

Ethical considerations concentrate around the irrevocable destruction of brain tissue against the physician's ethical obligation to at least present and discuss appropriate options for treatment to patients who failed available pharmacological and psychotherapy.

Deep Brain Stimulation (DBS) capitalises on the knowledge of specific dysfunctional brain circuits in OCD. DBS in the same target region as capsulotomy may improve OCD by altering activity within dysfunctional circuits. Advantages of DBS are its reversibility and dynamic character (parameter settings). The spatial extent can be modified postoperatively and parameters can be set and adjusted for optimal control of symptoms while minimizing side effects. Moreover DBS can be turned on and off in a blinded fashion, allowing randomised controlled double-blind crossover studies to establish its efficiency.

## S20. Is there a role for infectious agents in the etiology of psychiatric disorders

*Chairs:* H. Emrich (D), H. Karlsson (S)

### S20.1

Epidemiology of schizophrenia

P.B. Mortensen. *Denmark*

No abstract was available at the time of printing.

### S20.2

Toxoplasma infection in schizophrenia

R.H. Yolken. *USA*

No abstract was available at the time of printing.

### S20.3

Persistent RNA viruses and nervous system dysfunctions

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A short review on how RNA viruses can be targeted to limbic structures and monoaminergic groups of neurons in the brain will be given. Certain viruses may cause neuronal destruction and be cleared, but the host animal may be left with disturbances in their behaviour by a "hit-and-run" mechanism. Other viruses may remain at a low level of replication in the brain, in which production of certain immune-derived cytokines can persist. We will present data on how a neurotropic strain of influenza A virus can persist in the brain of immunodeficient mice and after a foetal infection in wild type mice. Effects of this virus and cytokines on development of synaptic connectivities and the repertoire of neurotransmitters in neurons will then be described.

### S20.4

Endogenous retroviruses and schizophrenia

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Despite many years of research, the cause of schizophrenia has not been identified. Even though evidence for genetic as well as environmental influences are accumulating, no gene or specific environmental agent has so far been shown to cause the disease. During screening for the presence of retroviral RNA in postmortem brain tissue from individuals with schizophrenia, we identified the differential presence of human endogenous retrovirus (HERV)-W sequences in cases as compared to controls. In postmortem tissue from chronic patients HERV-W sequences were differentially up-regulated as compared to the corresponding tissue from individuals with a diagnosis of bipolar disorder or healthy controls. These sequences were subsequently found to be present in particle fractions of both cerebrospinal fluids and plasma of individuals with recent onset schizophrenia or schizoaffective disorder. Such sequences were either absent or much less prevalent in healthy controls or individuals with non-inflammatory neurological disorders.

### S20.5

Depression and Borna disease virus (BDV)

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**Objectives:** Risk-assessment of productive BDV infections in depressed patients using novel markers.

**Methods:** A tripel ELISA separately detecting BDV-specific circulating immune complexes (CICs), major proteins, and antibodies in plasma. Additionally, amplification of genetic material (BDV p40-gene) by RT-PCR.

**Results:** BDV, an unique enveloped RNA-virus (*Bornaviridae*), causes behavioural syndromes in animals, alike to mood disorders in man. Monitoring of blood from patients with Major Depression or Bipolar Disorder revealed the presence of BDV-CICs in up to 90–100%, indicating a high prevalence of active infections. Severity of depression correlated with high levels of BDV proteins (antigenemia) and RNA, paralleling CICs and antibodies. By contrast, healthy volunteers may carry (more or less) "latent" BDV infections in 20–30%.

**Conclusions:** Active BDV infection states appear to be a frequent risk in depression, which can now be assessed by high-quality blood tests and eventually treated.

### S20.6

Amantadine treatment in neuropsychiatric disorders with BDV infection

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Borna disease virus (BDV) is a neurotropic, negative and single stranded enveloped RNA virus that persistently infects various