

VOLUMETRIC ANALYSIS OF STRUCTURAL MAGNETIC RESONANCE IMAGING IN PSYCHOSIS

ABSTRACT

Background : There is evidence that brain structural changes are present at first onset of psychosis and the best-replicated finding is lateral ventricular enlargement. Reduced whole brain size, cortical gray matter, increased cortical sulcal and cerebrospinal fluid have also been described though with less consistency. We aim to demonstrate, in a Chinese series of psychotic patients diagnosed with schizophrenia, the presence of cerebral morphological abnormality.

Materials and Methods : 20 adults with first-onset psychosis presenting to the Accident & Emergency Department of Queen Mary Hospital were screened for entry to the study. They were matched for age and sex with 30 normal healthy controls recruited from the hospital staff and local community. All subjects were of Chinese ethnicity and able to provide informed consent to participate in the study. Socio-demographic and clinical assessments were done prior to the structural MRI (sMRI) brain-scan which was performed according to a standard MRI acquisition sequence. Volumetric analysis of the sMRI data was conducted according to a standard protocol, blind to subject identity and diagnosis, using an automated image analysis software programme to quantify volume of the lateral cerebral ventricles, whole brain, cortical gray and white matter, sulcal and cerebrospinal fluid. Statistical analysis was carried out to determine whether there were differences between the two groups on the brain volume measurements.

Results : The lateral cerebral ventricles were significantly larger in psychotic patients with schizophrenia. This difference arose from significant left-sided enlargement of about 20% in the patient group compared to the normal healthy control group.

Discussion and Conclusion : There is evidence of enlargement of the left lateral cerebral ventricles in psychotic patients with schizophrenia. Since this is already established at first episode, it is likely to be related to some kind of premorbid cerebral insult.

Key Words : Schizophrenia, Magnetic Resonance Imaging, Brain, Lateral Ventricles.