

experiences. Reasoning biases may particularly contribute to the development of clinical phenomena.

Monday, April 4, 2005

S-22. Symposium: Brain morphology in schizophrenia: New findings and perspectives

Chairperson(s): Ralf Schloesser (Jena, Germany),
Tim Crow (Oxford, United Kingdom)
08.30 - 10.00, Gasteig - Carl-Orff Hall

S-22-01

Schizophrenia as a misconnection syndrome

T. Crow. *POWIC - Dept. of Psychiatry University of Oxford, Oxford, United Kingdom*

S-22-02

Focal white matter density changes in schizophrenia

R. Kahn, H. Schnack. *University Medical Center, GA Utrecht, Netherlands*

Objective: Gray matter changes have been demonstrated in several regions in schizophrenia. Particularly, the frontal and temporal cortices and amygdala-hippocampal region have been found decreased in volume and density in magnetic resonance imaging (MRI) studies. These abnormalities may reflect an aberrant neuronal network in schizophrenia, suggesting that white matter fibers connecting these regions may also be affected. However, it is unclear if particular white matter areas are (progressively) affected in schizophrenia and if these are related to the gray matter changes.

Methods: Focal white matter changes in schizophrenia were studied in whole brain magnetic resonance images acquired from 159 patients with schizophrenia or schizophreniform disorder and 158 healthy comparison subjects using voxel-based morphometry. White matter density changes in the patients with schizophrenia were correlated to gray matter density changes and to illness severity.

Results: In the patients with schizophrenia, significant decreases in white matter density were found in the genu and truncus of the corpus callosum in the left and right hemisphere, in the right anterior internal capsule and in the right anterior commissure. No interactions between diagnosis and age were found. Increased illness severity was correlated with low density of the corpus callosum and anterior commissure. Decreased corpus callosum density correlated with decreased density of thalamus, lateral inferior frontal and insular gray matter in patients and controls and with decreased density of medial orbitofrontal and superior temporal gyri in patients. Decreased internal capsule and anterior commissure density correlated with increased caudate, and globus pallidus density in patients and controls.

Conclusion: These findings suggest aberrant inter-hemispheric connectivity of anterior cortical and sub-cortical brain regions in schizophrenia, reflecting decreased hemispheric specialisation in schizophrenia.

S-22-03

Magnetisation Transfer Ratio (MTR) abnormalities in schizophrenia

M. Bagary, J. Foong, M. Symms, G. Barker, E. Joyce, M. Ron. *Institute of Neurology Dept. of Neuropsychiatry, London, United Kingdom*

Objective: Magnetisation Transfer Ratio (MTR) may be more sensitive than conventional volumetric imaging to structural brain abnormalities in both chronic and first-episode schizophrenia populations. We predicted that MTR abnormalities would be more widespread in chronic schizophrenia.

Methods: We acquired magnetisation transfer images from 29 first-episode schizophrenia patients; 30 matched control subjects; 25 chronic schizophrenia patients and 25 matched control subjects using a 1.5T scanner. Images were processed using voxel-based morphometry (VBM) which allows automated whole brain structural analysis, therefore limiting observer bias and providing significant advantages over conventional labour intensive region of interest studies. SPM99 (Wellcome Department of Cognitive Neurology, London) was used for image processing and statistical analysis. Group comparisons of regional differences in MTR were made.

Results: Group comparisons revealed more widespread MTR abnormalities in chronic schizophrenia, particularly in the left prefrontal cortex and parieto-occipital cortex bilaterally.

Conclusion: Based on this cross-sectional analysis of first-episode and chronic schizophrenia populations, MTR abnormalities are more diffuse in chronic schizophrenia. This may reflect study population heterogeneity; medication effects or alternatively that MTR abnormalities may be progressive, at least in some patients. Longitudinal studies are required to confirm these findings.

S-22-04

Novel morphometric approaches in schizophrenia: Methods and applications

C. Gaser. *FSU Jena Dept. of Psychiatry, Jena, Germany*

In recent years, numerous automated methods to assess brain structure without labour-intensive and error-prone manual tracings have been developed. Most of these methods take advantage of image registration algorithms and allow voxel-wise analysis without the need of a priori definition of regions of interests. The most widely used method is voxel-based morphometry (VBM) which relies on segmentation of the brain into different tissue types. Deformation-based morphometry (DBM) on the other hand, uses high-dimensional image registration analyzing deformations needed to warp one brain onto another. Finally, surface-based approaches to determine a 2D gyrification index will be outlined. We will provide a methodological overview about strengths and limitations of these methods and their use in schizophrenia research. The focus of these applications will be: a) cross-sectional analysis in schizophrenia samples analyzing groups differences, effects of single symptoms, and classification into sub-syndromes with anatomical correlates, b) longitudinal studies tracking changes associated with disease progression, and c) assessment of genetic effects comparing structural differences in twins, both in cross-sectional and longitudinal designs.

