

disorder were recruited and randomly allocated to one of two rehabilitation programs: Social Skill Training (SST) + Computerized Cognitive Training (CCT) (Group A) and usual rehabilitation activities of the Department (Group B). The active treatment phase lasted 6 months. Psychopathological aspects, as well as psychosocial and neurocognitive functioning, were assessed both before and after treatment. Group A subjects participated in two one-hour sessions of CCT and one two-hour session of SST. Group B patients spent an equivalent amount of time in the usual rehabilitation activities.

The two groups did not differ on baseline clinical, neurocognitive and psychosocial variables.

At the end of treatment, a worsening of the negative dimension was observed in group B, but not in group A, in which a significant improvement of two psychosocial indices (participation in family life and availability to work) was found.

The experimental program (SST+CCT) was more effective than usual rehabilitation activities of the departments.

### S08.03

Improvement of prefrontal brain function in schizophrenia under atypical neuroleptic treatment

A.J. Fallgatter, M.J. Herrmann, A.C. Ehlis. *Department of Psychiatry and Psychotherapy, University of Wuerzburg, Wuerzburg, Germany*

**Background and Aims:** Various cognitive activation tasks in schizophrenic patients have demonstrated an altered function of the anterior cingulate cortex (ACC) interconnecting the prefrontal cortex with limbic areas. This prefrontal dysfunction is a main target of antipsychotic treatment, as it is considered to be involved in both negative symptoms and cognitive dysfunction.

**Methods:** Two- (NoGo-antiorization; NGA) and three-dimensional topographical measures (source locations with the Low Resolution Electromagnetic Tomography; LORETA) of the event-related potentials elicited during the execution (Go) and the inhibition (NoGo) condition of the Continuous Performance Test allow an assessment of anterior cingulate function with extraordinary high inter-individual stability and retest reliability.

**Results:** These methods revealed a significant brain electrical hypoactivity in the ACC of schizophrenic patients as compared to age- and gender-matched controls. Both a neuropsychological index of ACC performance and the proposed electrophysiological measure of this region have been shown to be improved in patients treated with atypical but not with typical antipsychotics.

**Conclusions:** These results support the notion that a functional deficit of the ACC during response control is a core feature in schizophrenias, which can be improved by atypical antipsychotic treatment.

---

## S09. Symposium: NEUROBIOLOGICAL FACTORS IN ANTISOCIAL DISORDERS: RESEARCH, CLINICAL AND ETHICAL IMPLICATIONS (Organised by the AEP Section on Forensic Psychiatry)

---

### S09.01

Genetics and forensic psychiatric nosology

H. Anckarsater. *Forensic Psychiatric Clinic, Malmo University Hospital, Lund University, Malmo, Sweden*

**Background:** Research on genetic mechanisms involved in human behaviour stands before a huge discrepancy. On the one hand, twin research has shown that strong genetic effects are involved in creating individual differences in virtually all human behaviour patterns, including aggression. On the other hand, molecular genetic research has not been able to identify gene variants associated with such traits.

**Aims:** To review the current state of genetic research on aggression, psychopathy and criminality.

**Method:** Systematic literature searches for aggression, psychopathy, criminality, antisocial, conduct disorder and ADHD vs. gene/genetic, following both the epidemiological and the molecular strands.

**Results:** Genetic effects explain a considerable part the variance in aggression. No molecular genetic variant specifically involved in this causation has been identified, even if there are some promising findings.

**Conclusion:** Genes are important but the mechanisms involved are enigmatic and most certainly unspecific.

### S09.02

Neurobiological markers in conduct disorder

S.H. Herpertz<sup>1</sup>, B. Herpertz-Dahlmann<sup>2, 1</sup> *Department of Psychiatry and Psychotherapy, Rostock University, Rostock, Germany*  
<sup>2</sup> *Department of Child Psychiatry and Psychotherapy, Aachen RWTH, Aachen, Germany*

Aggressive behavior in mental disorders may occur in childhood in the context of conduct disorder or in adulthood as a leading feature of personality disorders. Those children, who meet the criteria for conduct disorder already in early life (“early starters”) tend to exhibit high levels of aggression throughout development and continuation of violence in adulthood. They exhibit autonomic underarousal and low autonomic responses which have been shown to be predictive of adult antisocial behavior and which have been suggested to act as biological mediators through which genetic influences operate on antisocial behavior. This predictor is stronger in boys without psychosocial disadvantages compared to those boys with unfavorable social backgrounds and may therefore particularly reflect the biology-antisocial behavior relationship. There are several lines of evidence that aggressive behavior at any age is closely related to an individual’s capability to regulate emotions. Emotions of anger or fear trigger reactive, impulsive aggression whereas a failure to experience fear, empathy or guilt facilitates instrumental aggression. Brain structures significantly involved in affect regulation, such as the amygdala and hippocampus, have been found to be smaller in early-onset CD boys compared to healthy controls. In emotional challenge tasks these boys exhibited increased amygdalar hyperresponsiveness to emotional stimuli; this finding might reflect a time-limited mechanism of compensation for smaller amygdala volumina in the maturing brain. Data from neuroimaging and electrophysiology will be forwarded to clarify the neurobiological underpinnings of children with conduct disorders and their risk of being the fledgling adult violent offenders.

