

## New Research

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### **NRI. Schizophrenia: neuroimaging**

*Chairmen:* M Revelly, P Grasby

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#### **NORMAL PLANUM TEMPORALE ASYMMETRY IN FAMILIAL SCHIZOPHRENIA: A VOLUMETRIC MRI STUDY**

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Loss or reversal of the normal asymmetry of the planum temporale has been reported in schizophrenia. Brain asymmetries are established in utero and are thought to be under genetic control. Abnormalities in brain lateralization are therefore assumed to be indicative of genetic vulnerability to schizophrenia. We tested this hypothesis in a sample of schizophrenics from multiply affected families where genetic factors appear to operate predominantly. We compared 31 (20 men and 11 women) right-handed schizophrenics to 35 (18 men and 17 women) right-handed matched community controls. Volumetric measures of the planum temporale were obtained from 3D reconstructed MRI images. Volumes were calculated using the Cavalieri method. Asymmetry coefficients obtained from the patients did not differ significantly from those obtained from the controls. Sex specific analysis did not reveal any differences either. Our study suggests that abnormalities in the planum temporale asymmetry may not be present in familial schizophrenia.

#### **A MONOZYGOTIC SCHIZOPHRENIC TRIPLET**

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A male monozygotic triplet, now 36 years old, is described. At age 20, within 8 months the three men independently developed acute schizophrenic disorders (DSM-III-R) with auditory hallucinations, bizarre delusions, and thought disturbances. There were similarities between the triplets with regard to the chronic intermittent course of the disorder, the decline of social adjustment and loss of working capacity. The psychoses responded promptly to conventional neuroleptic treatment. Neuropsychological assessment demonstrated similar marked reductions of attentional, mnemonic and executive functions. MRI showed similar borderline ventricular enlargements and widened subarachnoidal spaces over frontoparietal and basal regions as well as around the pituitary gland (empty sella). All the men had a right sided hearing defect with a reduction of the ossicular bones. Cytogenetic investigations demonstrated an extra band at chromosome 15p. The parents of the patients appeared to be mentally healthy, they reported no hearing difficulties. The father, but not the mother, exhibited the chromosomal 15p aberration. The

father demonstrated widened subarachnoidal spaces frontally and in basal regions similar to those of the triplet. The mother had an empty sella. Other possible clues to etiological mechanisms for the psychotic disorders was a possible influenza infection in the mother during the first trimester. It appears most likely that DNA aberrations may be responsible for the great similarities in the psychoses, the reductions of neuropsychological functions, the morphological MRI changes, the right sided ossicular reductions.

#### **NEUROIMAGING FINDINGS IN PATIENTS WITH POSTPARTUM PSYCHOSES**

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CT abnormalities have been observed in a variety of psychoses. Although most literature concerns schizophrenic psychoses, findings are not specific. Further elaborating upon a set of CT scans of young and middle-aged women with a history of postpartum psychosis the ventricular and cisternal CSF spaces were quantified in 14 patients. 12 of whom had cycloid psychoses with postpartum onset according to Leonhard (1979) and Perris & Brockington (1981). When compared to age-matched patients with cycloid psychoses or bipolar affective disorders outside the puerperium left ventricular area, planimetric VBR, and cisterna supravermis volume were significantly larger in the postpartum psychosis group. This finding may reflect an additional vulnerability marker in psychoses of the puerperium.

#### **SIMPLE SCHIZOPHRENIA REVISITED: A CLINICAL, NEUROPSYCHOLOGICAL AND BRAIN IMAGING ANALYSIS**

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The concept of simple schizophrenia, first described by Diem in 1903 and accepted by both Kraepelin and Bleuler, has since become a controversial entity. DSM-IV does not include a categorisation for simple schizophrenia, and ICD-10 recommends caution in diagnosing it. The contemporary literature on the disorder is very small [1,2].

We have collected 8 patients who meet provisional diagnostic criteria for simple schizophrenia [2]. As well as undergoing detailed clinical review, all were also administered a comprehensive neuropsychological battery. Structural neuroimaging (CT plus MRI in selected cases) and functional neuroimaging (SPECT) were also carried out.

Clinically, these patients conformed to the classically described picture of simple schizophrenia. Despite long histories in most cases, there was no evidence of any more than fleeting and equivocal positive symptoms. Neuropsychologically, all the patients displayed a pattern of impairment similar to that observed in cases of chronic schizophrenia, with IQ decline, memory impairment and impairment of executive ('frontal') function, coupled with preservation of lan-