Monday, April 4, 2005

S-27. Symposium: Catatonia - a neuropsychiatric syndrome across psychiatric diagnoses

Chairperson(s): Stephanie Krüger (Dresden, Germany),
Peter Bräunig (Chemnitz, Germany)
08.30 - 10.00, Holiday Inn - Room 6

S-27-01

Catatonia in affective disorder

S. Krüger. *Universitätsklinikum Dresden Carl-Gustav Carus, Dresden, Germany*

In this presentation, we intend to demonstrate that catatonic symptoms are more frequently associated with mixed affective states than commonly thought. Catatonic symptoms have been associated with mixed mania in the older psychiatric literature, however, to date no systematic studies have been performed to assess their frequency in these patients. To this effect, we assessed ninety-nine patients with bipolar disorder manic or mixed episode were assessed for the presence of catatonia. Thirty-nine patients fulfilled criteria for mixed mania of whom 24 were catatonic. Among the patients with pure mania, only 3 were catatonic. Eighteen catatonic patients with mixed mania required admission to the acute care unit (ACU). It is important to know, that the likelihood of overlooking catatonia in less severely ill patients with mixed mania is low and that it does not need to be routinely assessed on a general ward. In conclusion, catatonia is frequent in mania and linked to the mixed episode. Catatonia in mixed mania is likely to be found among the severely ill group of patients with mixed mania, who require emergency treatment.

S-27-02

Catatonic schizophrenia

G. Ungvari, S. K. Leung, F. S. Ng, H.-K. Cheung, T. Leung.
Hungary

The frequency of catatonic syndrome in chronic schizophrenia and its association with socio-demographic, clinical, and treatment variables was determined in this study. A cross-sectional assessment of a randomly selected cohort of patients ($n=225$; mean age= $42+7$ years; mean length of illness= $20.4+7.5$ years) with DSM-IV schizophrenia using standard rating instruments for catatonia, drug-induced extrapyramidal symptoms (EPS), and psychotic, depressive, and obsessive-compulsive symptoms was conducted. Using a rather narrow definition of catatonia (the presence of 4 or more signs/symptoms with at least one having a score '2' or above on the Bush-Francis Catatonia Rating Scale (BFCRS), 72 subjects (32%) met the criteria for the catatonia group. The frequency distribution of catatonic signs/symptoms in the catatonic group and in the whole sample was very similar, with mannerisms, grimacing, stereotyped, posturing, and mutism being the most frequent. In the logistic regression analysis, catatonic subjects had a significantly earlier age of onset, more negative symptoms, and were more likely to receive benzodiazepines than their non-catatonic counterparts. In multiple regression analysis, the severity of catatonia as indicated by the sum score of BFCRS was predicted only by earlier age of onset and negative symptoms. This study confirmed that, if methodically assessed, catatonic signs and symptoms are prevalent in patients with chronic schizophrenia. Catatonia can be differentiated from EPS. Catatonic features

indicate a generally poor prognosis in the chronic phase of schizophrenia.

S-27-03

Malignant catatonia

S. Mann, S. Caroff. *University of Pennsylvania School of Medicine, Philadelphia, PA 19104, USA*

Malignant catatonia (MC) represents a life threatening neuropsychiatric illness characterized by hyperthermia, catatonic stupor or excitement, altered consciousness and autonomic dysfunction. This disorder was recognized historically as a potential complication of acute psychotic illness. A comprehensive review of the world literature indicates that although the incidence of MC may have declined following the introduction of modern psychopharmacologic agents, it clearly continues to occur. Furthermore, our review suggests that MC is a syndrome rather than a specific disease. While most often an outgrowth of the major psychoses, MC also develops in association with diverse neurologic and medical conditions. From this perspective, neuroleptic malignant syndrome (NMS), a potentially fatal complication of antipsychotic drug treatment, may be viewed as a drug-induced form of MC. Our review also supports a conceptualization of catatonia as a continuum, with milder forms at one end and more severe forms involving hyperthermia (MC) at the other end. In addition, our findings suggest that simple catatonia, MC, and NMS share a common pathophysiology involving reduced dopaminergic neurotransmission within the basal ganglia-thalamocortical circuits. Electroconvulsive therapy is an effective and practical treatment for MC resulting from psychiatric and neuromedical conditions, including NMS. Antipsychotic drugs should be withheld whenever MC is suspected.

S-27-04

Malignant neuroleptic syndrome vs. catatonia

G. Petrides. *Greece*

S-27-05

Pathophysiology in catatonia: Orbitofrontal cortical dysfunction?

G. Northoff. *Universität Magdeburg Klinik für Psychiatrie, Magdeburg, Germany*

Catatonia is a psychomotor syndrome characterized by concurrent emotional, motor, and behavioural anomalies. Pathophysiological mechanisms of psychomotor disturbances may be related to abnormal emotional-motor processing in prefrontal cortical networks. We therefore investigated prefrontal cortical activation and connectivity patterns during emotional-motor stimulation using fMRI. We investigated 10 postacute akinetic catatonic patients and compared them with 10 non-catatonic psychiatric (same diagnosis without catatonia, same medication, same age and sex) and 10 healthy controls. Pictures for emotional stimulation were taken from the International Affective picture System (IAPS). Catatonic patients showed significant abnormalities in orbitofrontal cortex and its connectivity to premotor/motor cortex when compared to psychiatric and healthy controls. Catatonic affective and behavioural symptoms correlated significantly with orbitofrontal cortical dysfunction. We conclude that catatonic symptoms might be closely related to altered emotional-motor processing in orbitofrontal-premotor cortical networks.