

**SES04.03****AUDITORY HALLUCINATIONS: MAPPING THE NEURAL NETWORK USING FUNCTIONAL MAGNETIC RESONANCE IMAGING**

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**Background:** Perceptions of speech in the absence of an auditory stimulus (auditory verbal hallucinations; AVH), are a cardinal feature of schizophrenia. Functional neuroimaging provides a powerful means of measuring neural activity during AVH. However, the results from previous studies have been inconsistent. This may reflect a lack of statistical power and the confounding effects of patients actively signalling when hallucinations occur.

**Design:** We examined 6 patients with schizophrenia, who were experiencing frequent AVH, using a novel fMRI method which permitted the measurement of spontaneous neural activity without requiring subjects to signal when hallucinations occurred. Approximately 50 individual scans were acquired at unpredictable intervals in each subject while they were intermittently hallucinating. Immediately after each scan, subjects reported whether they had been hallucinating at that instant. Neural activity when patients were, and were not experiencing hallucinations was compared in each subject.

**Results:** AVH were associated with activation in the inferior frontal/insular, anterior cingulate and temporal cortex bilaterally (with greater responses on the right), the right thalamus and inferior colliculus, and the left hippocampus and parahippocampal cortex ( $P < 0.0001$ ).

**Conclusions:** AVH are mediated by a distributed network of cortical and subcortical areas. Inconsistencies in the findings of previous studies may reflect their identification of different components of this network.

**SES04.04****AUDITORY HALLUCINATIONS AND HEARING IMPAIRMENT**

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Considering the literature on the role of hearing impairment in the pathogenesis of delusions we are confronted with a wide range of opinions. Some authors reported that hearing impairment played a major role, others could not find any clear correlations between delusions and hearing impairment. The high variety of opinions which may be caused also by the different methodological approaches and problems (e.g. test case selection, definition of delusions and hearing impairment, inpatients - out-patients, measurement of hearing impairment, control group, etc.) was the starting point of our studies we carried out in consecutively selected patients admitted to the General Psychiatry Hospital in Vienna. All the 354 patients (184 females, 170 males) were examined by trained psychiatrists in order to detect delusions. Hearing abilities and impairments were recorded by the Social Hearing Handicap Index. 5 patients had to be excluded because of a lack of data, therefore 349 patients were included in the study. In order to investigate the connection between hearing impairment and delusions we compared the groups with delusions (92 patients) with the rest of examined patients without delusional symptomatology (257 patients). Statistical evaluation using Chi-Square test and Mann Whitney U-test showed that there are no statistical differences between deluded

and non-deluded patients with respect to the occurrence and degree of hearing impairment. We therefore may conclude that hearing impairment may play a role in the pathogenesis of delusions in single cases but it is of minor importance in the pathogenesis of delusions in general.

**SES04.05****TREATMENT AND OUTCOME IN HALLUCINATORY STATES**

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In clinical practice hallucinations may occur in different modalities, but are most often auditory or visual. The majority of schizophrenics have hallucinations, either during psychotic episodes or continuously for years. Hallucinations can also occur in other functional psychoses, organic disorders and due to substance use. The neurocognitive basis for hallucinations is not fully understood, which makes treatment difficult.

Transient hallucinatory experiences may occur in subjects without a mental disorder, and in acute psychosis they may last for a short while. The challenge is patients with long-lasting hallucinations.

We have studied first-episode psychotic patients with personal follow-up making an observation period of 22-39 (mean 30) years. At index admission 112 of 301 patients (37%) had hallucinations. Outcome as regards *hallucinations in the group recruited before the neuroleptic era* will be compared with the group treated with neuroleptics at first admission. Treatment with neuroleptics (conventional and novel) as well as other psychotropic drugs will be discussed.

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## **SES05. AEP Section "Forensic Psychiatry": Psychiatric treatment in forensic secure units**

*Chairs:* F.H.L. Beyaert (NL), P. Cosyns (B)

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**SES05.01****OPERATING A SECURE UNIT IS COOPERATING**

H. van Marle

No abstract was available at the time of printing.

**SES05.02****FORENSIC SECURITY MEASURES IN SWITZERLAND: FROM LAW TO INSTITUTIONS**

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The Swiss Penal Law foresees three kinds of security measures for partly or totally irresponsible offenders. Nevertheless, because of the small size of the cantons of this federal state, the specific institutions for these patients had not been created. Consequently some institutions have needed to be adapted to this type of forensic situations.

Patients with medium degree of dangerous behavior are usually treated in general psychiatric hospitals, under a specific form of administration. But people presenting a high degree of danger for the public security are kept in prison. When they are in an acute