phenomenon include that such patients are really experiencing thought insertion, hallucinations of vibration, etc, or that only patients who become deaf after speech is acquired hear voices.

Sixteen patients meeting RDC criteria for schizophrenia were interviewed using the 9th edition of Present State Examination (PSE). All were profoundly deaf, having no ability to hear spoken language, and in most cases no intelligible speech.

10 (62.5%) gave definite accounts of hearing voices, with description of content. Both the second and third person and true and pseudohallucinations were described. Six patients experienced non-verbal hallucinations and three described thoughts spoken aloud or thought broadcasting. Verbal auditory hallucinations were not confined to patients with an onset of deafness after speech may have been begun to be understood. Three patients were profoundly deaf from birth, and almost all of the remainder in whom information was available were diagnosed as deaf before the age of 18 months.

These findings confirm that profoundly deaf schizophrenic patients, who may *never* have experienced spoken language, report hearing voices to much the same extent as hearing patients. They also experience other auditory symptoms. Explanations in terms of misattribution of other symptoms or restriction of the symptom to those who were not prelingually deaf are insufficient to account for this phenomenon.

## PSYCHOEDUCATIONAL INTERVENTION ON THE RELATIVES' KNOWLEDGE ABOUT SCHIZOPHRENIA: A TWELVE MONTH FOLLOW UP

M. Economou, M.G. Madianos. *Psychosocial Rehabilitation Unit, Community Mental Health Center, University of Athens, 14 Delou Str., 161 21, Athens, Greece*

A psychoeducational intervention, which was part of a broader psychosocial programme of our Rehabilitation Unit, was offered to key relatives of patients suffering from schizophrenia.

50 relatives related to 38 persons suffering from schizophrenia, living in the community (experimental group) participated in an education programme of 20 hours on a weekly basis. The relatives of the experimental group were assessed by a questionnaire eliciting information on the knowledge about schizophrenia three times during the study period, before and after the end of the education programme and one year later in a follow up assessment.

A control group, comprising of 30 relatives having not exposed to any intervention, was assessed by the same instrument into three also consecutive periods.

In the case of the control group of relatives, no significant changes between the three assessments were observed.

The relatives of the experimental group showed a significant improvement of knowledge about schizophrenia and a significant increase of optimism about prognosis of illness at the end of the educational programme. Twelve months later, at the follow-up assessment, the same relatives exhibited the same patterns of knowledge and attitudes acquired through the education.

## THE USE OF THE EXPRESSED EMOTION INDEX AS A PREDICTOR OF OUTCOME IN FIRST ADMITTED SCHIZOPHRENIC PATIENTS IN A FRENCH SPEAKING AREA OF SWITZERLAND

Ph. Huguelet, S. Favre, S. Binyet, Ch. Gonzalez, I. Zabala.

*Summary:* A 5 year prospective study of 44 first admission schizophrenic patients was conducted in Geneva, in order to evaluate the prognostic value of Expressed Emotion (EE). The predictive power of the EE index was tested on 3 variables of outcome: relapse rates, social adaptation and hospital stays. The EE index and the outcome measures tended to be associated. After the third year, patients living with high EE relatives were significantly more maladjusted and relapsed more than those living with low EE relatives. At intake, the patients presenting more premorbid features lived in high EE households. Our results show that initial measure of EE in a first episode cohort is predictive of outcome over a five year period. This may not be causal, as it cannot be excluded that poorer premorbid functioning alone may result in poorer outcome, and may also elicit high EE in the relative.

## LATE ONSET SCHIZOPHRENIA — A VALID ENTITY? AN EMPIRICAL STUDY ON RISK FACTORS, PSYCHOPATHOLOGY AND COURSE

A. Riecher-Rössler, H. Häfner, P. Munk-Jørgensen. *Central Institute of Mental Health, J 5, 68159 Mannheim, Germany*

"Late onset schizophrenia" was analysed on the basis of

- a direct investigation of 267 first admitted patients from a defined catchment area in southwest Germany (ABC Study; Häfner et al. 1992) and
- case register data on the course of all 1,423 Danish patients first admitted in 1976.

*Results:* Late onset schizophrenia did not markedly differ from early onset schizophrenia in terms of *psychopathology.* Especially nuclear psychotic symptomatology was surprisingly similar. Minor differences in unspecific symptoms and illness behaviour could be explained by general influences of the higher age rather than distinct pathogenetic processes.

