophenia and positive schizotypy, positively associated with the personality trait openness to experience. We propose that pattern detection and associated personality and psychopathological traits are, in turn, underlaid by neural networks associated with experiential simulation and cognitive control, specifically, the default and frontoparietal networks. Both of these networks have been implicated in research on psychosis, schizotypy, and openness.

Methods: Despite consistently demonstrated associations among openness, positive schizotypy, and apophenia, few studies have investigated relations between schizotypy and behavioral manifestations of apophenia, let alone the role of normative personality variation or underlying neural substrates. To investigate these associations, we conducted a series of studies (total N > 3000) using self-report questionnaires, behavioral indicators of pattern detection sensitivity, and functional magnetic resonance imaging (fMRI).

Results: Across samples, robust positive associations were found among openness, positive schizotypy, and psychotic-like experiences. In turn, all

three of these traits were positively associated with general tendencies toward false positive errors, including perceiving social intentions or emotions when none were present, detecting letters in distractor shapes and speech in noise, and picking up on semantic associations between unrelated words. Results using resting state functional MRI data suggested positive schizotypy, openness, and especially their shared variance, were related positively to connectivity of the default network and negatively to frontoparietal connectivity.

Discussion: Taken together, these findings suggest that pattern sensitivity and associated brain networks may underlie openness, positive schizotypy, and psychotic-like experiences. Those with heightened openness and associated risk for psychosis may demonstrate an increased default-network-related tendency toward erroneous thoughts and perceptions (false positives), coupled with diminished frontoparietal function and impairments in the ability to successfully engage in reality testing and screen out false positives. Overall, our results advance understanding of the personality and neurocognitive correlates of the extended psychosis phenotype, while adding to a growing body of research characterizing the underlying biology of transdiagnostic psychiatric features through the use of large, nonpatient samples.

T141. EFFECTS OF MENSTRUAL CYCLE ON RESTING STATE FUNCTIONAL CONNECTIVITY IN SCHIZOPHRENIA: A FUNCTIONAL MRI STUDY

Handan Noyan^{*1}, Andaç Hamamcı², Zeynep Fırat³, Ayşegül Sarsılmaz Oygün³, Alp Üçok⁴

¹Istinye University; ²Yeditepe University; ³Yeditepe University Hospitals; ⁴Istanbul University

Background: The menstrual cycle is a favorable model for examining the influence of ovarian hormones on cognition, emotion and brain functions. Ovarian hormones have substantial effects on task-related brain activity, but their impacts on functional connectivity at rest have been investigated by a few studies conducted with healthy individuals and these pre-existing findings are inconsistent. As for schizophrenia, different influences of ovarian hormones were reported. For instance, the estrogen hypothesis of schizophrenia has suggested that estrogen plays a neuroprotective role in the pathophysiology of this disorder. The present study investigates resting state functional connectivity (RS-FC) alterations related to menstrual cycle phase and/or hormone levels in patients with schizophrenia and healthy controls and aims to contribute to the understanding of the effects of ovarian hormones on the pathogenesis of schizophrenia and brain functions.

Methods: The study was conducted with 13 women with schizophrenia (the mean of age: 32 ± 7.67) and 13 healthy women (the mean of age: 30.08 ± 7.27). Resting state functional Magnetic Resonance Imaging (fMRI) scanning, as well as hormonal and clinical assessments, were applied to each participant twice, during two menstrual cycle phases: early follicular (Days 2–6; low estrogen/progesterone) and mid-luteal (Days 20–22; high estrogen/progesterone). The serum hormone levels of estradiol, progesterone, prolactin (only in the patients), follicle-stimulating and luteinizing were assessed. The clinical assessment interviews included the Brief Psychiatric Rating Scales, the Clinical Global Impression (only for the patients), the Global Assessment of Functioning and the Calgary Depression Rating Scale for Schizophrenia (for both groups).

Results: Our findings revealed that no cycle phase-related alterations existed in RS-FC in both groups. However, specific correlations between each hormone and RS-FC were found in both cycle phases for two groups. In the patients, estrogen was positively correlated with the auditory network (AN) connectivity in the left amygdala at the early follicular phase. In the controls, the positive correlations to progesterone were found in the precuneus for the connectivity of the posterior default mode network