### S09.03

Neurobiological correlates of antisocial personality traits - research findings and treatment implications

B.A. Vollm, M. Dolan, P. Richardson, S. McKie, R. Elliott, S. Williams, I. Anderson, J.F.W. Deakin. *Neuroscience and Psychiatry Unit, University of Manchester, Manchester, United Kingdom*

**Background and Aims:** There is increasing evidence for a neurobiological basis of antisocial personality disorder (ASPD),

including genetic liability, aberrant serotonergic function, neuropsychological deficits and structural and functional brain abnormalities. However, few functional brain imaging studies have been conducted using tasks of clinically relevant functions such as impulse control and reinforcement processing. Here we report on a study investigating the neural basis of behavioural inhibition and reward sensitivity in ASPD using functional magnetic resonance imaging (fMRI).

**Methods:** 17 medication-free male individuals with DSM IV ASPD and 14 healthy controls were included. All subjects were screened for Axis I pathology and substance misuse. Scanner tasks included two block design tasks: one Go/No-Go task and one reward task. Scanning was carried out on a 1.5T Phillips system. Whole brain coverage was achieved using 40 axial slices with 3.5mm spacing a TR of 5 seconds. Data were analysed using SPM5 using random effects models.

**Results:** Results of the Go/No-Go task confirmed brain activation previously described in the processing of impulse inhibition, namely in the orbitofrontal and dorsolateral prefrontal cortex and the anterior cingulate, and these were enhanced in the PD group. The reward task was associated with BOLD response changes in the reward network in both groups. However, these BOLD responses were reduced in the ASPD group, particularly in prefrontal areas.

**Conclusions:** Our results further support the notion of prefrontal dysfunction in ASPD. However, contrary to previous studies suggesting “hypofrontality” in this disorder, we found task specific increased and decreased BOLD responses.

### S09.04

Ethical implications of neurobiological research findings in offender patients

G.M. Adshead. *Department of Forensic Psychotherapy, Broadmoor Hospital, Crowthorne, Berks., United Kingdom*

**Background:** Over the last century, there has been considerable interest in whether developments in neuropsychiatry can explain and help prevent antisocial behaviour. These historical discussions will be reviewed to put the current debates in context.

**Method:** I will present arguments for and against the use of neuropsychiatric data by the state for the purposes (a) of excusing antisocial behaviour and (b) predicting antisocial behaviour.

**Conclusions:** I will suggest that neuropsychiatric research can contribute to the development of proper questions about responsibility and public safety, but cannot provide the answers.

---

## S10. Symposium: QUALITY OF ASSURANCE OF FORENSIC PSYCHIATRIC EXPERT OPINION (Organised by the AEP Section on Personality Disorders)

---

### S10.01

Standards of expert opinion concerning criminal responsibility in Germany

H. Sass. *University Hospital Aachen, Aachen, Germany*

Abstract not available at the time of printing.

### S10.02

Statement on criminal prognosis and risk assessment in Switzerland

V. Dittmann. *Department of Forensic Psychiatry, Psychiatric University Hospitals, Basel, Switzerland*

In Switzerland, forensic psychiatric assessment is a legally defined prerequisite for a trial, if the judges are in doubt about the defendants mental healthiness. In every such case assessment of criminal responsibility and prognosis is mandatory. The Swiss law knows since long the preventive and temporally limitless detention of mentally ill offenders, if their mental state and therefore their dangerousness cannot be ameliorated by means of therapy. Actually around 130 mentally ill offenders are under preventive detention, with an additional 12 every year. In 1993 a Swiss prisoner, sentenced for two cases of sex murder and several cases of rape, killed during his unattended free weekend trip a young girl. As a consequence committees reviewed procedures for risk assessment and decisions about release in high risk offenders, finding important shortcomings. In 1996 commissions for the assessment of offenders dangerous to the public began their work and a catalogue for risk assessment was defined. These commissions do not take decisions, they only advise responsible authorities upon their request. Since the introduction of those commissions, no severe reoffences occurred in any of the cases reviewed. For risk assessment the commissions use an instrument called “Catalogue for risk assessment in offenders dangerous to the public” which was developed in Basel. This catalogue is rather a toolbox, not an instrument to measure dangerousness. With this method a systematic and standardized assessment between cases and over time is ensured.

### S10.03

Quality standards of expertise concerning sexual offenders in Belgium

P. Cosyns. *Department of Psychiatry, University Hospital Antwerp, Edegem, Belgium*

In the aftermath of a highly mediatized sex offender case the Belgian authorities decided harsher legal rules for sex offenders and at the same time developed a comprehensive treatment pathway from prison to community. Forensic psychiatry needs tools for the measurement of outcome, quality and service evaluation.

Psychiatric Reports for legal purposes play a key role for the entry of sex offenders into the penal legal system and their orientation toward the treatment pathway, including their return to the community.

In order to improve the questionable quality of the Psychiatric Reports we are in the process of creating qualitative criteria for these Psychiatric Reports, a basic template for the report itself and an adapted training including an accreditation as ‘expert’.

The aim is to meet the quality standards of validity, reliability and comparability. Developing guidelines in this domain at a European level is desirable notwithstanding the diversities of penal laws.

### S10.04

Expert testimony in the context of preventive detention according to section sign 66 of the German penal code

E. Habermeyer. *Department of Psychiatry, University of Rostock, Rostock, Germany*

**Background:** Matters of preventive detention are important for forensic psychiatry, but so far rarely discussed. Preventive detention can be accommodated, if a repeat offender shows a disposition for further significant delinquency. Court requires expert opinion to reveal information about the personal foundations of this disposition.