S. Bhattacharyya, P. Fusar-Poli, S. Borgwardt, P. Allen, R. Martin-Santos, C. O'Carroll, M. Seal, Z. Atakan, P.K. McGuire. *Section of Neuroimaging, Box P067, Institute of Psychiatry, KCL, London, UK*

Background and Aims: Cannabis is the world's most widely used illicit drug. It can impair verbal learning and induce psychosis, both acutely and possibly following long term use. But, where cannabis acts in the brain to impair verbal learning and induce psychotic symptoms is unclear. The aim of this study was to clarify how one of the main psychoactive ingredients of cannabis, delta-9-tetrahydro-cannabinol (THC) acts on the brain to impair verbal learning and induce psychotic symptoms.

Methods: 15 healthy males with minimal exposure to cannabis, were studied on 2 occasions approximately 1 month apart, following oral administration of 10mg of THC or placebo 1 hour prior to scanning, in a double-blind design. MR images were acquired on a 1.5T GE camera while subjects performed a Verbal paired associates task with separate encoding followed by retrieval conditions, with the conditions repeated in the same sequence 4 times. We examined the main effects of drug, task and drug- task interactions.

Results: Administration of THC abolished the normal linear decrement in parahippocampal activation across successive encoding blocks and was associated with a trend for impaired word recall. Administration of THC also altered the normal time-dependent change in ventral striatal activation during retrieval of word pairs which was directly correlated with concurrently induced psychotic symptoms.

Conclusions: These results suggest that impairment in learning and verbal memory associated with cannabis use may be mediated through its action in the medial temporal cortex while psychotic symptoms may be induced through its action in the ventral striatum.

P0362

Distinct language dimensions correlate with superior temporal gyrus and Heschl's gyrus in schizophrenia and healthy controls

C. Perlini [1,2], S. Sponda [1,2], A. Tavano [3], F. Fabbro [3], A. Ferro [1,2], S. Cerruti [1,2], G. Rambaldelli [1,2], R. Cerini [4], M. Tansella [1,2], P. Brambilla [2,5]. [1] *Department of Medicine and Public Health, Section of Psychiatry and Clinical Psychology, University of Verona, Verona, Italy* [2] *Verona-Udine Brain Imaging and Neuropsychology Program, Inter-University Center for Behavioral Neurosciences, University of Verona, Verona, Italy and University of Udine, Udine, Italy* [3] *Scientific Institute E. Medea, Udine, Italy* [4] *Department of Morphological and Biomedical Sciences, Section of Radiology, University of Verona, Verona, Italy* [5] *Department of Pathology and Clinical and Experimental Medicine, Section of Psychiatry, University of Udine, Udine, Italy*

Background and Aims: Language disturbances, such as impoverishment, disorganization and dysregulation, are a prominent feature of schizophrenia. Several neuroimaging studies have suggested the superior temporal gyrus (STG) as a likely anatomical substrate of language deficits in schizophrenia. The aim of this study was to verify a correlation between structural measures of STG and Heschl's gyrus (HG) and language dimensions.

Methods: An extensive language examination battery, which included narrative and conversational expressive tasks, and syntactic and pragmatic comprehension tests, was administered to 23 schizophrenia patients (mean age$\pm$SD= 40.30$\pm$11.60) and 21 normal controls (mean age$\pm$SD= 42.19$\pm$11.05). All subjects also underwent a 1.5T MRI session, and STG and HG were manually traced and volumes were obtained, bilaterally, using Brains2.

Results: Specific language deficits were shown in subjects with schizophrenia compared to healthy individuals ($p<0.001$), particularly in verbal fluency, syntactic complexity, lexical diversity and metaphor/idiom comprehension. Interestingly, speech fluency significantly directly associated with left STG gray matter volumes in controls ($r=0.46$, $p=0.03$) but not in patients ($r=-0.27$, $p=0.21$). In contrast, complex syntax and word diversity significantly correlated, respectively, with left and right HG volumes in schizophrenia patients ($r=0.45$, $p=0.02$; $r=-0.47$, $p=0.02$), but not in controls ($p>0.05$).

Conclusions: This study confirmed a widespread impairment of language in schizophrenia. Interestingly, distinct language dimensions differently correlated with STG-HG volumes in patients with schizophrenia and controls, particularly with regard to verbal fluency and syntactic measures.

P0363

Asymmetry of language activation in families with multiple incidence of schizophrenia

J. Cermak [1,2], F. Spaniel [1,2], P. Mohr [1,2]. [1] *Prague Psychiatric Center, Prague, Czech Republic* [2] *Center of Neuropsychiatric Studies, Prague, Czech Republic*

Progress in neuroimaging contributed greatly to the schizophrenia research, including investigation of the etiological factors. We tested the hypothesis that lack of the normal asymmetry of language activation is familial and that it can be found in both schizophrenic and non-schizophrenic family members. In particular, we wanted to know whether relatives who are supposed to be transmitting liability to the illness also demonstrate the loss of asymmetry of language activation. We studied 5 families with at least two members affected with schizophrenia. Functional imaging (fMRI) was used to study cortical activation during a verbal task in Broca's area and its contralateral homologue in subjects with schizophrenia and their both parents who never manifested any psychotic symptoms but one of them had mother or father with schizophrenia. Schizophrenia patients showed lack of asymmetry of language activation. Parents without schizophrenia among their elderly relatives showed normal asymmetry of language activation. Three of parents who supposedly transmit liability to the illness demonstrated the loss of asymmetry of language activation. Our results suggest that lack of the normal asymmetry of language activation could be one of the inherited etiological factors of schizophrenia.

P0364

Controversies about utility of cerebral spect in schizophrenia research

I. Domingues, A. Norton, C. Silveira, R. Curral, A. Palha. *Hospital de S. João, Porto, Portugal*

The visualization of SPECT images (single photon emission computed tomography) with 99mTc (technetium) — HMPAO (hexamethylpropyleneamine oxime) is a reliable technique to evaluate the different patterns of cerebral regional blood flow.

The available studies show that cerebral SPECT is valid in discriminating individuals with Schizophrenia and healthy controls, having as gold standard a clinical diagnosis of a psychiatrist. In spite of this, the same studies reveal inconsistent changes in cerebral regional blood flow, particularly in frontal and temporal areas, in schizophrenic patients.