**Schizophrenia – Clinical Neuroscience**

**Def. Schizophrenia**: Schizophrenia is a severe mental disorder, characterized by profound disruptions in thinking, affecting language, perception, and the sense of self. It often includes psychotic experiences such as hearing voices or delusions. Disruptions in thinking is the core aspect.

Thought processes such as memorization, thinking etc. is disturbed in schizophrenic individuals.

Gradient of different diseases: neurodevelopmental pathology --- affective pathology:  
Mental retardation – autism – schizophrenia – schizoaffective disorder – bipolar/unipolar mood disorder

**History**: Dementia praecox by Emil Kraepelin: chronic, degenerative disease – subacute development of a specific, simple state of mental weakness in adolescence.

Eugen Bleuler: Schizophrenia (1908): disorder of the associations, ambivalence, disorder of affectivity, autism.

**Classification**: ICD-10

**Only one needed**: thought echo (they hear their own thoughts)/insertion/withdrawal or broadcasting, delusions of control, influence, passivity and perception, hallucinations (voices), other delusions such as the ability to control the weather, communicating aliens etc. Such symptoms need to be present for one month during illness or episode.

**Two needed**: persistent hallucinations in any modality (like smell etc.), neologism, breaks in train of thought, incoherence in speech or irrelevant speech, catatonic behaviour such as excitement, posturing or negativism, mutism and stupor. Negative symptoms: apathy, paucity of speech, incongruity of emotional responses (must be clear it is not due to depression or neuroleptic medication). Exclusion: if criteria met for manic or depressive episode or if organic brain disease or alcohol- or drug-related intoxication/dependence/withdrawal. Must be present most of the time during a month.

**Clinical representation**

**Perception-like experiences** of any sense and intensity (can even be full force of normal perceptions) that occur during clear sensorium (during the day, NOT when falling asleep or waking up).

**Delusions** are fixed beliefs that are not amenable to change in light of conflicting evidence, such as the delusion of having exceptional abilities, wealth, fame, that someone is in love with oneself, that someone will harm you, that comments, gestures etc. are directed at oneself.

Delusional mood: unjustified, diffuse expectation that something is wrong or something bad is going to happen.

**Ego disturbances** is the weakening or loss of the ability to distinguish between self and other. Examples: thought insertion, withdrawal, broadcasting, delusion of control (someone controls motor functions for example), derealization and depersonalization (when feeling or emotions are somewhat out of order or not real). The destruction of the boundaries between the individual and the environment. This can lead to massive stress.

**Formal thought disorder** are disturbances to generate a logical sequence of ideas (train of thought) typically manifesting in an individual’s speech, such as rumination, circumstantiality, tangentiality, loosening of associations and derailment, neologism, flight of ideas, thought pressure (too many ideas) or blocking, incoherence (severe disorganization that makes speech incomprehensible).

**Negative symptoms** are the reduction in normal functions, such as affective flattening, anhedonia, apathy, alogia etc.

**Catatonia** is the grossly abnormal motor behaviour marked by an excess or lack of motor activity in reaction to one’s environment. Examples: negativism (no response to external stimuli), mutism (little verbal response), muscular rigidity, stupor (no reaction to environment – not even certain reflexes), agitation (excessive excitability and motor activation), stereotypy (repetitive, non-goal directed movements).

**Structural brain changes**

Cortical thickness reduced in schizophrenic patients. Another effect might also be neuroleptic medication to account for the decrease in cortical thickness.

**Diagnosis**

Clinical assessment, blood tests, CSF, fMRI, EEG and neurocognitive assessment.

**Differential diagnosis**

Somatic disorders: inflammatory brain disease, traumatic brain disease, epilepsy, autoimmune disease, metabolic conditions, substance induced psychosis.

Other mental disorders: acute transient psychotic disorders, delusional disorder, schizoaffective disorder, mania or depression with psychotic symptoms.

**Genetics**

Involved genes: synaptic proteins like neuregulin and dysbindin, genes for ion channels, receptors, enzymes like monoamine oxidase A, major histocompatibility complex.

Risk is increased if there are family members with schizophrenia.

**Vulnerability-stress model**: relation between vulnerability and challenging events (stressful life events). The higher vulnerability the greater the risk of developing a disease with few or no stressful life events.

There are disturbances in dopaminergic neurotransmission. Mesolimbic overactivity leads to positive symptoms. Same for glutamatergic system for developing positive symptoms.

**Epidemiology**

Prevalence: 1%. Sex: males more at risk than females. Higher risk for urban populations.

**Prognosis**

5-10% die by suicide. Somatic illnesses: unhealthy life style including smoking, suboptimal treatment of physical disorders, side effects of psychotropic medication.

Schizophrenia can take all kinds of courses of the disease. 1/3 have good remission, 1/3 have partial remission and 1/3 is chronic.

**Therapy**

Social+Biomedical+Psychological = Health.

Psychoeducation aims to empower people suffering from schizophrenia by giving them information and knowledge about their illness.

**Social therapies**: Social skills training, family therapy, vocational rehabilitation and supported employment, supported housing (living in a community if living alone is a problem).

**Exam**: name main criteria, how to diagnose, main hypothesis and how to treat them and overview of schizophrenia in general.