O5.6. REMISSION FROM ANTIPSYCHOTIC TREATMENT IN FIRST EPISODE PSYCHOSIS RELATED TO LONGITUDINAL CHANGES IN BRAIN GLUTAMATE LEVELS

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Background: Neuroimaging studies in schizophrenia have linked elevated glutamate metabolite levels to non-remission following antipsychotic treatment and have also indicated that antipsychotics can reduce glutamate metabolite levels. However, the relationship between symptomatic reduction and change in glutamate during initial antipsychotic treatment is unclear.
Methods: Proton magnetic resonance spectroscopy (1H-MRS) measured Glx and glutamate in the anterior cingulate cortex (ACC) and thalamus in patients with first episode psychosis (n=23) at clinical presentation, and after 6 weeks and 9 months of treatment with antipsychotic medication. At 9 months, patients were classified into Remission (n=12) and Non-Remission (n=11) subgroups. Healthy volunteers (n=15) were scanned at the same three time-points.
Results: Glx levels in the thalamus increased over time in Non-Remitters (P=0.008), such that after 9 months Glx levels were higher in patients who were not in remission than in those who were (P=0.033). No change in thalamic Glx levels over time were evident in the Remission subgroup. In addition, the change in Glx in the thalamus over the 9 months of treatment was positively correlated with the change in the severity of PANSS positive, total and general symptoms (P<0.05). There were no significant effects of group or time on glutamate metabolites in the ACC, and no differences between either patient subgroup and healthy volunteers.
Discussion: These data suggest that the nature of the response to antipsychotic medication may be related to the pattern of changes in glutamatergic metabolite levels over the course of treatment. The findings add to existing evidence linking the response to treatment in schizophrenia to alterations in central glutamate function.

O5.7. VIRTUAL REALITY FUNCTIONAL CAPACITY ASSESSMENT IN PATIENTS WITH SCHIZOPHRENIA: CORRELATES OF PERFORMANCE OF SOLITARY AND SOCIALLY RELEVANT TASKS

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Background: Performance-based functional capacity measures as treatment outcomes have evolved into the use of virtual reality (VR) assessments. These strategies assess functional skills with objectives that include realistic performance of everyday tasks. One such task, the Virtual Reality Functional Capacity Assessment Task (VRFCAT), has a series of objectives focused on meal preparation, travel and transit, shopping, and financial skills. There are 12 different objectives in the task, of which 5 are performed while home alone and the other 7 are performed outside of the participant's virtual residence. The 5 at home tasks are solitary and the other 7 tasks have actual or implied social interactions. In this study, we examined the differential correlates of these solitary vs. socially relevant tasks. In so doing, we examined whether patients with more severe reduced emotional experience had differential challenges with the solitary vs. socially relevant tasks. We also examined whether performance on these two tasks was differentially associated with real-world functioning in domains of work, everyday activities, and social outcomes.
Methods: 158 patients with schizophrenia performed the VRFCAT, were tested with the MATRICS consensus cognitive battery (MCCB), were rated with the PANSS, and received informant ratings of everyday functioning. Negative symptom domains of reduced emotional experience and reduced expression were derived from PANSS scores using previously determined criteria. Analyses examined the correlations between VRFCAT subdomains, the two domains of negative symptoms, MCCB performance and everyday functioning.
Results: Reduced emotional experience, but not reduced expression, was correlated with socially relevant VRFCAT tasks and with informant ratings of real-world social functioning. Further, performance on the VRFCAT socially relevant tasks, but not the VRFCAT solitary tasks, shared variance with informant ratings of work outcomes. Finally, MCCB performance was associated with both sets of VRFCAT demands, but the socially relevant tasks shared considerably more variance with MCCB scores than the solitary tasks.
Discussion: Patients with higher scores on reduced emotional experience were able to validly engage in socially relevant VR simulations, as evidenced by systematic correlations with outcome measures. However, these patients had poorer performance on these tasks than solitary functional tasks. The differential validity of solitary vs. socially relevant VR simulations was supported by differences in the correlates of these two VR subdomains, suggesting that short forms of an assessment could also be constructed with a special focus on the ability to perform simulated tasks away from home in the community.

O6. ORAL SESSION: ENVIRONMENTAL RISKS AND MECHANISMS IN EARLY PSYCHOSIS

O6.1. CHILDHOOD INFECTION, IQ AND RISK OF NON-AFFECTIVE PSYCHOSIS IN ADULTHOOD: A SWEDISH POPULATION-BASED LONGITUDINAL COHORT AND CO-RELATIVE STUDY

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Background: Importance: Associations between childhood infection, IQ and adult non-affective psychosis (NAP) are well established. However, examination of sensitive periods for exposure, effect of familial confounding, and whether IQ provides a link between childhood infection and adult NAP may elucidate pathogenesis of psychosis further.
Objective: To test (1) association of childhood infection with IQ and adult NAP; (2) whether shared familial confounding explains the infection-NAP

