

on gold standard paper and pencil tests. The computer version of the tests and touch screen make possible to examine patients with motor disabilities - such as patients with Parkinson's Disease. The specific data management system make possible to eliminate data with artifacts.

Selected tests from the system are used as a cognitive stimulation during neurophysiological assessment (EEG, EMG, EOG) and during neuroimaging, especially with F-MRI.

S61.02

Neuroimaging of cognitive impairment in schizophrenia and neurodegenerative disorders

T. Sharma. *The Cognition Group, Newark, DE, USA*

Cognitive dysfunction such as impairment of memory, attention, spatial and verbal functions plays important role in etiopathogenesis and clinical picture in neurodegenerative disorders. There are related with structural and functional abnormalities of different region of the brain connected with these cognitive processes. Cognitive dysfunctions caused severe functional and social disabilities of the patients. The neuroimaging methods such as F-MRI, or PET scan are very useful in diagnosis of structural and functional changes in the brain in neurodegeneration diseases, e.g. Parkinson's or Alzheimer's diseases. Neuroimaging during cognitive stimulations show different brain activation in patients with schizophrenia or neurodegenerative disorders in comparison to healthy subjects. F-MRI show increase of prefrontal cortex activation during n-Back test performance in healthy controls, while in patients with schizophrenia and Alzheimer disease this effect was not noted. In schizophrenia patients after treatment with risperidone (but not with haloperidol) the normalization of activation in different brain area was observed.

F-MRI assessment during N-back test (0 - back and 1-back tasks), encoding and recognition, visual discrimination performed in 9 patients with Alzheimer's Disease (AD) and 9 healthy subjects show abnormal activation in patients with AD. Among 9 patients with AD 5 were treated with rivastigmine, 4 received placebo. Cognitive improvement was observed after 3 months of treatment with rivastigmine - the same time fMRI showed an increase in brain activity in regions involved in attentional processes. This indicate that neuroimaging methods during cognitive stimulation may be useful in cognitive assessment in CNS disorders and in assessment of drug effect on cognition.

S61.03

Glutamatergic and dopaminergic system genes polymorphism in prefrontal tests performance in schizophrenia, bipolar disorders and in healthy subjects

A. Borkowska. *Clinical Neuropsychology Department, Nicolaus Copernicus University Torun, Collegium Medicum, Bydgoszcz, Poland*

Prefrontal functions impairment in schizophrenia and bipolar disorder are markers of vulnerability to the diseases. Our previous data showed association between Wisconsin Card Sorting Test (WCST) performance in schizophrenia with the polymorphism of dopaminergic genes (COMT, DRD 1) and with polymorphism of Brain-derived neurotrophic factor (BDNF) in bipolar disorders. The Src-family tyrosine kinase Fyn plays important role in the interaction between BDNF and glutamatergic receptor NMDA in prefrontal cortex. The possible association between the polymorphisms of BDNF and Fyn genes and performance on WCST and N-back tests in healthy subjects were assessed in 200 healthy persons, genotyped for the two polymorphism of BDNF gene (C/T, Val66Met) and three polymorphisms of the Fyn gene (-93 A/G, IVS10+37T/C, Ex12+894T/G). In the whole group,

the T/T genotype of C-270T BDNF polymorphism was associated with higher percentage of conceptual responses on WCST. Male subjects with C/T genotype obtained better results on percentage of correct reactions in N-back test. No significant differences between any of Fyn gene polymorphisms and WCST performance were found. Better results on percentage of correct reactions in N-back test were obtained by subjects with G/G genotype of 93A/G polymorphism and with G/G genotype of FYN T/G polymorphism. Female subjects having T/T polymorphism of T/C polymorphism performed better as to percentage of correct reactions in N-back test. The results obtained may suggest a contribution of BDNF and glutamatergic system genes to working memory efficiency in healthy subjects and bipolar disorder, while in schizophrenia with dopaminergic system genes.

S61.04

Neuropsychological prefrontal dysfunction in pathological obesity in the molecular genetics context

A. Tretyn. *Institute of Biology, Nicolaus Copernicus University, Torun, Poland*

Pathological obesity may be related with impairment of impulse control and cognitive disturbances. In this study the cognitive frontal functions in relation to the polymorphism of candidate genes in patients with pathological obesity were assessed. The prefrontal functions were evaluated using Wisconsin Card Sorting Test. The polymorphisms of genes connected with serotonergic and dopaminergic system : 5HT2A, 5HT2C, 5HTT, DAT1, and COMT, and also the polymorphism of BDNF - involved with modulation of nervous system development and neuroplasticity were assessed. Polymorphisms of the genes were detected by RFLP and VNTR PCR methods.

The 100 subjects with pathological obesity, BMI>40 operated with Mason method were enrolled. The results of WCST were compared with the results of healthy sex, age and education matched controls.

Subjects with pathological obesity show significant worse results on all domains of WCST, compared to controls. The frequencies of the polymorphisms in the obese group were: 5HT2A -1438A->G - A/A - 11%, A/G - 50%, G/G - 39%; DAT1 VNTR in 15th exon - short/short - 13%, short/long - 34%, long/long - 53%; BDNF Val66Met (G->A) - A/A - 3%, A/G - 24%, G/G - 73%. Interesting results were obtained in the case of 5HT2C: a known polymorphism (-759C->T) could not explain the banding pattern observed. It is possible that we have found a novel polymorphism that strongly correlates with obesity. The results obtained show significant prefrontal dysfunctions in patients with pathological obesity which may be related to the polymorphisms of serotonin and dopaminergic system genes and possible association of the obesity with the new polymorphism of 5HT2C gene.

