cognitive impairment. Characteristics of the frail person and the care situation were assessed and - if an informal caregiver was available - burden measures and the CES-Depression Scale were applied.

Results: The care of the frail old people (n = 306, attrition: 39%; mean age: 80.2 years; female: 68.6%) was provided mostly by family caregivers (n = 262; mean age: 61 years; female: 73%). Both the burden experience and the depressive symptoms were higher among the female than among the male caregivers. Multiple linear regression analyses confirmed that caregiver's gender was one of the strongest predictors of burden experience as well as of depression. Structural equation modeling suggested that burden mediates depression; it further proposed that there should be separate models for female and male caregivers.

Conclusion: The results provide a basis for the development of strategies to reduce or even prevent serious distress and psychiatric disorders among informal caregivers. Furthermore, they point to the need for gender-specific interventions in this field.

S02.05

Sex differences in the occurrence of late-life dementia

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Background and Aims: As a result of the higher life expectancy of women, age-related illnesses such as dementia occur with quite different frequencies in men and women. The present contribution provides a survey of sex-related differences in the prevalence, incidence, diagnostic distribution and duration of late-life dementia.

Methods: Review of epidemiological studies.

Results: In western industrialized countries, more than 70% of the dementia patients are women; less than 30% are men. Since women with dementia are on the average older and more frequently widowed than male dementia patients, the consequences are correspondingly different. Women are in greater need of care in an old-age home, whereas men have better chances of being cared for in a home environment. Epidemiological studies indicate a more frequent incidence of vascular dementia among men and of degenerative dementia among women. Furthermore, the results give rise to the suspicion that the incidence among women is higher in the most advanced age groups and that some risk factors are more closely associated with the occurrence of a dementia in women than in men.

Conclusions: There are considerable sex differences in the prevalence, incidence, duration, the lifetime risk and the consequences of late-life dementia. The risk of contracting the illness possibly increases with age more steeply for women than for men. This could be an indication that the illnesses are at least partly determined by different risk factors or that there are sex-risk-factor interactions.

S03. Symposium: ANTIPSYCHOTICS: MODE OF ACTION HIGHLIGHTS

S03.01

Antipsychotics: Mode of action highlights

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Dopamine D2 receptor blockade is the main mode of antipsychotic action. The optimal occupancy of D2 receptors seems to be crucial to balancing efficacy and adverse effects such as extrapyramidal symptoms or hyperprolactinaemia. Partial D2 receptor agonism, different pre- and postsynaptic D2 receptor antagonism, serotonergic antagonism and modulation, and neurotrophic effects contribute to differentiated antipsychotic efficacy, less side effects, favourable effects on the negative and cognitive symptoms of schizophrenia, etc. In addition, neurotrophic effects of the 2nd generation antipsychotics increase neuronal plasticity and synaptic remodelling in the striatum, in the prefrontal cortex and hippocampus, which may normalise glutamatergic dysfunction and structural abnormalities postulated by the neurodevelopmental disconnection hypothesis of schizophrenia. We demonstrate these mechanisms using various antipsychotics and serotonin manipulations in animal models of schizophrenia (MK-801).

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S03.02

The complexity of using D2-dopamine antagonists in the treatment of patients with schizophrenia

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Schizophrenia is a complex disorder and the view that schizophrenia is caused by hyperdopaminergic activity is an oversimplification. In fact, there are clinical evidence in accordance with a hypodopaminergic condition. Thus, untreated patients show motor disturbances in line with a decreased dopamine activity in the extrapyramidal system, likewise cognitive deficits and negative symptoms.

In our research we have explored the evidence of schizophrenia as a hyper- or hypodopaminergic condition. With Positron Emission Tomography (PET) we have not seen any evidence of increased D2-dopamine receptors in the brain of never medicated patients. The major dopamine metabolite homovanillic acid (HVA) was lowered in CSF in line with a decreased dopamine turnover in the brain. Tyrosine is precursor to the synthesis of dopamine and for that aim we have made transport studies in an in vitro model with fibroblasts to determine tyrosine kinetics. The results demonstrated that tyrosine transport is lower in patients with schizophrenia in comparison to healthy controls. Tyrosine kinetics measured with PET demonstrated dysregulation of tyrosine transport into the brain.

We have found evidence of schizophrenia as a hypodopaminergic condition. This fact is a problem realizing that our antipsychotics are D2-dopamine antagonists, thus decreasing dopamine activity even further. The concept of schizophrenia as both a hypo- and hyperdopaminergic condition may explain why clozapine, a week D2-antagonist, works more efficiently than other antipsychotic compounds. It should be recognized that positive symptoms are, at least partly,

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related to changes in dopamine activity and therefore respond very efficiently to D2-dopamine antagonists.

