S2 *Mechanisms and treatments of opioide addiction*

REGULATION OF PROTEIN KINASE C (PKC) AND G PROTEINS IN OPIATE ADDICTION

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The abundance of PKC-αβ, PKC-α mRNA and G proteins ($G\alpha_{i1/2}$, $G\alpha_o$ and Gβ) were quantitated in the rat cerebral cortex after treatments with various opiate drugs. Acute and chronic (5-100 mg/kg, 5 days) treatments with morphine, heroin and methadone decreased the immunoreactive levels of PKC-αβ (25-35%). After the chronic treatments, spontaneous (48 h) or naloxone (2 mg/kg)-precipitated opiate withdrawal (2 h) resulted in up-regulation of PKC-αβ above control levels (30-38%) and in a concomitant marked increase in PKC-α mRNA levels (2.3-fold). Chronic (5 days) treatment with pentazocine (10-80 mg/kg), but not spiradoline (2-30 mg/kg), also decreased PKC-αβ (35%). In pentazocine- or spiradoline-dependent rats, naloxone did not induce up-regulation of brain PKC-αβ. Chronic, but not acute, treatment with morphine, heroin and methadone increased the immunoreactive levels of $G\alpha_{i1/2}$ (33-37%), $G\alpha_o$ (25-41%) and Gβ (10-33%). However, naloxone-precipitated withdrawal did not modify the up-regulation of these G proteins induced by chronic μ-opiate treatment. After chronic treatment with μ-agonists, significant inverse correlations were found between the levels of PKC-αβ and those of $G\alpha_{i1/2}$ ($r = -0.53$, $n = 29$) and Gβ ($r = -0.41$, $n = 24$) in the same brains. The results suggest that brain PKC-αβ and the in vivo cross-communication between this regulatory enzyme and specific inhibitory G proteins may play a major role in opiate addiction.

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S3 *The role of computers in psychiatry*

Virtual Reality in Psychiatry - Theses and models

Prof. Dr. F. Müller-Spahn, Psychiatrische Universitätsklinik Basel

Beginning in 1993 we developed a computer supported training program for patients suffering from Alzheimer's disease, using a desktop PC in combination with a touch-screen monitor.

Taking the next step in this still ongoing technological development, three-dimensional real time simulations (Virtual Reality) were implemented as new tools for psychotherapeutic diagnosis and therapy at the Psychiatric Clinic of the University of Basel quite recently.

The potential of this technology reaches far beyond this approach: The framework reaches from the application of virtual systems as a constant test paradigm in pharmacological science to training environments for the teaching of day-to-day capabilities for patients with cognitive impairments all the way to the development and implementation of distributed psychiatric applications via three-dimensional human-machine-interfaces.

S3 *The role of computers in psychiatry*

THE ROLE OF COMPUTERS IN PSYCHIATRY

F. Muller-Spahn, *Department of Psychiatry, Universitatsklinik Basel, Wilhelm-Klein strasse 27, 4025 Basel, Switzerland*

The symposium is designed to present an overview of the applicability of computer aided tools in our speciality. While there is a wider use of information technology in statistical, administrational, educational and scientific fields, there is little research concerning computers as a therapeutic tool in psychiatry so far. This is partly associated with the fear that psychotherapeutic treatment would be dehumanised by the introduction of technology, thus confusing the medium with the message.

Last but not least, through economic pressures placed on modern health-care systems, psychiatric treatment has become also more focused and targeted to specific populations and problems. For these procedures, computers are an ideal tool in facilitating the management of more and more complex decision trees through the manipulation of comprehensive and, of widely underestimated importance, standardized patient, therapist, diagnostic and therapeutic data.

There is considerable work remaining to be done and we would like to show the participants of this symposium what has been achieved so far and to discuss the direction, methods and goals to aim for in the future.

S3 *The role of computers in psychiatry*

STRUCTURED DIAGNOSTIC INTERVIEWS AND COMPUTERS IN PSYCHIATRY

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There are at present two major diagnostic systems in psychiatry: the Tenth Edition of the International Classification of Diseases and Related Health Problems or ICD-10, and the Fourth Revision of the Diagnostic and Statistical Manual or DSM-IV. The two systems rely upon the same basic principles. In particular, both systems propose explicit diagnostic criteria and algorithms for making a diagnosis. Structured or semi-structured diagnostic interviews attempt to operationalize the assessment process in that they propose questions for eliciting the individual signs and symptoms that enter into the definition of each criterion. Diagnoses are derived using computer programs that build upon algorithms as defined in the diagnostic systems. The current use of computers in this field as well as the potential for further developments will be illustrated, using examples from three WHO structured diagnostic interviews, the Composite International Diagnostic Interview or CIDI, the Schedules for Clinical Assessment in Neuropsychiatry or SCAN and the International Personality Disorder Examination or IPDE.

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