Symposium: Family burden: Dimensions, determinants and interventions

S50.01

Caregiver burden during a 2-year follow-up period

A.M. Moeller-Leimkuehler. *Department of Psychiatry, Ludwig-Maximilians-University, Munich, Germany*

Background and Aims: While a substantial body of research on caregiver burden is available by now, studies on time effects on burden and predictors of burden are still lacking. The lecture will give insight into dimensions of caregivers' burden and factors moderating the experience of burden by referring to a multivariate stress model which has been adopted in the Munich 5-year follow-up study on relatives of first hospitalized patients with schizophrenia or depression. 2-year follow up results are presented.

Methods: Of the relatives who had participated in the baseline assessment (n=83), 76 % could be reassessed at 2-year follow-up with respect to different dimensions of burden as well as different personal dispositions and resources. The effects of time-invariant variables (caregivers' gender, patients' diagnosis), interpersonal differences as well as intrapersonal changes in patients' symptoms and caregivers' dispositions and resources over time on their reported burden were calculated by the General Linear Model Repeated Measures procedure.

Results: Although caregivers' burden decreased significantly in the course of the 2-year period after the patients' first admission, their well-being and self-rated symptoms remain worse when compared to norm values. Burden at 2-year follow up was mainly predicted by interpersonal differences in caregivers' perceived social support, expressed emotion and personality factors. With regard to individual changes over time expressed emotion was the most relevant predictor of burden.

Conclusions: The results have important implications for family intervention strategies which should focus not only on the patients' outcome, but as early as possible on the caregivers' individual psychological needs.

S50.02

Determinants of the caregiving appraisal

M. Östman. *Faculty of Health and Society, Malmö University, Malmö, Sweden*

Symposium "Family burden: dimensions, determinants and intervention"

Title of presentation: Determinants of the caregiving appraisal

Appraisal of caregiving and its relationship to family burden and experienced mental health problems in the relatives were investigated as part of a multi-centre study of the quality of mental health services in Sweden. The sample was drawn from relatives of involuntarily and voluntarily admitted patients to acute psychiatric wards. The instrument used was a semi-structured questionnaire, interviewing relatives about the burden, experience of mental health problems and appraisal of the caregiving situation.

The results showed a high proportion of relatives engaged in caregiving activities on a daily basis the month before the patient's admission to hospital and a high proportion of relatives appraising the caregiving activities negatively. The burden was more extensive if the relative and the patient were living together, had a longer duration of their relationship, if the relative was rendering caregiving on a daily basis and if the relative appraised caregiving negatively.

The relatives' psychological distress was not related to their negative appraisal of caregiving, nor was patient characteristics, such as diagnosis and level of psychosocial functioning. The only factor found to influence the relatives' psychological distress was the duration of relationship to the patient.

Interventions reducing psychological distress for relatives who have known the patients for more than 20 years, who live with the

patient, who give care on a daily basis and who appraise their caregiving negatively are suggested.

S50.03

Psychoeducational family interventions for schizophrenia: From RCT to routine clinical settings

L. Magliano, A. Fiorillo. *Department of Psychiatry, University of Naples SUN, Naples, Italy*

In the past 30 years, research on Expressed Emotions and family burden, and the adoption of the stress-vulnerability model of schizophrenia, have led to the development of integrated treatments for this mental disorder combining pharmacological and family cognitive-behavioural interventions. The latter, called Psychoeducational Family Interventions (PFI), aim to: a) provide the family with information about the patient's disorder and its treatments; b) improve family communication patterns; c) enhance family's problem solving skills; d) encourage relatives' involvement in social activities.

Since the 1980s, a number of RCT and several meta-analyses have demonstrated the efficacy of PFI on relapse and hospitalisation rates in schizophrenia.

In recent years, there has been a shift from efficacy to effectiveness studies and great attention by the researchers in developing training programmes in PFI for ordinary staff.

In this presentation, we will provide an overview of the studies on PFI for schizophrenia which have been carried out in the last decade in routine clinical settings or with at least partial involvement of ordinary staff. These studies have been grouped into: a) studies comparing PFI with standard care; b) studies comparing PFI with individual integrated interventions; c) studies comparing different PFI strategies; d) implementation studies.

The results of these studies reveal that, when provided in clinical settings, PFI have positive middle-term effects on patients' clinical status and disability, and limited impact on family burden.

Future studies are needed to identify the "best dose" at which PFI can be provided in routine conditions at the most convenient cost-benefit ratio.

S50.04

Caregivers in the process of treatment management

J. Bäuml, G. Pitschel-Walz. *Hospital of Psychiatry and Psychotherapy, Technical University of Munich, Munich, Germany*

Sixty years ago, the concept of custodial inpatient treatment began to gradually change into that of an activating outpatient concept. Through this process, the number of in-patient beds today in all psychiatric hospitals in the western part of the world has been reduced to 10-20% of those at the beginning of the 20th century. Though outpatient services had expanded to a high degree, the main burden of the psychosocial treatment still fell upon relatives. Most of these nursing families were poorly informed regarding their new duties. Thus many families were overstrained and not able to fulfill their function as "co-therapists". Because of the prevalence of overstrained families with dysfunctional behaviour, the EE-concept was developed in the sixties (Brown et al 1964). With the introduction of family therapy and the emergence of self help groups for relatives, families obtained substantial support. Through family therapeutic interventions, relatives were systematically integrated into long term rehabilitation concepts. In this way, the stigma of the "HEE"-relatives was changed (Bebbington et al 1994; Schulze-Mönking 1994; Möller-Leimkühler 2008). In the meantime, the engagement of family members can be viewed as an