As regards *risk factors* we found hints of a lower familial risk in late onset as compared to early onset cases.

The *course* of late onset cases seemed to be milder when number and duration of hospitalizations over 10 years were compared.

Interestingly psychopathology and course of late onset women were significantly worse than that of late onset men.

*Conclusions:* Late onset schizophrenia essentially seems to belong to the same group of diseases as early onset schizophrenia. But psychopathology and course are influenced by the higher age of the patients and many age-specific characteristics. The outbreak of the disease seems to be later (a) in women and (b) if there is a lower genetic loading. Based on earlier findings pointing at a protective (antidopaminergic?) effect of estrogens in schizophrenia, we suggest that in some late onset women with a relatively high (genetic) vulnerability the outbreak of the disease is delayed by estrogens. When this protective factor fades off after menopause, there occurs a relatively severe form of the disease as regards psychopathology and course.

## VIOLENT BEHAVIOUR IN SCHIZOPHRENICS — CAUSED BY SCHIZOPHRENIA ITSELF OR BY PREMORBID BEHAVIOUR DISORDER?

T. Steinert, A. Voellner, K. Hermer. *Dep. of Psychiatry I, University of Ulm, Weissenau State Mental Hospital, mailbox 2044, D-88190, Ravensburg, Germany*

Violence generally is the result of complex interactions between the personality of the actors and the dynamic development of a situation; in the case of schizophrenia or psychic disease in general this disease is added as a third factor, whose significance for the origin of violent behaviour is not very clear: Is schizophrenia associated with an elevated rate of violent behaviour due to psychopathology itself (e.g., delusions, command hallucinations) or due to poor social adjustment or does violent behaviour predominantly occur in individuals who showed antisocial behaviour styles already in their premorbid personality? To find answers to this question, 26 violent

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schizophrenic offenders were investigated with respect to psychiatric and premorbid history and circumstances at the time of the offence. They were compared to 30 non-offender male schizophrenic inpatients, of whom 23 displayed violent behaviour during the index hospitalization while 7 did not show any aggressive behaviour even in their history. Patterns of social and professional achievement were poorest in the offender group and best in the never-violent group, while non-offender violent inpatients held a medium position. Offender patients had mean 7.4 previous psychiatric hospitalizations, previous convictions in 54%, alcohol abuse in 72% and previous assaultive behaviour in 85%. Unemployment was common with 85%, all subjects derived from low social levels and predominantly lived with their parents ore alone, psychosocial stress factors in the year before the index offence were heavy or very heavy in 92%. Premorbid social adjustment, measured by the general part of the premorbid adjustment scale (PAS), was generally poor, the familiar background corresponding to the respective social level, but not generally extremely unfavourable and not characterized by habitual violence. The offender patients could be differentiated into two types: 7 patients with premorbid antisocial behaviour often were diagnosed as disorganized type of schizophrenia, were at young age at time of first psychiatric hospitalization (mean 18.4 yrs.) and index offence (mean 20.6 yrs.), had previous convictions in 100% and abused drugs in 74%. On the other hand, 18 patients without premorbid antisocial behaviour were all diagnosed as paranoid type of schizophrenia, were significantly older than the other group (mean 26.2 yrs. at first hospitalization and 36.4 yrs. at index offence) and had experienced social drift during the course of their illness. Drug abuse was rare among these patients, and all suffered from ideas of persecution or injury during the violent offence. *Conclusions:* Premorbid social adjustment, social adjustment during the course of illness as well as the illness itself play a major role in the origin of aggressive behaviour in schizophrenics. Two types of violent schizophrenics can be described with different impact of these three factors.