S03.03

Why cannabis use is bad for schizophrenia

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Background: Progressive gray matter volume reductions have been found in schizophrenia and greater changes seem to be related to poorer outcome1,2. As patients with schizophrenia who use cannabis have a worse prognosis 3, the progressive gray matter change in these patients might be even greater.

Method: Fifty-one patients with recent-onset schizophrenia (cannabis users n=19; non-users n=32) and thirty-one matched healthy comparison subjects were included in this five year longitudinal MRI study. All subjects were assessed at inclusion and after five years. Total brain, gray and white matter, cerebellar, lateral and third ventricle volumes were measured. Percentages of volume change over time were calculated. Univariate analysis of covariance and pairwise comparisons were performed.

Results: Cannabis using patients, non-using patients and healthy comparison subjects differed significantly in total brain, gray matter, lateral and third ventricles and cerebellum volumes. No change in white matter was observed between the groups.

Cannabis using patients with schizophrenia showed a more rapid decrease in total brain and cerebellar volume and increase in lateral and third ventricle volumes as compared to healthy subject and non-using patients. Gray matter volume decrease occurred in all patients with schizophrenia as compared to healthy subjects, but was significantly greater in patients using cannabis.

Conclusion: In schizophrenia progressive gray matter volume decrease occurs during the first five years of illness. Cannabis use causes an additional decrease of gray matter in patients with schizophrenia and could be explained by either a worse illness outcome or the effects of cannabis.

S03.04

Schizophrenia: A biologist's perspective

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The human-type consciousness (defined as ability of self-recognition) has high evolutionary advantage, but the complexity of its anatomical/neurochemical background makes it prone to disturbances. Schizophrenia is one of cognitive disorders, arising from deficits in neural connectivity and in neurotransmission. The neurochemical hypothesis points to the disturbances in dopaminergic transmission: hyperactivity in mesolimbic and striatal systems (responsible for positive symptoms) with concomitant hypofunction of mesocortical system (hypofrontality and negative symptoms). This poses difficulties for pharmacotherapy: dopaminergic receptor blockade abolishes positive, but may aggravate negative symptoms. Difference in serotonin control of various dopaminergic subsystems permits to overcome some difficulties. The neurodevelopmental hypothesis of schizophrenia underlies the role of prenatal and perinatal stress disturbing neuronal migration leading to disrupted cortical architecture. In neurodevelopmental disorders stress hormones are the wreckers and neurotrophins are protectants. A role for BDNF is suggested as its levels are decreased in schizophrenic brain and its Val66Met polymorphism is associated with earlier onset of the disease. The emergence of schizophrenia in late adolescence may be caused by inadequate BDNF supply at the time of final maturation of prefrontal cortex, and attempts of correction of BDNF level may be worth trying. It may be assumed that schizophrenia is the result of wrong interactions between stress, genetic and developmental factors. Studies on candidate genes for schizophrenia and of endophenotypes lead to better understanding of the disease and prospects for more efficient therapy. The question arises why the genes involved in schizophrenia had not been eliminated in the course of evolution?

S04. Symposium: THE NEW ROLE OF (NEURO) PSYCHIATRY IN SEXUAL MEDICINE

S04.01

Introduction

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From about 1910 till the mid 1950s, medical sexology has mainly been practiced by psychiatrists. Although many psychiatrists used a psychoanalytic approach, particularly the psychiatrists at the " Institut fur Sexual Wissenschaft" in Berlin introduced a biological, e.g. endocrinological, approach to treat sexual dysfunctions. However, this famous Institute was destroyed by the Nazis in 1933 and this marked the end of a very fruitful biological period in medical sexology. After World War II, sexology became more and more investigated and practiced by psychologists who at the time claimed successes of a behavioristic approach. Gradually, psychiatrists lost their interest in sexology. Currently, and internationally, sexology is not any more an important part of psychiatry. Since the 1990s, but particularly after the introduction of Viagra in 1998, sexology has become a major part of urology. The current state of sexology being practiced mainly by psychologists and urologists may be harmful for a balanced development of medical sexology.

Progress in the field of sexual neuropsychopharmacology has shown that sexual functioning is related to brain functioning. This means that there is a new role for (neuro)psychiatry in sexual medicine. Psychiatrists, who more than psychologists and urologists are better equipped to deal with psychopharmacotherapy and psychotherapy, should take part in the new scientific developments, both with regard to drug treatment as in psychotherapy of sexual disorders.

S04.02

Diagnostic criteria of sexual dysfunctions: Need for a change

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The DSM diagnostic criteria of sexual dysfunctions have been widely used by clinicians, researchers and in pharmaceutical trials. However, these diagnostic criteria do not reflect the developments in the field of sexual medicine. These criteria are vague and do not include many of the criteria used in other mental disorders classified in the DSM. Better defined operational criteria are needed to define more homogenous population samples and to help answer some basic research questions.

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