treatment with antipsychotics increasing prolactin and bone mineral density. Analysing the influence of vitamin D3 level and bone mineral density a significant correlation between the z-scores of the femur (r=0.26; p=0.048) and the trochanteric area (r=0.32; p=0.022) was found in male patients.

S24.2

Sexual side effects lead to low quality of life and non-compliance

J. Gerlach*. *St. Hans Hospital, Institute of Biological Psychiatry, Roskilde, Denmark*

Antipsychotic medication induces sexual side effects in the form of reduced desire, perform-ance dysfunctions (erectile dysfunction, reduced lubrication) and no orgasm. These side effects are commonly seen among patients treated with antipsychotics (about 40% of females and 60% of males), but – according to a recent study – nurses think that only 8% of the females and 12% of the males have sexual side effects, whereas that the corresponding figures for doctors are 28% and 38%. These figures reflect insufficient knowledge and lack of frankness about an important aspect of life. Such ignorance contributes to non-compliance and thereby to relapse, hospitalization and morbidity.

The mechanisms underlying sexual side effects are not completely understood. They include effects on certain receptors in the brain (dopamine, serotonin, noradrenalin), increased prolactin and mental and motor side effects (emotional dampening, parkinsonism and sedation).

How to prevent and treat sexual side effects? As the dopamine receptor blockade is of central importance, sexual side effects can be minimized by using antipsychotics with a low dopamine receptor blocking effect. Thus quetiapine and clozapine which block less than 60% of the dopamine D2 receptors are primary candidates. Also olanzapine is relatively advanta-geous compared to other antipsychotics. Potential drugs to counteract the sexual side effect are bromocryptine (to decrease prolactin increase) and sildenafin (to counteract erectile dys-function).

S24.3

Schizophrenia and diabetes mellitus

K. Melkersson*. *Sollentuna Psychiatric Polyclinic & Endocrine Laboratory, Karolinska Hospital, Stockholm, Sweden*

The prevalence of diabetes mellitus (DM) in schizophrenic patients has been reported to be higher than that expected in a normal population (Mukherjee S, et al. Compr Psychiatry 1996;37:68–73). This higher rate of DM is probably explained by an increased frequency of type 2 diabetes. Antipsychotic drug treatment, obesity, cigarette smoking and heredity may all be causative factors for type 2 DM in this patient group. Among antipsychotic drugs, clozapine and olanzapine appear to have a direct diabetogenic effect (Melkersson K. Thesis, Karolinska Institutet, 2000), whereas most conventional antipsychotics and other newer agents seem not to primarily cause this type of side effect. Although the exact mechanisms behind the diabetogenic effect of clozapine and olanzapine are still unknown, these agents may induce insulin resistance, which in the longer run can lead to hyperglycemia and DM.

In summary, both antipsychotic drug treatment and other causative factors for diabetes may be involved in the development of DM in schizophrenic patients. Clinical actions to prevent DM and decrease the prevalence in this patient group will be discussed.

S24.4

Risk of sudden death and putative contributing factors during antipsychotic treatment

J. Reilly*. *Tees and North East Yorkshire NHS Trust, Parkside Community Mental Health Centre, Middlesbrough, UK*

Sudden unexplained death has been linked with antipsychotic drugs for more than forty years, but the causal nature of the association and its clinical importance have remained in dispute. Ion channel research, electrocardiographic surveys and large scale observational studies increasingly support the proposed mechanism of drug induced cardiac arrhythmia. Work at the University of Newcastle (UK) has shown a differential association between the specific drugs thioridazine and droperidol and QT prolongation, an electrocardiographic predictor of sudden death, and also an association between thioridazine and sudden death itself in psychiatric in-patients. All antipsychotic drugs have some propensity to bind cardiac ion channels, and only further research can show which drugs can be used safely, and which patient groups may be at higher risk.

S42. Psychiatric rehabilitation in schizophrenia – today and tomorrow

Chairs: I.-M. Wieselgren (S), L. Lundin (S)

S42.1

The epidemiological basis for rehabilitation in schizophrenia

P. Munk-Jørgensen*. *Institut for Psychiatric Demography, Psychiatric Hospital in Aarhus, Denmark*

After having been on the decrease from the early 1970s until the late 1980s in all of the western world the treated incidence of schizophrenia has now been increasing for approximately 10 years. Consequently, the annual incidence is now at the same level as 30 years, around 20 per 100,000 total population. What has become clear is the discouraging fact that decentralization of psychiatry and social psychiatric treatment has severely failed to improve treatment adherence, resulting in drop-out rates from treatment between 30% and 50%. Therefore, it hardly gives any meaning to invest further resources in psychiatric rehabilitation of schizophrenia until psychiatric services will become able to keep the schizophrenic patients in contact with the services. It might be a hope that modern neuropsychiatric treatment including e.g. psycho- social cognitive treatment and cognition psychology will be able to remedy the damages that the last twenty years' one-sided attempt to social rehabilitation has caused, losing a substantial part of the schizophrenic patients without treatment

S42.2

Rehabilitation with focus on cognitive training

L. Lundin*. *Sahlgrenska University Hospital, Göteborg, Sweden*

A strong correlation between cognitive dysfunction and difficulties in every day life has been established in patients with schizophrenia. Research is accumulating showing that patients with impairment in intermediate memory have hard to follow instructions; persons with executive difficulties have trouble organising their daily routines and that an impaired mind-reading ability gives social dysfunction. This research is reweved.