# NR19. Psychopharmacology and substance abuse

*Chairmen:* I Stolerman, D Ball

### ACUTE ETHANOL WITHDRAWAL IS ASSOCIATED WITH DECREASED STRIATAL DOPAMINE TRANSPORTER LEVELS?

A. Ahonen [1], T.P.J. Laine [2], O. Niemelä [3], P. Räsänen [2], P. Torniainen [1], J. Heikkilä [1], J. Pyhtinen [4], M. Hillbom [5], J. Hiltunen [6]. [1] *Division of Nuclear Medicine, University Hospital of Oulu, FIN-90220 Oulu, Finland;* [2] *Department of Psychiatry, University Hospital of Oulu, FIN-90220 Oulu, Finland;* [3] *Seinäjoki Central Hospital Laboratory;* [4] *Department of Radiology, University Hospital of Oulu, FIN-90220 Oulu, Finland;* [5] *Department of Neurology, University Hospital of Oulu, FIN-90220 Oulu, Finland;* [6] *MAP Technologies, Tikkakoski*

Dopamine levels have been suggested to play a role in alcohol withdrawal. In the present study, the effect of acute alcohol withdrawal on human dopamine (DA) transporters was investigated with SPECT using the ligand [123-I]2$\beta$-carbometoxy-3$\beta$-(4-iodophenyl)tropane([123-I]$\beta$-CIT) (MAP Medical Technologies Oy).

[123-I]$\beta$-CIT binding to striatum was examined in 12 alcoholics (mean age 42 yrs, range 32–53) during withdrawal symptoms after a period of at least 2 weeks of heavy ethanol intake (140 g/day). Controls were healthy volunteers (mean age 36 yrs, range 21–51). Most of them were getting in the acute phase a large amount of benzodiazepines, but no other psychoterapics were given. Transporter levels were examined 1–4 days after cessation of ethanol intake and after four weeks of abstinence monitored by interviews and biochemical markers (serum desialotransferrin, CDT) and by urinary screening for narcotics. The first scans were taken one and four hours (serotonin transporter density) and the third scan one day after injection of the tracer (dopamine transporter density). Transaxial slices oriented in orbito-meatal (OM) line were reconstructed and the following regions were drawn: 1) medial prefrontal cortex (MFC), 2) striatum (STR) and 3) frontal white matter (FWM). ROIs were drawn using MRI. The following ratios were calculated: 1) MFC/FWM at one and four hours (serotonin transporter density) and 2) STR/FWM at one day (dopamine transporter density).

Dopamine transporter density was significantly higher after four weeks of abstinence (8.0) compared with withdrawal situation (7.3), ($p < 0.01$). After four weeks abstinence the levels were similiar to those of healthy controls (STR/FWM = 8.0; n = 15). Both I-type and II-type alcoholics showed decreased density of striatal dopamine transporters. In contrast, no significant difference could be found in serotonin transporter density at one hour after injection of the tracer in medial prefrontal cortex (MFC/FWM) during withdrawal (1.18) and after four weeks of abstinence (1.12).

The present data indicates that decreased striatal dopamine activity may be an important mechanism of ethanol-induced withdrawal symptoms. However, the possible effect of benzodiazepines should be taken into consideration.

### MDMA (ECSTASY)-ABUSE IN YOUNG ADULTS — IS THERE A RISK PROFILE FOR SEVERE PSYCHIATRIC DISORDERS?

O. Bilke. *Poliklinik for Child and Adolescent Psychiatry, Med. University of Lübeck, Kahlhorststr. 31–35, 23538 Lübeck, Germany*

*Introduction:* There has been a considerable increase in the use of Metamphetamindervates such as MDMA in Western Europe. There exist only a few case reports on anxiety, depression and paranoia linked to MDMA in young adults.

*Objectives:* As a part of an epidemiological Study we tried to establish a risk profile for psychiatric disorders in so called recreational MDMA-users to be able to predict the probability of later psychiatric disorder in this group.

*Methods:* We examined 120 MDMA-users (mean age 17.6 y) with a semi-structured interview that had been tested in former studies. Apart from basic data it focuses on the personal ways of abuse and paranormal experiences during drug-intake and later on.

*Results:* 25% (n = 30) of the adolescents reported hallucinations, anxiety and depression during and after MDMA-intake and in the time afterwards. The severity and duration of the symptoms was correlated both with amount and duration of drug-intake and to its social context. All 6 patients with psychosis-like symptoms took MDMA alone, longer than six months and as a sort of self-medication against depression.

*Conclusions:* These first qualitative data on the risk of psychiatric symptoms in recreational MDMA-users have to be reconfirmed by larger studies, although there still are major methodological and practical problems to be solved. But combined with the knowledge about clinical cases with MDMA-related disorders there seems to be some evidence that there is a certain subgroup of MDMA-users that are at a risk to develop severe psychiatric disorders.

Further epidemiological and clinical studies on this issue have to

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