

S07.2

How identical are monozygotic twins? An fMRI study on language lateralization

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Accurate prediction of the genetic contribution to a trait or disease from twin studies requires the fundamental assumption that the trait or disease studied has the same organic substratum in monozygotic and dizygotic twins. For traits or diseases that may be related to functional cerebral lateralization, as may be true for schizophrenia, autism and dyslexia, this assumption may prove false. To assess the validity of the twin-study method for laterality-related traits, language activation was measured with functional MRI in 13 healthy monozygotic twin pairs with opposite handedness. Lateralization indices were calculated from individual activation patterns and compared between the twin partners. Four twin pairs displayed mirror-imaging of language lateralization (i.e. left cerebral dominance in one twin, right dominance in the other). The remaining twin pairs exhibited remarkable similarity in language lateralization, despite their discordant handedness. Mirror-imaging is proposed to occur when an embryo splits to form monozygotic twins after the first signs of left-right asymmetry have already developed. Since mirror-imaging is unique to monozygotic twins, the fundamental assumption for twin research is not met for traits or diseases that are linked to cerebral lateralization.

S07.3

Obstetric complications and risk for first admission with schizophrenia: a Danish national register based study

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Objectives: Obstetric complications (OCs) have been investigated as risk factors for schizophrenia. We aim to clarify the relationship between obstetric complications and risk for schizophrenia in a large register based study, while controlling for the possible confounding effects of socio-economic factors. This is the first study to investigate obstetric risk factors in an entire national population while controlling for the possible confounding effects of socio-economic factors and family psychiatric history.

Method: We will investigate the association between obstetric complications and risk for schizophrenia while controlling for a range of personal and familial socio-economic and socio-demographic measures (assessed for the year prior to the first admission) in a population-based nested case-control study based on Danish register data. The sample includes 1039 first admissions with an ICD-8 (until the end of December 1993) or ICD-10 (from January 1994) diagnosis of schizophrenia and 29,225 individually time-, gender-, and age- matched controls, and their parents and siblings, for whom information was available from the Medical Birth Register (which has been in operation since 1973).

Results: The results from this study are not currently available, as this sample has just become available for study.

Conclusions: We hope to clarify the relationship between obstetric complications and risk for schizophrenia while controlling for family psychiatric history and socio-economic variables.

S07.4

Fetal growth impairment – the relevance to psychiatric outcome

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A growing literature reports intriguing findings of fetal origins of psychological and mental disorders as well as conditions such as cardiovascular disease, diabetes and cancer. The associations between impaired fetal growth and adult somatic and psychiatric health pose challenges of specificity of findings, tracing causal pathways and the possibility of confounding by social environment. We have tested the fetal growth hypothesis in a series of population-based studies for the following groups of patients: schizophrenia (n=167), affective psychosis (n=198), reactive psychosis (n=292), anorexia nervosa (N=781), infantile autism (n=480) and children genetically at high risk for schizophrenia (n=2096). We found an increased risk for schizophrenia among boys who were small-for-gestational-age (OR=3.2) or had low ponderal index (OR=3.1). The risk for infantile autism among children born small-for-gestational-age was also significant (OR=1.8) after control for possible confounding of maternal factors influencing fetal growth like smoking during pregnancy, maternal age and mother' country of birth. Girls born very preterm (<33 weeks), especially if growth retarded, had an increased risk to develop anorexia nervosa later in life (OR=3.2). Among children to women with schizophrenia, we found an increased risk for low birth weight (OR=1.3), but not for small-for-gestational-age when we controlled for a wide range of maternal and socio-economical variables. Improvements of measures of early experience, methodological advances and effort to formulate causal pathways will be discussed as well as approaches to control for social confounding.

S07.5

Minor physical anomalies: moving to the next phase of research

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It is now established that persons with schizophrenia have an excess of minor physical anomalies, particularly in the craniofacial region. These provide strong evidence of disturbed neurodevelopment in schizophrenia. The relationships between minor physical anomalies and other possible indices of neural maldevelopment, such as neurological signs or abnormal dermatoglyphics, remain unclear. There is also limited information about the prevalence and significance of minor physical anomalies in other disorders, such as bipolar affective disorder. Future research in this area should examine the relationship between minor physical anomalies and other indices of neural maldevelopment and should further explore the prevalence of minor physical anomalies in other psychotic disorders. Twin studies provide a particularly powerful opportunity to explore these issues.