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There exists indirect methods of training. One example is the social skills training methods developed by Robert Liberman.

A different trend is the essays to train cognitive functions by more direct methods. This includes the training of central coherence and social recognition as in the "Integrated Psychological Therapy" and training executive functions in "Cognitive Remidiation". The international research is rewieved and recent Swedish experiences are presented.

S42.3
Work rehabilitation

K.T. Mueser. *USA*

No abstract was available at the time of printing.

S42.4
Interventions for tomorrow

I.-M. Wieselgren. *Uppsala University Hospital, Sweden*

The most important question is the patient's ability to function in the real world. The overall goal is o be able to participate independently in the community. Even at first admission in early schizophrenia, an important part of the patients have an impaired function. It means that interventions had to start at once and run parallel to treatment.

Rehabilitation includes interventions to help a person reduce the functional impairment and adjustment of the environmental together with support. Supported Employment is effective in helping severely mentally ill people to obtain competitive employment.

Social stigma has a significant impact on the quality of life of persons with schizophrenia. Direct interaction with persons who have severe mental illness is the best strategy for changing stigmatizing attitudes. Successful integration in the community is important for many reasons.

Coping strategies to manage their illness and disabilities, social skills training are other possibilities.

Aids for people with psychiatric disabilities for example cognitive impairment, adjustment of place of work, computer/electronic support and other assistive technology are new areas in psychiatric rehabilitation.

PL02. Plenary Nobel Laureate Lecture: The neurobiology of dopamine signaling

PL02
The neurobiology of dopamine signaling

P. Greengard*. *Rockefeller University, Laboratory of Molecular and Cellular Science, New York, USA*

Nerve cells communicate with each other through two mechanisms, referred to as fast and slow synaptic transmission. Fast-acting neurotransmitters, e.g., glutamate (excitatory) and GABA (inhibitory), achieve effects on their target cells within one millisecond, by virtue of opening ligand-operated ion channels. In contrast, all of the effects of the biogenic amine and peptide neurotransmitters, as well as many of the effects of glutamate and GABA, are achieved over hundreds of milliseconds to minutes, by slow synaptic transmission. This latter process is mediated through an enormously more complicated sequence of biochemical steps, involving second messengers, protein kinases, and protein phosphatases. Slow-acting neurotransmitters control the efficacy of fast synaptic transmission, both by regulating the efficiency of neurotransmitter release from presynaptic terminals and by regulating the efficiency with which fast-acting neurotransmitters produce their effects on postsynaptic receptors.

LS03. Schizophrenia: a journey from first episode to long-term stability (Sponsored by Janssen Cilag)

Chair: A. David (GB)

LS03.1
First episode schizophrenia: a targeted treatment approach

L. Kopala*. *University in Halifax, Nova Scotia, Canada*

Optimising treatment of a first episode of psychosis sets the stage to influence long-term management of illness. The primary aim of treatment is to achieve rapid remission of the acute psychotic episode using the most effective and best-tolerated treatment. The morbidity and mortality of schizophrenia can be diminished for patients treated early and consistently with second generation antipsychotics such as risperidone. It is widely recognised that recovery is related to the number and severity of relapses and thus success in the initial treatment phase influences the long-term course. Risperidone is a rapid, effective and well-tolerated medication, which can be safely used in the treatment of a first episode of psychosis. Current data indicate that one-year of consistent treatment with oral risperidone or one of the other newer atypicals results in a reduction in rehospitalisations as low as 8% compared with previously reported annual rates of 50%. There was a reduced suicide rate for the population studied. In addition to this, negligible levels of neurotoxicity, in the form of EPS, were observed along with a reduction in pre-existing baseline motor abnormalities.

In summary, early intervention in an acute or chronic first episode of psychosis with a second generation antipsychotic such as risperidone, can provide effective control of symptoms, limit neurotoxicity and reduce the incidence of non-adherence. Importantly, mortality and morbidity can be diminished.

LS03.2
Chronic symptoms of schizophrenia: improving the outlook

J. van Os. *University of Maastricht, The Netherlands*

In a substantial proportion of individuals with psychotic illness, a cascade of events starting with non-clinical psychotic experiences may develop into chronic psychosis over many years. The majority of individuals with non-clinical psychotic experiences in the general population will not develop a psychotic disorder. However, a smaller but increasing number of individuals will experience progressively more severe psychotic states, culminating in the first psychotic episode. This is known as the *psychosis toxicity hypothesis*. A large longitudinal survey has demonstrated that non-clinical psychotic experiences in the general population have the potential to become more 'toxic' with increasing length of exposure and do have a negative impact on clinical outcome. The possibility that psychotic experience itself has adverse prognostic

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