and IQ-NAP relationships; (3) whether IQ mediates and/or moderates the childhood infection-NAP relationship.
Methods: Design, Setting and Participants: Longitudinal design using linkage of Swedish national registers. The risk set included all Swedish men born 1973–1992 and conscripted into military until end of 2010 (N=771,698). We included 647,515 participants in the analysis.
Measurement of exposure: Hospitalisation with any infection from age 0–13 years.
Main outcomes and measures: Hospitalisation with an ICD diagnosis of NAP until end of 2011. IQ was assessed at conscription around age 18 years.
Results: Exposure to infections particularly in early-childhood was associated with lower IQ (adjusted mean difference for infection at 0-1y: -1.61; 95% CI, -1.74, -1.47), and with increased risk of adult NAP (adjusted hazard ratio for infection at 0-1y: 1.19; 95% CI, 1.06–1.33). There was a linear association between lower premorbid IQ and adult NAP, which persisted after excluding prodromal cases (adjusted hazard ratio per 1-point increase in IQ: 0.976; 95% CI, 0.974–0.978). The infection-NAP and IQ-NAP associations were similar in the general population and in full-sibling pairs discordant for exposure. IQ both moderated (P=0.02 and P=0.001) and mediated (P<0.001) the association between infection and NAP. Childhood infection had a greater impact on NAP risk in the lower, compared with higher, IQ range.
Discussion: Early-childhood is a sensitive period for the effects of infection on IQ and NAP. The associations of adult NAP with early-childhood infection and adolescent IQ are not fully explained by shared familial factors, so may be causal. Lower premorbid IQ in psychosis arises from unique environmental factors, such as early-childhood infection. Early-childhood infections may increase risk of NAP by affecting neurodevelopment and by exaggerating the effects of cognitive vulnerability to psychosis.

O6.2. ENVIRONMENTAL RISK FACTORS DIFFERENCES AMONG DIAGNOSTIC CATEGORIES IN EU-GEI STUDY

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Background: The importance of inherited factors for affective psychosis, which includes bipolar disorder and major depression disorder, is widely accepted, but the fact that monozygotic twin concordance is substantially less than 100% suggests that environmental factors (ERF) are likely to play an important role as well. While the link between a variety of ERF and non-affective psychosis is well stablished, less is known about how these ERF impact in affective psychosis. In the current investigation we aim to examine the different distribution of environmental risk factors among affective psychosis, non-affective psychosis and controls.
Methods: Using data from the multicentric EUGEI case-control study of First-Episode Psychosis (FEP), we study the presence of different ERF classically associated with psychosis (urbanicity, migration, cannabis use and childhood trauma) among categorical diagnoses (non-affective psychosis, bipolar disorder and major depression) based on DSMIV from OPCRIT items, compared with controls. Descriptive comparisons between groups were made with Chi square or ANOVA tests accordingly.
Results: We found significant differences in all the studied ERF, with the highest exposure to rural environment in the non-affective psychosis group (62.7%, Chi2 35.4, p<0.001); the highest percentage of migration (27.1% Chi2 13.33 p=0.004) and lowest age of migration (mean 14.82 =-8.98, F=3.58 p=0.0139) in Bipolar Disorder; the highest rate of lifetime use of cannabis in bipolar disorder group (70.2%, Chi2 82.88 p<0.001); and highest score of CTQ total (42.73+-14.23, F=85.24 p<0.001) in non-affective psychosis. There were other significant differences between groups when we analyzed Childhood trauma subtypes independently from CECA questionnaire.
Discussion: These results suggest that the load of ERF differ among diagnostic categories. Analyses examining different associations between ERF with the different diagnostic groups are warranted.

O6.3. EVIDENCE FOR AN ASSOCIATION BETWEEN MATERNAL STRESS DURING PREGNANCY AND THE LATER DEVELOPMENT OF PSYCHIATRIC DISORDERS IN THE EXPOSED OFFSPRING

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Background: There is accumulating evidence that maternal experiences during pregnancy can have significant effects on the prenatal and postnatal development of the offspring and that these effects may persist into adulthood. In this study, we examined the association between exposure to subjective maternal stress during pregnancy and the subsequent diagnosis of psychiatric disorders, including psychotic disorders in the offspring.
Methods: This study used the Helsinki Longitudinal Temperament Cohort, a prospective birth cohort of individuals born between July 1st, 1975 and June 30th, 1976 in Helsinki, Finland. The sample for this study comprised 3638 infants whose mothers had completed regular health and well-being assessments during pregnancy, which included a measure of self-reported stress. The Finnish Hospital Discharge Register was used to determine psychiatric diagnoses in childhood and adulthood for all offspring. Parental history of psychiatric disorder was determined by linking the Hospital Discharge Register and the Finnish Population Register. Logistic regression models were used to assess the associations between prenatal stress and offspring psychiatric disorder in adulthood and take account of confounders.
Results: Individuals whose mothers reported stress during pregnancy had significantly greater odds of developing a psychiatric disorder (OR = 1.41, 95% CI = 1.10 – 1.81), particularly a mood disorder (OR= 1.67, 95% CI = 1.10 – 2.54). The exposed individuals also had nearly three times the odds of developing a personality disorder compared to those unexposed to such stress (OR = 3.28, 95% CI = 1.75 – 6.15, p <0.0001). There was also a dose-response effect such that those who reported moderate stress had a 3-fold increase in the odds of developing a personality disorder (OR =3.13, 95% CI = 1.42 – 6.88, p=0.005) and those who reported severe stress had seven times the odds of developing a personality disorder (OR = 7.02, 95% CI = 2.08 – 23.66, p=0.002), both compared to those who reported no stress. These associations remained after adjusting for parental psychiatric history, and other prenatal factors including antenatal depression. While there was a similar trend in findings for psychotic outcomes (OR=1.47, 95% CI= 0.83–2.62) this did not reach statistical significance, most likely due to a lower number of cases and the resulting lower statistical power for this outcome.
Discussion: Individuals exposed to prenatal stress had a significantly increased risk of developing psychiatric disorders later in life. This study provides evidence that taking care of the emotional and social support needs of women during pregnancy is vital for the mental health and well-being of the next generation.